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EDITED BY

THOMAS L. STEDMAN, A.M., M.D.

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Original Articles.

OPERATIONS FOR URINARY CALCULI.

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THE following tables are in continuation of those published in the MEDICAL RECORD of July 28, 1877, and October 30, 1880. The numbers are those of the author's case-book. The operation indicated by the name Post is described in the notes on the first of the above tables. By the Italian operation is meant the median perineal. Many of the smaller stones were removed from very short incisions, too small to permit of the entrance of the finger into the bladder. Many of them healed by first intention. In few of them was there any noteworthy hemorrhage. The Arabic operation is made by introducing one or two fingers into the rectum, prying the stone downward so as to make it prominent in perineum, and cutting down on it with a razor. The sphincter is frequently cut in this operation, leaving a fistula which is often incurable.

I.—VESICAL CALCULI REMOVED BY PERINEAL LITHOTOMY.

No.	Name	Age	Residence	Duration	Date	Operation	No. of Stones	Shape	Weight, Gms.	Return of Urine per Urethram	Analysis	Results
149	Michail	60	Damascus	4 years	Sept. 15, 1880	Lateral.	1	Long ovoid	96.	.....	Urates	Recovery.
152	Nicola	3	Beirût	6 months	Dec. 2, 1880	Lateral.	1	Spherical	1.5	7 days	Urates	Recovery.
154	Amîn	35	Markob	1 year	May 18, 1881	Lateral.	1	Flat sphr'd.	350.	.....	Uric Acid	
155	Abdallah	47	Jaffa	6 years	May 25, 1881	Lateral.	1	Oblong	67.	.....	Urates coated with Phosp's	Recovery.
156	Butrus	6	Beirût	1 year	May 27, 1881	Post	1	Long oval	0.3	4 days	Phosphates	Recovery.
157	Ali	4	Hamath	1 year	July 1, 1881	Post	1	Long oval	2.	6-8 days	Urates	Recovery.
158	Michail	4	B'libba	4 months	July 5, 1881	Post	1	Very l. oval	4.5	5 days	Phosphates	Recovery.
159	Salîm	18	Rashaiya	1 month	July 12, 1881	Post	1	Cylindrical	3.7	.....	Phosphates	Recovery.
161	Musa	24	Kafrûn	F'm inf'cy	Sept. 7, 1881	Lateral.	1	Oblong	82.5	.....	Urates coated with Phosphates.	D'th, S'ck.
162	Giurgius	45	Hammâna	2 years	Nov. 4, 1881	Post	1	Ob. sph'oid	41.	.....	Uric Acid	D'th, h'rge
164	Salîm	3	Beirût	2 weeks	Jan. 27, 1882	Post	1	Ellipsoid	0.07	1 day	Urates	Recovery.
166	Khalid	13	Hamath	F'm inf'cy	April 14, 1882	Post	3	Tri'glar py'dal.	30.5 22. 21.	.....	Phosphates	D'th from con. v'm'g
167	Abdallah		Hamath	2 years	April 19, 1882	Lateral.	1	Spherical	30	.....	Ox. Lime	Death.
169	Hanna	14	Sidon	2 years	May 12, 1882	Post	1	Ovoid	2.	3-24 days	Ox. Lime	Recovery.
171	Habîb	10	Mardîn	4 years	June 28, 1882	Italian	1	Ovoid	12.5	4-12 days	Urates	Recovery.
172	Asaad	3	Beirût	1 year	July 14, 1882	Post	1	Pro. spher.	1.	F'm oper'n.	Urates	Recovery.
173	Dikrân	5	Adana	1 year	July 15, 1882	Post	1	Ovoid	5.5	4-10 days	Phosphates	Recovery.
176	Omar	13	Lattakia	3 years	Sept. 16, 1882	Post	1	Oblong	23.	2-7 days	Urates	Recovery.
177	Khalîl	33	Amiûn	3 years	Sept. 27, 1882	Lateral.	1	Ovoid	40.	20 days	Urates	Recovery.
178	Tonnos	3	Aba	1 year	Sept. 29, 1882	Lateral.	1	Ovoid	6.	.....	Urates	Recovery.
179	Abdallah	4	Damascus	2 years	Oct. 17, 1882	Lateral.	1	Fusiform	1.	.....	Phospbates	Recovery.
181	Abdallah	3	Beirût	5 months	Jan. 6, 1883	Italian	1	Ovoid	1.	10-14 days	Urates	Recovery.
182	Hanna	7	Deir Mimas	3 years	Mar. 24, 1883	Post	1	Oblong	6.	11-13 days	Ox. Lime	Recovery.
185	Ali	4	Damascus	1 year	April 10, 1883	Italian	1	Flat ovoid	.....	1-10 days	Urates	Recovery.
187	Ridha	6	Damascus	1 year	May 10, 1883	Italian	3	Oval	2. 2. 1.5	6 days	Phosphates	Recovery.
188	Husein	4	El Huleh	2 months	June 8, 1883	Italian	1	Oblong	7.	F'm oper'n.	Urates	Recovery.
189	Haidar	3	Burj-el-Berajeni	1½ month	June 15, 1885	Italian	1	Long oval	0.4	1 day	Phosphates	Recovery.
190	Lorenz	4	Beirût	2 months	June 14, 1883	Post	2	Flat oval	2.4	1 day	Phosphates	Recovery.
191	Elias	23	Antelias	20 years	June 18, 1883	Post	2	Oblong	12.	F'm oper'n.	Ox. Lime coated with Ur's	Recovery.
192	Ali	3	Burj-el-Berajeni	2 months	June 19, 1883	Italian	1	Ovoid	0.15	2-6 days	Urates	Recovery.
193	Abd	1½	Safed	5 months	Sept. 15, 1883	Italian	1	Flat oval	4.6	8-10 days	Urates	Recovery.
196	Nasif	3	Nabk	6 months	Oct. 9, 1883	Italian	1	Oblong	2.	.....	Urates	Recovery.
198	Hassan	13	Esb-Shukif	5 years	Oct. 26, 1883	Post	1	Spherical	27.	7-14 days	Ox. of Lime	Recovery.
200	Aladdin	6	Hems	7 months	Nov. 29, 1883	Italian	1	Oblong	1.	4 days	Urates	Recovery.
201	Jamîl	1 year, 10 mo.	Damascus	3 months	Dec. 13, 1883	Italian	2	Cyl. & sph'l	13.5	.....	Phosphates	D'h f'm Sk'
203	Fethallah	4	Beirût	1 year	Jan., 1884	Italian	1	Ob. spher'd	0.52	7 days	Phospbates	Recovery.
204	Ibrahim	6	Adana	2 years	Feb. 20, 1884	Lateral.	1	Spherical	72.5	35 days	Urates	Recovery.
205	Suleiman	10	Adana	3 years	April 6, 1884	Post	1	Oblong	12.5	5 days	Phosphates	Recovery.
206	Giurgius	3½	B'tughrîn	6 months	April 12, 1884	Post	1	Ovoid	1.5	2 days	Urates	Recovery.
208	Besharah	7	Batrûn	1 year	April 15, 1884	Post	1	Spherical	3.	.....	Ox. Lime	Recovery.
212	Nicola	6	Sidon	1 yr., 2 mo.	July 29, 1884	Italian	2	Oblong	5.	8 days	Phosphates	Recovery.
213	Iskandar	7	Beirût	4 years	July 29, 1884	Lateral.	1	Spherical	8.	8 days	Ox. of Lime	Recovery.
215	Suleiman	4	Shikka	7 months	Oct. 16, 1884	Italian	1	Oval	5.	4-8 days	Urates	Recovery.
216	Rasoul	18	Hems	5 years	Oct. 28, 1884	Post	1	Oval	47.	10-18 days	Ox. Lime	Recovery.
217	Kheirallah	9	Sidon	F'm inf'cy	Nov. 26, 1884	Post	1	Oblong	36.	17 days	Urates	Recovery.
218	Rad	4	Akkar	.....	Dec. 16, 1884	Post	1	Oval	12.5	8 days	Urates	Recovery.
220	Taufik	3	Beirût	.....	April 28, 1885	Italian	1	Oblong	2.	.....	Urates	Recovery.
221	Nicola	5	Kisba	.....	May 9, 1885	Italian	1	Oval	14.	.....	Phosphates	Recovery.
227	Yusuf	1½	Beirût	F'm inf'cy	Nov. 5, 1885	Italian	1	Oblong	2.	10 days	Urates	Recovery.
228	Jacob	4	Sin el Fîl	3 years	Nov. 27, 1885	Italian	1	Oblong	1.5	10 days	Urates	Recovery.
231	Yusuf	3	Hasrûn	8 months	Dec. 10, 1885	Italian	1	Oblong	0.20	12 days	Urates	Recovery.
232	Najîb	4	Louaiz	1½ years	Dec. 14, 1885	Post	1	Flat oval	4.	10 days	Phosphates	Recovery.
235	Musbah	4	Beirût	Infancy	April 9, 1886	Post	1	Ob. spher'd	5.3	12 days	Phosphates	Recovery.
230	Najîb	2½	Aleth	10 months	June 30, 1886	Post	1	Flat oval	3.	3 days	Phosphates	Recovery.
242	Mustapha	18	Beirût	8 years	July 13, 1886	Med'n & bil'ral.	1	Spherical	68.	.....	Ox. of Lime	Recovery.
243	Najîb	3	Beirût	6 months	Aug. 3, 1886	Italian	1	Oblong	4.	7 days	Urates	Recovery.
245	Tarrâf	4	Zebedâni	1 month	Sept. 3, 1886	Post	1	Rhomhoid	0.3	10 days	Urates	Recovery.
247	Hammûd	6	B'teddîn	.....	Oct. 11, 1886	Italian	1	Oval	10.	12 days	Phosphates	Recovery.
249	Aristides	4	Adana	6 months	Nov. 26, 1886	Italian	1	Oblong	3	7-12 days	Phosphates	Recovery.
250	Majîd	8	Adana	2 years	Nov. 26, 1886	Post	1	Ob. spher'd	11.	7-12 days	Phosphates	Recovery.
253	Elias	7	Beirût	.....	Mar. 16, 1887	Post	1	Spherical	14.	12 days	Phosphates	Recovery.
258	Joseph	15	Deir-el-Komr	4 years	Oct. 13, 1888	Italian	1	Oblong	2.	4 days	Phosphates	Recovery.

I.—VESICAL CALCULI REMOVED BY PERINEAL LITHOTOMY. (Continued.)

No.	Name	Age	Residence	Duration	Date	Operation	No. of Stones	Shape	Weight, Gms.	Return of Urine per Urethram	Analysis	Results
259	Wahan.....	6	Adana.....	8 months..	Oct. 26, 1888	Italian...	1	Oblong....	2.5	.....	Phosphates...	Recovery.
260	Asaad.....	2	Beirût.....	Infancy....	Nov. 8, 1888	Italian...	1	Ovoid.....	0.3	F'm oper'n.	Urates.....	Recovery.
262	Salîm.....	4	Beirût.....	6 months..	Nov. 21, 1888	Post.....	1	Tri. ovoid..	10.	7-12 days..	Urates.....	Recovery.
263	Elias.....	12	Lattakia....	Infancy....	Jan. 18, 1889	Lateral.	1	Flat oval..	10.	13-20 days.	Phosphates...	Recovery.
264	Ibrahîm....	10	Sidon.....	2 months..	Jan. 1, 1889	Lateral.	1	Oblong....	0.75	6-11 days..	Urates.....	Recovery.
265	Hassan.....	18	Hems.....	3 years....	Mar. 23, 1889	Italian...	1	Flat oval..	0-35	0-35 days.	Ox. Lime...	Recovery.
266	Taufik.....	4½	Safita.....	1 year.....	April 20, 1889	Italian...	1	Spherical..	2.	10 days....	Uric Acid...	Recovery.
268	Geordа.....	6	Cesarea (A a Minor).....	3 years....	May 30, 1880	Post.....	1	Oval.....	4.5	2-5 days. .	Urates.....	Recovery.
270	Musbah.....	5	Beirût.....	4 years....	June 8, 1889	Italian...	2	Ovoid.....	1.5	4 days.....	Ur's & Phos..	Recovery.
273	Ismail.....	6	Adana.....	2 years....	June 20, 1889	Italian...	1	Oval.....	5.25	10-18 days.	Phosphates...	Recovery.
274	Nakhleh....	10	Alexandria	Infancy....	July 21, 1889	Lateral.	2	Pyramidal..	19.	8 days.....	Urates.....	Recovery.
275	Nasîb.....	2½	Baitrûn.....	1 year.....	July 9, 1889	Italian...	1	Oval.....	2.3	1 day.....	Urates.....	Recovery.
276	Asaad.....	5	Jûn.....	4 months..	July 30, 1889	Italian...	1	Oblong....	1.	12 days....	Urates.....	Recovery.
277	Hassan.....	25	Nablûs.....	7 years....	Oct. 19, 1889	Italian & bilat'l..	1	Flat oval..	80.	2 months...	Urates.....	Recovery.
279	Ahmed.....	3	Beirût.....	6 months..	Nov. 1, 1889	Italian...	1	Oblong....	1.	1 day.....	Urates.....	Recovery.
280	.....	2½	Judeidah....	1½ years...	Nov. 2, 1889	Italian...	1	Flat oval..	0.70	7 days.....	Urates.....	Recovery.
284	Yakub.....	10	Sin el Fil....	1 year.....	Feb. 7, 1890	Italian...	2	Ovate.....	5.65	30 days....	Phos & ura's	Recovery.
286	Kaisar.....	7	Deir Mimas....	4-5 years...	Mar. 20, 1890	Italian...	1	Ob. spher'd	5.60	10 days....	Urates.....	Recovery.
288	Mustapha..	38	Nablus.....	20 years...	April 1, 1890	Italian...	1	.....	1.	2 days.....	.....	Recovery.
289	Constantine	3	Beirût.....	.....	April 25, 1890	Italian...	1	Ovoid.....	1.3	2 days.....	Urates.....	Recovery.
290	Mohammad	3	Beirût.....	.....	May 30, 1890	Italian...	1	Spherical..	0.8	F'm oper'n.	Urates.....	Recovery.
296	Jeddua.....	7	Haurâo.....	2 years....	Sept. 25, 1890	Italian...	1	Ob. spher'd	14.2	10-18 days.	Urates.....	Recovery.
297	Simaan.....	5	Monsoori'yah..	1½ years...	Sept. 30, 1890	Italian...	1	Flat oval..	5.7	7-10 days..	Uric Acid...	Recovery.
298	Taufik.....	10	Damascus.....	8 years....	Oct. 6, 1890	Italian...	1	Flat oblong	12.5	3-8 days...	Phosphates...	Recovery.
299	Beshara ...	8	Beirût.....	4 months..	Oct. 14, 1890	Italian...	1	Flat oval..	6.	F'm oper'n.	Urates.....	Recovery.
300	Abd-er-Ra'n	4	Beirût.....	.....	Nov. 20, 1890	Italian...	1	Ovoid.....	9.	7 days....	Phosphates...	Recovery.
301	Karam.....	4½	Su-el-Gharb....	1½ years...	Jan. 22, 1891	Italian...	1	Oblong....	1.5	F'm oper'n.	Uric Acid...	Recovery.
303	Naman.....	2	Judeidât Merjuyun	4 months..	Feb. 21, 1891	Italian...	1	Ov. triang.	3.	.....	Phosphates...	Recovery.
311	Carabet.....	3	Adana.....	1 year.....	June 10, 1891	Italian...	1	Oval.....	3.	2 days....	Phosphates...	Recovery.
312	Giurgius....	3	Kefr Kotrah....	6 months..	June 30, 1891	Italian...	1	Flat oval..	5.	7 days.....	Urates.....	Recovery.
314	Ahmed.....	1½	Beirût.....	2½ months.	Sept. 2, 1891	Italian...	1	Ob. spher'd	2.	F'm oper'n.	Urates.....	Recovery.
315	Mahmûd....	5	Tripoli.....	2 months..	Sept 11, 1891	Italian...	1	Oblong....	3.	F'm oper'n.	Ur's & phos..	Recovery.
316	Saliah.....	15	Safita.....	2 years....	Sept. 15, 1891	Lateral.	1	Ovoid.....	10.	.....	Urates.....	Recovery.
318	Ali.....	2	Mezraat-esh-Shûf	Infancy....	Jan. 1, 1892	Italian...	2	Pyramidal..	18.	.....	Phosphates...	Recovery.
320	Luis.....	3	Beirût.....	.....	Jan. 6, 1892	Italian...	1	Flat oval..	0.07	2 days....	Ur's & Phos..	Recovery.
323	Hussein....	3½	.....	.....	May 13, 1892	Italian...	1	Ovoid.....	3.	2-7 days...	Phosphates...	Recovery.
328	Wadia.....	4	Tyre.....	1 year.....	June 14, 1892	Italian...	1	Flat ovoid..	2.5	1-10 days..	Urates.....	Recovery.
32	Khalîl.....	13	Judaidat-Damascus.....	4 years....	June 17, 1892	Lateral.	1	Flat ovoid..	0.4	12-20 days.	Phosphates...	Recovery.
332	Na'im.....	2½	Cyprus.....	3 months..	June 20, 1892	Italian...	1	Almond....	4.	4 days.....	Phosphates...	Recovery.
333	Spiro.....	4	Tarsus.....	2 years....	July 7, 1892	Italian...	1	Ovoid.....	4.	F'm oper'n.	Urates.....	Recovery.
335	Yakub.....	12	Sin-el-Fil.....	.....	June, 1902	.....	.....	.....	.....	.....	.....	Recovery.
343	Ahmed.....	13	Arvad.....	3 years....	Feb. 23, 1893	Med'n & bilater'l	1	Spherical..	38.	20-57 days	Ox. of Lime..	Recovery.
344	Armerak....	3	Adana.....	1 year.....	Mar. 8, 1893	Med'n & lateral.	1	Oblong....	13.5	6-12 days..	Phosphates...	Recovery.
349	Mahmûd....	7	Beirût.....	6 months..	July 11, 1893	Italian...	1	Oblong....	0.5	F'm oper'n.	Urates.....	Recovery.
350	Salîm.....	2	.....	1 year.....	Dec. 21, 1893	Italian...	1	Oblong....	3.25	6-10 days.	Phosphates...	Recovery.
351	Kasim.....	2½	Zahleh.....	.....	Feb. 9, 1894	Italian...	1	Flat oval..	4.	5-8 days...	Urates.....	Recovery.
352	Jamâd.....	4	Schweifât.....	.....	Mar. 30, 1894	Italian...	1	Ovoid.....	2.	5-10 days..	Urates.....	Recovery.
357	Eed.....	5	Deir Mimâs.....	1½ month.	May 12, 1894	Italian...	1	Ovoid.....	0.5	5-8 days...	Urates.....	Recovery.
360	Abd el Mutallab....	6	Berashîd.....	3 months..	June 23, 1894	Italian...	1	Tri. ovoid...	10.	3-7 days...	Phosphates...	Recovery.
362	Yusuf	36	Alexandria.....	4 years....	July 1, 1894	Italian...	1	Flat oval..	14.	60 days....	Ur's & Phos..	Recovery.
364	Bedia.....	8	Sidon.....	4 years....	Aug. 26, 1894	Italian...	1	Spherical..	3.	6-10 days.	Urates.....	Recovery.
366	David.....	2	Safed.....	1 year.....	Aug. 21, 1894	Italian...	1	Flat oval..	2.	5-10 days.	Urates.....	Recovery.
368	Muhammad.	6	Sidon.....	4 months..	Oct. 22, 1894	Italian...	1	Flat oval..	2.	1-18 days.	Urates.....	Recovery.
369	Abbûd.....	5	Safîta.....	1 year.....	Oct. 23, 1894	Italian...	1	Spherical..	0.3	10-25 days	Urates.....	Recovery.
370	Muhammad.	5	Safîta.....	Infancy....	Oct. 23, 1894	Italian...	1	Flat oval..	2.	5-8 days...	Urates.....	Recovery.
380	Hussein....	5	Lattakia.....	.....	June 20, 1895	Italian...	1	Flat oval..	6.	2d day.....	Urates.....	Recovery.
381	Farîd.....	3	Sidon.....	6 months..	July 5, 1895	Italian...	1	Oval.....	2.	2d day.....	Urates.....	Recovery.
383	Najîb.....	3	Mejd-el-Ma'ûsh.	1 month..	July 16, 1895	Italian...	1	Flat oval..	0.3	2d day.....	Urates.....	Recovery.
384	Safîr.....	6	Mejd-el-Ma'ûsh.	6 months..	July 16, 1895	Italian...	1	Flat oval..	0.6	2d day.....	Urates.....	Recovery.
385	Lutfallah....	8	Juneh.....	4 months..	July 20, 1895	Italian...	1	Oblong....	7.	4th day....	Urates.....	Recovery.
386	Antûn.....	20 mo.	Zahleh.....	1 month...	Aug. 8, 1895	Italian...	1	Spherical..	0.3	4th day....	Urates.....	Recovery.
390	Ali.....	6	Safîta.....	6 months..	Sept. 23, 1895	Italian...	3	Oblong....	6.	.....	Phosphates...	Recovery.
391	Yusuf.....	14	Dhohr Sofra...	5 years....	Oct. 18, 1895	Italian...	1	.....	0.5	.....	Phosphates...	Recovery.
397	Mulhim.....	4	B'aaqlîn.....	1 year.....	Dec. 24, 1895	Med. section & perineal lith'axy	1	.....	3.5	2d day....	Phosphates...	Recovery.
400	Elias.....	10	Shubtîn.....	4 months..	May 4, 1896	Italian...	1	Oblong....	4.	5-8 days...	Phosphates...	Recovery.
401	Mustapha..	2½	Tripoli.....	1 year.....	May 8, 1896	Italian...	1	Oblong....	5.	.....	Phosphates...	Recovery.
403	Ghannûm...	6	Beirût.....	1 year.....	June 16, 1896	Italian...	1	Oblong....	2.5	.....	Ox. of Lime..	Recovery.
404	I H el Khuri	2½	Lydda.....	1 year.....	Aug. 22, 1896	Italian...	1	Oblong....	5.	5th day....	Urates.....	Recovery.
407	Habîb.....	5	Safîta.....	1 year.....	Aug. 26, 1896	Lateral.	1	Oblong....	6.	10th day...	Urates.....	Recovery.
408	Sidki	5	Slevkîyeh.....	2 years....	Oct. 8, 1896	Lateral.	1	Tri. ovoid..	2.	4-7 days...	Urates.....	Recovery.
413	Yusuf.....	6	Mejd-el-Ma'ûsh.	1 year.....	Dec. 7, 1896	Lateral.	1	Tri. ovoid..	2.6	7-10 days.	Ox. of Lime..	Recovery.
414	Dîb.....	4	Zahleh.....	4 months..	Apr. 1, 1897	Italian...	1	Oblong....	1.5	F'm oper'n.	Urates.....	Recovery.
421	Fuûl.....	2	Kefo Dunîn....	8 months..	July 30, 1897	Italian...	1	Oblong....	1.5	7th day....	Phosphates...	Recovery.
426	Muhammad	4	Sidon.....	2 years....	Oct. 2, 1897	Italian & bilat'l..	2	Ovoid.....	4. & 5.	10 days....	Phosphates...	Recovery.
428	Monsoor....	3	Mughaiyiriegeh.	1 year.....	Oct. 9, 1897	Italian...	1	Oblong....	2.3	14 days....	Urates.....	Recovery.
429	Ibrahîm....	4	Beirût.....	6 months..	Oct. 15, 1897	Italian...	1	Oval.....	1.5	10 days....	Urates.....	Recovery.
430	.....	15	Damascus.....	Infancy....	Oct. 15, 1897	Italian...	4	Obl. sph'd..	2.5	33 days....	Urates.....	Recovery.
433	Hassan.....	12	Adlûn.....	1 year.....	Oct. 30, 1897	Lateral.	1	Oblong....	15.	18 days....	Phosphates...	Recovery.
435	Romanus....	7	Hammana.....	6 months..	Dec. 18, 1897	Italian...	1	Spherical..	8.	.....	Ox. of Lime..	Recovery.
436	.....	6	.....	.....	.....	Italian...	1	Ob. spher'l	1.5	.....	Urates.....	Recovery.
439	Jawwâd....	2½	Jûn.....	4 months..	April 9, 1898	Italian...	1	Oval.....	6.	F'm oper'n.	Urates.....	Recovery.
441	Istafân....	70	Ghazîr.....	1 year.....	June 13, 1898	Lateral.	1	Flat oval..	43.5	8d days....	Urates.....	Recovery.
444	Mahammad	5	Lattakia.....	.....	June 14, 1898	Italian...	1	Oblong....	7.	3d day.....	Urates.....	Recovery.
445	Khalîl.....	3	Jaffa.....	7 months..	July 2, 1898	Italian...	1	Oval.....	1.	7th day....	Urates.....	Recovery.
446	Kiriako....	5	Alaya.....	18 months.	July 4, 1898	Italian...	1	Ov. triang.	3.	4th day....	Urates.....	Recovery.
448	Baraj	3½	Sîs.....	2 years....	July 21, 1898	Italian...	1	Oval.....	2.	.....	Urates.....	Recovery.
449	Stiliano...	8	Cyprus.....	6 years....	July 31, 1898	Italian...	1	Flat ovoid..	7.5	.....	Urates.....	Recovery.
461	Elmir.....	6	Ain Zehalta....	6 months..	Dec. 12, 1898	Italian...	1	Oblong....	1.	12 days....	Phosphates...	Recovery.
453	Mustapha..	7	Rumeh.....	8 months..	Oct. 29, 1898	Italian...	1	Triangular..	3.	7th day....	Urates.....	Recovery.
469	Daul	6	Beirût.....	.....	July 1, 1899	Italian...	1	Oval.....	1.5	10th day..	Urates.....	Recovery.
477	Nicola.....	2½	Cyprus.....	18 months.	Mar. 17, 1900	Italian...	1	Oblong....	12.5	8 days.....	Urates.....	Recovery.
478	Muhammad	1½	Beirût.....	2½ months.	Mar 17, 1900	Italian...	1	Oval.....	4.	10 days....	Phosphates...	Recovery.
479	Abd-er-Raûf	2	Beirût.....	1 month...	Mar 24, 1900	Italian...	1	Oblong....	1.2	8 days.....	Phosphates...	Recovery.
481	Muhammad	2	Beirût.....	2 months..	May 31, 1900	Italian...	1	Oval.....	1.5	.....	Phosphates...	Recovery.
482	Nicola.....	3½	Jaffa.....	10 months.	June 7, 1900	Italian...	1	Tri. ovoid..	3.5	10 days....	Urates.....	Recovery.
483	Mukhlis ..	4	Constantinople.	Infancy....	June 13, 1900	Italian...	1	Triang. ov.	5.	.....	Urates.....	Recovery.
485	Hassan.....	4	Hamath.....	2 months..	June 26, 1900	Italian...	1	Ovate.....	0.3	2d day....	Urates.....	Recovery.
486	Mahmûd....	4	Lattakia.....	1½ years...	July 17, 1900	Italian...	1	Spherical..	2.5	7th day....	Ox. of Lime..	Recovery.
488	Farîd.....	2½	Juneh.....	1 year.....	Aug. 27, 1900	Italian...	1	Oblong....	1.4	11 days....	Uric Acid...	Recovery.
490	Butrus....	4½	Sahil Alma	1 year.....	Sept. 4, 1900	Italian...	1	Pyramidal..	0.3	10 days....	Uric Acid...	Recovery.
491	Ahmad.....	12	Sidon.....	2 years....	Oct. 13, 1900	Italian...	1	Ovoid.....	7.5	9 days.....	Phosphates...	Recovery.
493	Dîb.....	12	Jaffa.....	1 years....	Oct. 17, 1900	Italian...	1	Oblong....	2.45	20 days....	Phosphates...	Recovery.
497	Elias.....	2	Hasheiya.....	1 year.....	Nov. 22, 1900	Italian...	2	Pyramidal..	2.30	2d day.....	Phosphates...	Recovery.

I.—VESICAL CALCULI REMOVED BY PERINEAL LITHOTOMY (Continued)

No.	Name	Age	Residence	Duration	Date	Operation	No. of Stones	Shape	Weight, Gms.	Return of Urine per Urethram	Analysis	Result.
498	Mahmûd	2	Bar Elias	4 months	Nov. 26, 1900	Lateral.	1	Ovate	2.	20 days	Urates	Recovery.
500	Abdallah	4	Nasâr	2½ years	Dec. 13, 1900	Italian	1	Oblong	1.	10th day	Urates	Recovery.
502	Abdallah	5	Nasâr	6 months	Feb. 2, 1901	Italian	1	Oblong	10.	14th day	Urates	Recovery.
503	Mulhim	2	Kefr Fakûr	3 months	Feb. 14, 1901	Italian	1	Oblong	6.5	12 days	Phosphates	Recovery.
507	Saad Allah	2½	Beirût	Infancy	April 13, 1901	Italian	1		1.5	2-5 days		Recovery.
508	Shubân	3	Beirût	2 months	April 15, 1901	Italian	1	Oblong	9.	4 days	Urates	Recovery.
510	Khalîl	4	Kefr Nebrakh	2 weeks	April 22, 1901	Italian	1	Spherical	3.	10 days	Ox. Lime	Recovery.
511	Suleiman	7	Rasheiya	1½ years	May 8, 1901	Italian	1	Spherical	40.	20 days	Phosphates	Recovery.
513	Abd-el-Ghâ'i	13	Beirût	Childhood.	July 3, 1901	Italian	1		11.	20 days		Recovery.
514	Nicola	4	Juneh	1 year	July 5, 1901	Italian	1	Oval	4.	25 days	Ox. Lime	Recovery.
516	Mordecai	4	Safed	3 months	July 20, 1901	Italian	1	Oval	0.3	4 days	Urates	Recovery.
517	Melakh	3	Jaffa	9 months	July 20, 1901	Italian	1	Pro. sph'd.	0.2	10 days	Urates	Recovery.
518	Mubammad	3½	Nabatîyeh	2 years	Aug. 7, 1901	Italian	1	Oblong	5.	7 days	Urates	Recovery.
520	Mahmud	4	Sidon	4 months	Sept. 13, 1901	Italian	1	Flat ovoid.	2.	11 days	Urates	Recovery.
521	Hassan	30	Mersine	10 years	Sept. 12, 1901	Lateral.	1	Spherical	25.		Phosphates	Death.
522	Abd-er-Ras'l	6	Merj Augûn		Sept. 28, 1901	Italian	1	Oval	2.75	F'm oper'n.	Uric Acid	Recovery.
523	Ahmed	3	Iebaa		Oct. 3, 1901	Italian	1	Oval	2.5	10 days	Urates	Recovery.
524	Muhammad	3	Damascus		Oct. 20, 1901	Italian	1	Oblate sph.	7.5		Urates	Recovery.
525	Ibrahim	9	Beirût	3 years	Nov. 16, 1901	Italian	1	Spherical	21.5	14 days	Ox. Lime	Recovery.
526	Nasîf	4	Nabatîyeh		Nov. 20, 1901	Italian	1	Spherical	4.5	10 days	Urates	Recovery.
528	Raouf	14	El-Khiyam	2 years	Dec. 2, 1901	Italian	1	Oblong	17.5		Phosphates	Recovery.
529	Majîd	6	Deir Mimas		Dec. 21, 1901	Italian	1	Oblong	3.5	10 days	Ox. Lime	Recovery.
531	Hassan	3	Beirût	2 weeks	Mar. 3, 1902	Italian	1	Oblong	0.3	10 days	Phosphates	Recovery.
536	Nicola	5	Zahleh		May 4, 1902	Italian	1	Oval	0.7	1-4 days	Urates	Recovery.
538	Yusuf	8	Beirût	1 year	June 7, 1902	Italian	1	Ir'ly oblo'g w'h angular bend.	6.	8 days	Urates	Recovery.
540	Edwar	40	Beirût	4 months	June 28, 1902	Italian	1	Oblong	1.5	8 days	Phosphates	Recovery.
542	Muhammad	3	Nabatîyeh		Aug. 2, 1902	Italian	1	Ob. spher'd	1.		Phosphates	Recovery.
543	Girgi	5	Batrûn	3 months	Aug. 12, 1902	Italian	1	Oblong	1.5		Phosphates	Recovery.
544	Mujallah	4	Haurân	1 year	Aug. 22, 1902	Italian	1	Oblong	1.5		Phosphates	Recovery.
545	Kamil	14	Damascus	8 months	Aug. 22, 1902	Italian	1	Oblong	6.		Phosphates	Recovery.
560	Georg	3	Beirût	1 year	Oct. 7, 1903	Italian	1	Ob. sph'd.	3.	Time of Op.	Urates	Recovery.
563	Ahmed	4	Sidon	1 year	Dec. 30, 1903	Italian	3	Pyramidal.	15.	11 days	Phosphates	Recovery.
574	Ali	8	Sidon	1 month	May 24, 1904	Italian	10	Various	9.		Phosphates	Recovery.
577	Kâsim		Rishmaya	18 months	June 28, 1904	Italian	1	Flat oval	1.	12 days	Urates	Recovery.
580	Abd-er-R'an	13	Hamath	8 months	July 4, 1904	Italian	3	Oblong	8.	10 days	Urates	Recovery.
585	Muhammad	12	Bar Elias	9 months	Mar. 6, 1905	Italian	1	Ovoid	4.	Time of Op.	Phosphates	Recovery.

NOTES.

149. This case was complicated with chronic bronchitis and fatty heart. There was considerable hemorrhage at time of operation, arrested by Liq. Ferri Perchloridi. On the 29th of October he left for his home. He had had troublesome diarrhea, which was cured when he left. He had, however, bedsores, and his bronchitis was still very troublesome. Wound not healed. No subsequent history.

154. Perineal fistula remained after operation. Wound was gradually contracting until two months after operation, when patient was taken with diarrhea after imprudence in diet, and died.

158. The father says that the boy passed two stones a year ago per urethram. In the meantime he was free from symptoms until four months ago.

159. Had a median operation done in infancy for a very large stone. The cicatrix of the old wound much corrugated. Has complained of symptoms of stone only one month. It is probable, however, that the stone was much longer in forming.

162. Hemorrhage. Tubed; packed with sponges saturated with perchloride. Patient died after six days of septicemia.

164. Opening into bladder only large enough to admit a dressing forceps, with which the stone was extracted.

187. Had had a bilateral lithotomy done in Damascus a year previous, and one stone removed. Symptoms of stone remained. No staff or sound could be passed into the bladder. A staff was passed to membranous urethra, the urethra opened, and a probe introduced into the bladder. A grooved director was then introduced into the bladder and the neck incised in median line and the stones removed.

204. Operation commenced as a litholopaxy, with a Civiale's fenestrated lithotrite. After considerably reducing the size of the stone the female blade snapped off in the bladder. The operation was completed by perineal section.

221. Several months before operation a surgeon had cut for stone, but did not succeed in removing it, only two fragments coming away in the grasp of the forceps. A perineal fistula remained, through which the stone could be felt. The stone, which was as large as a walnut, was tightly embraced by the empty bladder. The fistulous track was enlarged in the median line, and the stone grasped and crushed by the forceps, and extracted piecemeal.

274. The boy had a harelip, which was operated on at the same time.

277. This case was complicated with a stricture of urethra and scrotal fistula, both of which were cured by the operation.

284. Compare 335.

332. The stone was coated with a tough layer of inspissated mucus, which gave no click with the sound.

335. Recurrent from 284.

343. Owing to the roughness of the stone the rectum was torn during extraction from the neck of the bladder to the verge of the anus. The patient nevertheless recovered with a perfect rectum and perineum.

430. The stones were found in a pouch at the mouth of the ureter. On the seventh day there was secondary hemorrhage from the wound. The wound was tubed, and bladder washed, but no clots found. Two days later the tube was removed. On the twelfth day he passed a small stone through the wound, probably a fresh descent from the ureter. After this the wound was tubed for several days, but, as no more stones passed, was suffered to heal.

439. The nucleus weighed 1.3 gram, and was enclosed in a doughy mass of inspissated mucus, mixed with gritty matter, which gave out no sound on percussion with the searcher.

478. Stone of puttylike consistence, yielding scarcely any click on percussion.

481. Recurrent from 478. After the first operation the child passed puttylike masses of calculous matter, mixed with inspissated mucus. It would appear that some of this material formed the nucleus of the second stone. Further calculous formation was prevented by systematic irrigation of the bladder.

490. Calculus, triangular-pyramidal in shape, with sharp points, created great irritation, notwithstanding its small size, by pricking the sensitive neck of the bladder.

497. The stones were triangular-pyramidal in shape, with blunt angles.

521. Has a large hernia caused by straining. Urine in a stinking condition at time of operation. Died of exhaustion a month after operation.

II.—VESICAL CALCULI REMOVED BY SUPRAPUBIC LITHOTOMY

No.	Name	Age	Residence	Duration	Date	No. of Stones	Shape	Weight	Analysis	Results
202	Nadir	12	Meshta Beit-el-Helu	4 years	Aug. 19, 1890	1	Spherical	57.	Ox. Lime	Recovery
304	Johannes	17	Adana		Mar. 28, 1891	2	Oblong	10.50 9.75	Urates	Death.
345	Shehr	15	Lydd	1½ years	Mar. 9, 1893	1	Oval	21.	Uric Acid	Recovery.
346	Michail	6	Zahleh		April 22, 1893	1	Oblate spheroid	7.	Urates	Recovery.
363	Ahmed	7	Safita	1½ years	July 2, 1894	1	Triangular-ovate	40.	Urates	Recovery
379	Yusuf	3	Deir-el-Komr		June 14, 1895	1	Flat ovoid	20.	Urates	Death.
407	Muhammad	14	Tyre	1 year	Oct. 3, 1896	1	Flat oval	10.	Urates	Recovery
412	Wahh	12	Judaidat Merj Ayun	6 months	Nov. 9, 1896	1	Oval	31.50	Ox. Lime	Recovery.
422	Abdu	6	Bedaidun	1 year	July 30, 1897	1	Oblong	3	Urates	Recovery.
424	Yusuf	05	Zuk Mikail	6 years	Aug. 28, 1897	7	Oblong	166.	Urates	Death.
437	Abd-er-Rahim	4	Hems	1 year	Mar. 5, 1898	1	Flat oval	11.	Uric Acid	Recovery
440	Samuel	16	Lattakia	Childhood	April 16, 1898	1	Spherical	48.	Ox. Lime	Recovery.
452	Hassan	13	El Jezireh	2 years	Oct. 19, 1898	1		11.	Uric Acid	Recovery.
454	Ali	16	Lattakia	Childhood	Nov. 23, 1898	1	Spherical	20.	Ox. Lime	Recovery.
459	Ibrahim	8	Babellyeh	6 years	Mar. 8, 1899	1	Oblong	26.	Phosphates	Recovery.
463	Naum	4	El Khyam	1 year	April 10, 1899	1	Ovate	7.50	Uric Acid	Recovery.
464	Hassan	7	Sarfrlyeh	2 years	April 19, 1897	1	Hourglass	10.	Urates	Recovery.
466	Ibrahim	15	Tel Kelakh	4 months	May 6, 1899	1	Oval	13.	Urates	Recovery.
474	Ali	3	Beirût		Jan. 29, 1900	1	Oblong	4.	Urates	Death.
484	Nasib	6	Ain Anûb	1 year	June 15, 1900	1	Oblong	15.	Phosphate	Recovery.
506	Rashib	60	Damascus	1 year	Mar. 1, 1901	1	Flat oval	133.	Urates	Recovery.
530	Khalid	9	Beirût		Dec. 28, 1901	1	Spherical	10.	Ox. Lime	Recovery.
534	Ahmed	8	Damascus		April 8, 1902	2	Irregular	15. 2. 17.	Phosphates	Recovery.
535	Nicola	5	Zahleh		April 30, 1902	1	Oblong	5.30	Urates	Recover
537	Abdallah	4	Merj Ayun		May 7, 1902	1	Oval	4.	Urates	Death.
551	Fethallah	3	Aleppo	6 weeks	Oct. 27, 1902	1	Oblate spheroid	3.50	Urates	Recovery.
554	Naum	3½	Nazareth	1 year	July 9, 1903	1	Oblong	7.	Urates	Recovery.
556	Said	18	Adana	Infancy	Aug. 12, 1903	2	Ob'g & Pyr'midal	150.	Urates	Recovery
562	Mahmud	8	Hems	2 years	Dec. 14, 1903	1	Oblate spheroid	2.50	Urates	Recovery.
569	Asaad	4	Ibl-es-Soki	1 year	Mar. 19, 1904	1	Oblong	20.	Phosphates	Recovery.
570	Ahmed	3	Beirût		Mar. 29, 1904	1	Oblong	10.	Urates	Recovery.
572	Mustapha	16	Rostan	10 years	April 29, 1904	2	Triangular-ob'g.	39.	Phospbates	Death.
584	Majid	15	B'aklin	1 year	Dec. 31, 1904	1	Oblong	21.	Urates	Recovery.
587	Iskander	10	Niha	Sev'l years	Apr. 2, 1905	1	Spherical	24.	Ox. Lime	Recovery.
593	Yusuf	4½	Galilee	1 year	Oct. 11, 1905	1	Spherical	3.5	Ox. Lime	Recovery.
595	Muhammad	5	Sidon	1 year	Oct. 27, 1905	1	Flat oval	13.5	Urates	Recovery.
596	Ali	20	Kharbet-et-Tin	7 years	Dec. 7, 1905	1	Flat spheroid	56.	Urates	Recovery.
597	Abd-er-Rahman	2	Seir	6 months	Jan. 3, 1906	1	Flat spheroid	2.40	Urates	Death.
598	Khalil	13	Brummana	10 years	Jan. 17, 1906	1	Spheroid	21.	Phosphates	Recovery

NOTES.

304. Stitched bladder with three gut sutures; muscles with five gut sutures; skin with eight gut sutures. Drew water at regular intervals with catheter. Patient died on eighth day of septic peritonitis.

345. Drained bladder from lower angle of wound. Stitched remainder of wound in three layers—bladder, muscles, skin.

346. A previous unsuccessful attempt had been made by another surgeon to remove the stone by perineal lithotomy. Bladder drained from lower angle of wound.

363. Bladder drained from lower angle of wound.

379. Had uremic convulsions the night after the operation. Died comatose the following morning. Drained from interior angle.

407. Same treatment of wound as in 363.

412. Same treatment of wound as in 363.

422. Same treatment of wound as in 363.

424. Patient did well until fifth day, when the wound began to have a sloughy appearance. Died ninth day of exhaustion. No suppression of urine. The stones weighed 96., 57½, 5½, 3½, 1½, 1, and 1 grams.

437. Same treatment of wound as in 363.

440. Same treatment of wound as in 363.

452. Same treatment of wound as in 363.

454. Same treatment of wound as in 363.

459. Same treatment of wound as in 363.

463. Same treatment of wound as in 363.

464. The operation was commenced as a suprapubic. The stone proved to have a vesical portion which broke off in the forceps, and a prostatic portion which could not be delivered by the bladder, but was delivered by a median perineal incision.

466. Same treatment of wound as in 363.

474. Died on morning of sixth day of peritonitis. Drainage from inferior angle.

484. Same treatment of wound as in 363.

506. Same treatment of wound as in 363.

530. Same treatment of wound as in 363.

534. At six months of age had symptoms of stone. At two years of age was operated on by a surgeon in Damascus, but no stone found. A fistula remained in perineum. At three years of age another Damascus surgeon removed by perineal lithotomy a stone as large as last joint of forefinger. The fistula remained. Symptoms of stone remained worse than before. Between four and five years of age a third Damascus surgeon removed by perineal lithotomy six stones, of which one was as large as last joint of finger. Several perineal fistulæ remained. The writer, finding a stone encysted in the perineum, removed it by enlarging and connecting the fistulæ. Finding by rectal palpation a prostatic stone with a vesical prolongation, a suprapubic cystotomy was done and the stone extracted. The perineal cyst was exsected, and a tube .005 caliber inserted from the suprapubic to the perineal wound, and the remainder of the suprapubic wound sewed. Two weeks later the tube was withdrawn, the perineal fistula exsected, and a flexible catheter passed from the meatus to the suprapubic wound. The perineal tract then contracted and healed, and the catheter was withdrawn, and the suprapubic wound healed. The patient was discharged cured three months after the first operation.

535. Same treatment of wound as in 363.

537. Drained from inferior angle. Died three days after the operation of uremic convulsions. A postmortem showed no signs of infection of wound or peritoneum.

551. Same treatment of wound as in 363.

554. Same treatment of wound as in 363.

556. Same treatment of wound as in 363.

562. Same treatment of wound as in 363.

569. Same treatment of wound as in 363.

570. Same treatment of wound as in 363.

572. Drained from lower angle. Died twenty days after operation of diarrhea.

584. Same treatment of wound as in 363.

587. Same treatment of wound as in 363.

593. Drained from lower angle to, but not into, bladder.

595. Same treatment of wound as in 363.

596. Same treatment of wound as in 363.

597. Peritonitis set in second day after operation and ended fatally on fifth.

598. Drained only from lower angle of wound. Has been operated on three times by other surgeons perineally, leaving perineal fistula. Perineal fistula was closed thirty days after operation.

III.—LITHOLAPAXY IN THE MALE

No.	Name	Age	Residence	Duration	Date	Weight Grams	Analysis	Results
150	Lattûf	55	Beirût	2 years	Oct. 29, 1880	4.50	Urates	Recovery
151	Bubiss	60	Acre	1 year	Nov. 1, 1880	7.	Uric acid	Recovery.
153	J. D.	38	Beirût	1 year	Mar. 7, 1881	10.	Phosphates	Recovery.
160	Abu Shanab	67	Damascus	2 years	July 12, 1881	15.	Uric Acid	Recovery.
163	Suleiman	17	Arzuz	3 years	Dec. 10, 1881	2.	Ox. Lime	Recovery.
165	Abu Shanab	68	Beirût	6 months	Jan. 28, 1882	2.50	Phosphates	Recovery.
168	Farah	65	Mezraah	2 months	May 6, 1882	1.15	Uric Acid	Recovery.
174	Abu Nukhli	60	Mersine	7 months	Aug. 4, 1882	8.	Urates	Death.
175	Bubiss	61	Acre	2½ years	Aug. 25, 1882	1.	Phosphates	Recovery.
180	Jebrân	65	Zuk Mikail	3 months	Nov. 7, 1882	16.	Urates	Recovery.
183	Jebran	65	Zuk Mikail	3 months	Mar. 27, 1883	1.	Phosphates	Recovery.
184	Namân	25	Deir Mimâs	8 months	Apr. 6, 1883	7.		Recovery.
186	Giurgius	75	Mezraah	8 months	Apr. 25, 1883	11.	Uric Acid	Recovery.
193	Dîb	55	Akkar	1 year	July 31, 1883	28.	Urates	Recovery.
197	Omar	53	Hems	1 year	Oct. 25, 1883	10.	Urates	Recovery.
199	Hanna	25	Zaghartа	Childhood	Nov. 27, 1883	19.	Urates	Recovery.
202	Ibrahîm	56	Mezraah	1 month	Dec. 15, 1883	12.	Phosphates	Recovery.
207	Musa	80	Zuk Mikail	2 years	April 15, 1884	16.	Urates	Recovery.
209	Omar	54	Hems	3 months	May 16, 1884	17.	Phosphates	Death.
210	Ibrahim	56	Mezraah	6 months	May 31, 1884	5.	Phosphates	Recovery.
211	Giurgius	42	Batrûn	2 years	July 5, 1884	2.	Urates	Recovery.
214	Ibrahim	56	Mezraah	4½ months	Oct. 14, 1884	15.	Phosphates	Recovery.
219	Abdallah	50	Famagasta	3 years	Mar. 4, 1885	42.	Urates	Death.
220	Beshara	50	Beirût	1 month	May 29, 1885	0.5	Uric Acid	Recovery.
230	Karam	50	Alexandria	1 year	Nov. 5, 1885	1.50	Urates	Recovery.
233	Gebran	56	Beirût	2 years	Jan. 7, 1886	17.	Urates	Recovery.
234	Musa	81	Zuk Mikail	1 year	Mar. 12, 1886	3.	Phosphates	Recovery.
236	Khamis	35	Haurân		May 10, 1886	46.	Urates	Recovery.
237	Asaad	50	Husn	7 years	June 14, 1886	42.50	Phosphates	Recovery.
240	Sallûm	30	Beirût	1 year	July 4, 1886	55.	Phosphates	Recovery.
246	Hani	75	Beirût	8 months	Sept. 20, 1886	10.	Phosphates	Recovery.
248	Wakîn	70	Hasbeija	12 years	Oct. 1886	18.50	Phosphates	Recovery.
251	Hanna	65	Beirût		Jan. 3, 1887	23.	Uric Acid	Death.
252	Gebrân	50	Beirût	4 months	Feb. 23, 1887	5.	Uric Acid	Recovery.
255	Musa	70	Beirût		April 4, 1887	26.50	Uric Acid	Recovery.
261	Hassan	28	Beirût		Nov. 12, 1888	14.	Phosphates	Recovery.
267	Salîm	28	Tripoli	4 years	May 15, 1889	6.75	Urates	Recovery.
269	Nasîf	70	Beirût	3 years	June 6, 1889	12.	Urates	Recovery.
271	Iskandar	45	Beirût	9 months	June 13, 1889	15.	Urates	Recovery.
283	Salîm	18	Beirût		Jan. 7, 1890	13.	Phosphates	Recovery.
285	Ibrahîm	35	Ramleh	7 months	Feb. 8, 1890	4.	Phosphates	Recovery.
291	Hafiz	24	Hamath	1 year	Aug. 18, 1890	12.50	Urates	Recovery.
293	Lutfi	65	Hamath	2 years	Sept. 8, 1890	6.	Uric Acid	Recovery.
294	Elias	65	Hamath		Sept. 10, 1890	22.50	Uric Acid	Recovery.
302	Rafîl	20	Beirût	2 months	Feb. 17, 1891	1.5	Uric Acid	Recovery.
305	Muhammad	55	Beirût	3 years	Mar. 30, 1891	22.50	Uric Acid	Recovery.
306	Francis	60	Rûm	2 years	April 2, 1891	16.50	Uric Acid	Recovery.
307	Suleiman	20	Hamath	2 years	April 18, 1891	25.	Phosphates	Recovery.
308	Muhammad	17	Safita	3 years	April 21, 1891	107.50	Phosphates	Recovery.
309	Sha'ya	34	Rishmaya	Infancy	April 25, 1891	56.	Ox Lime	Recovery.
313	Jordan	60	Mersine	1 year	July 7, 1891	20.	Urates	Recovery.
321	Hassan	60	Cyprus	3 years	May 6, 1892	3.	Phosphates	Recovery.
324	Giurgius	60	Acre	3–4 years	May 13, 1892	45.	Urates	Recovery.
326	Muhammad	25	Beirût	Infancy	May 24, 1892	22.5	Phosphates	Death.
327	Daud	65	Tyre	3 years	May 30, 1892	54.	Phosphates	Recovery.
331	Abu Salîm	70	Sidon	9 months	June 18, 1892	7.	Uric Acid	Recovery.
334	Midas	23	Kyrenia	6 months	Sept. 22, 1892	22.	Phosphates	Recovery.
336	Shanak	26	Adana	Infancy	Oct. 3, 1892	30.	Ox. Lime	Recovery.
337	Yahya	10	Lattakia	1½ years	Oct. 25, 1892	12.	Urates	Recovery.
339	Mustapha	25	Tarsûs	Childhood	Oct. 28, 1892	5.	Urates and Phosph's	Recovery.
340	Abd-el-Kadir	40	Jebleh	8 years	Nov. 15, 1892	10.	Ox. Lime	Recovery.
341	Mahmûd	60	Hamath	8 months	Nov. 16, 1892	17.50	Urates	Recovery.
347	Said	45	Adana	2 years	April 22, 1893	90.	Uric Acid	Recovery.
353	Khalil	18	Deir-el-Komr	1 year	April 13, 1894	20.	Ox. Lime	Recovery.
354	Elias	42	Beirût	20 years	May 2, 1894	2.	Phosphates	Recovery.
355	Girgi	33	Acre	1½ years	May 4, 1894	5.	Urates and Phosph's	Recovery.
356	Nicola	30	Hamât	5 days	May 5, 1894			Recovery.
358	Ali	14	Jerjûr	1 year	May 22, 1894	16.	Ox. Lime	Recovery.
359	Girgi	16	Cyprus	Infancy	June 22, 1894	31.50	Urates	Recovery.
361	Habîb	60	Baalbek	2–3 years	June 28, 1894	14.	Urates	Recovery.
365	Christodoulos	65	Cyprus	18 years	July 19, 1894	11.	Urates	Recovery.
367	Amîn	25	Habbûs	2 years	Oct. 6, 1894	14.	Urates	Recovery.
371	Omar	13	Akkar	1 year	Oct. 30, 1894	6.	Urates	Recovery.
372	Michail	70	Jaffa	2 years	Nov. 7, 1894	30.	Phosphates	Recovery.
373	Milcom	50	Adana	4 years	Dec. 7, 1894	0.	Urates	Recovery.
375	Nejm	10	Deir Mimas	Infancy	Mar. 15, 1895	13.	Urates	Recovery.
377	Ibrahim	25	Tyre	4 years	May 11, 1895	15.	Ox. Lime	Recovery.
378	Naîb	10	Sidon	4 years	May 17, 1895	7.50	Triple Phosphate	Recovery.
387	Ali	60	Yebrûd	2 years	May 27, 1895	11.	Urates	Recovery.
388	Rashid	30	Beirût	2 years	Aug. 20, 1895	9.	Phosphates	Recovery.
389	Michail	71	Jaffa	50 days	Sept. 6, 1895	10.50	Phosphates	Recovery.
392	Carabet	45	Adana	10 years	Oct. 24, 1895	10.	Phosphates	Recovery.
393	Tannûs	65	Baabda	1 year	Nov. 5, 1895	11.	Phosphates	Recovery.
394	Priest	45	Tyre	1 month	Nov. 7, 1895	0.15	Phosphates	Recovery.
396	Girgi	35	Haifa	10 months	Dec. 11, 1895	7.50	Phosphates	Recovery.
397	Mulhim	4	Banklîn	1 year	Dec. 24, 1895	3.50	Phosphates	Recovery.
399	Kheirallah	18	Kana	Several months	Jan. 7, 1896	2.	Phosphates	Recovery.
406	Michail	71	Jaffa	6 months	Sept. 1896	7.50	Phosphates	Recovery.
411	Suleiman	25	Damascus	4–5 years	Nov. 3, 1896	41.	Phosphates	Recovery.
417	Girg	12	Marash	1 year	April 13, 1897	1.	Urates	Recovery.
418	Rizkallah	10	Zuk Mikail	1 year	June 19, 1897	4.	Urates	Recovery.
419	Giurgius	50	Burj-el-Berajeni	6 months	June 26, 1897	12.	Uric Acid	Recovery.
420	Karalamus	70	Limassol	4 years	July 26, 1897	64.	Urates	Recovery.
423	Shadîd	45	Monsooriyeh	3 years	Aug. 9, 1897	4.	Ox. Lime	Recovery.
425	Omar	73	Sidon	5 years	Sept. 1, 1897	20.	Urates	Recovery.
427	Monsoor	65	Juneh	2 years	Oct. 4, 1897		Phosphates	Recovery.
431	Hassan	35	Maarat-en-Nu'mân	4 years	Oct. 21, 1897	122.50	Urates	Death.
432	Tanious	35	Safita	2 years	Oct. 27, 1897	4.	Urates	Recovery.
438	Othman	65	Cyprus	10 years	Mar. 28, 1898	7.	Phosphates	Recovery.
441	Yusuf	60	Feilugha	1 year	April 20, 1898	10.50	Phosphates	Recovery.
442	Yusuf	64	Baabda	4 months	May 4, 1898	8.	Ox. Lime	Death.
450	Ibrahim	55	Hamath	2 years	Aug. 22, 1898	16.	Ox. Lime	Recovery.
455	Elias	33	Beirût	2 months	Nov. 20, 1898	0.5	Urates	Recovery.
458	Hassan	40	Hasbeiya	1 year	Jan. 7, 1899	30.	Urates	Recovery.
460	Kheir	45	Zahleh	2 years	Mar. 13, 1899	21.50	Urates	Recovery.
461	Ali	22	Ibl-es-Soki	5 years	Mar. 14, 1899	16.	Urates	Recovery.
462	Haikal	8	Beskinta	1 year	Mar. 14, 1899	0.2	Urates	Recovery.
467	Muhammad Ali	65	Aleppo	1½ years	June 8, 1899	50.	Urates	Recovery.
468	Salîm	65	Safita	1 year	June 28, 1899	15.	Urates and Phosph's	Recovery.
475	Saadaddîn	60	Schweifât	2 months	Feb. 26, 1900	3.	Uric Acid	Recovery.
480	Salih	50	Cyprus		Mar. 28, 1900	19.50	Urates	Recovery.
487	Mikhail	60	Beit Rundn	8 months	July 17, 1900	7.50	Urates	Recovery.
494	Abd-el-Hamîd	35	Tripoli	1½ years	Nov. 1, 1900	16.	Uric Acid	Recovery.
496	Saadeddîn	14	Kefr 'Asab	3 years	Nov. 10, 1900	33.50	Urates	Recovery.
499	Khalil	27	Ghazîr	6 years	Dec. 6, 1900	22.50	Uric Acid	Recovery.
504	Hassan	40	Hasbeiyah	6 months	Feb. 16, 1901	3.	Urates and Phosph's	Recovery.

III.—LITHOLAPAXY IN THE MALE. (Continued.)

No.	Name	Age	Residence	Duration	Date	Weight Grams	Analysis	Results
512	Rashíd	17	Hamath	8 years	May 23, 1901	38.	Phosphates	Death.
515	McLaughlin	60	Famagasta	1 year	July 18, 1901	12.50	Uric Acid	Recovery.
519	Yusuf	25	Zahleh	10 years	Aug. 12, 1901	33.50	Uric Acid	Recovery.
527	Abd-el-Halim	55	Damascus	1 year	Nov. 20, 1901	26.	Uric Acid	Recovery.
547	Abul-Futúh	30	Hamath	20 years	Sept. 5, 1902	4.	Urates	Recovery.
549	Aziz	10	Beirût	2 years	Oct. 8, 1902	13.50	Uric Acid	Recovery.
550	Fayyádh	10	Markab	2 years	Oct. 15, 1902	12.50	Urates	Recovery.
552	Sabít	30	Antioch	3 years	Oct. 30, 1902	16.50	Phosphates	Recovery.
553	Giurgius	60	Didíla	1½ years	July 6, 1903	21.50	Uric Acid	Recovery.
559	Muhammad	17	Beirût	1 year	Oct. 1903	13.50	Urates	Recovery.
561	Elias	44	Hems	2 years	Oct. 15, 1903	6.50	Uric Acid	Recovery.
564	Giurgius	60	Didíla	6 months	Jan. 6, 1904	7.50	Phosphates	Recovery.
566	Othmán	54	Beirût	1 year	Feb. 1, 1904	13.50	Uric Acid	Recovery.
567	Abíallah	3½	Tripoli	12 months	Mar. 12, 1904	0.3	Urates	Recovery.
568	Farah	20	Lattakia	4 years	Mar. 18, 1904	15.0	Urates	Recovery.
575	Suleiman	20	Halílah		May 31, 1904	31.50	Uric Acid	Recovery.
576	Abd-el-Halim	60	Damascus	15 months	June 10, 1904	13.50	Uric Acid	Recovery.
583	Salím	50	Kefr Matta	1½ year	Nov. 28, 1904	21.	Phosphates	Recovery.
590	Stepan	65	Nirgeli	5 years	Sept. 9, 1905	32 50	Urates	Recovery.
591	Toros	60	Khanzár	1 year	Sept. 18, 1905	22.50	Urates	Recovery.
592	Simon	18	Erzinghan	Childhood	Sept. 18, 1905	1.	Urates	Recovery.
594	Othmán	55	Beirût	6 months	Oct. 18, 1905	6.	Uric Acid	Recovery.
602	———	8			Feb. 1906	6.	Urates	Recovery.

Notes.

153. Case published in full in El Tabib, June, 1881.

165. Recurrent from 160.

174. Died thirty hours after operation of uremic poisoning and suppression of urine. Had much tenderness over both kidneys at time of operation. No post mortem obtainable.

175. Recurrent from 151.

183. Recurrent from 180.

186. Has passed 150 kidney stones per urethram. The stones, crushed and evacuated, were small and numerous. Some small stones or nuclei were evacuated entire.

209. Recurrent from 197. Died with uremic symptoms and suppression of urine.

210. Recurrent from 202.

214. Recurrent from 210 and 202.

219. Died sixteen days after operation of uremic poisoning. At autopsy both kidneys were found hypertrophied. The bladder was closely contracted on a fragment as large as a peanut.

229. Had passed several kidney stones per uretheram before the present one was formed in the bladder.

234. Recurrent from 207.

236. Had constant dribbling of urine before operation. Was quite cured of this symptom after the litholapaxy.

237. Urine before and after operation loaded with pus and highly albuminous. No casts could be found.

248. Had been operated on by writer thirteen years before by bilateral lithotomy.

251. Died the seventh day after operation of uremic poisoning. No autopsy.

285. Seven months previous to the litholapaxy the patient had been cut by an Arab stonecutter and a calculus extracted.

326. Patient coughed during the whole operation. After two aspirations neither catheter nor sounds could be passed. As most of the stone seemed to be evacuated the operation was suspended. Three days afterward a mass of detritus was detected in the prostate, which prevented the passage of a sound. Perineal section was done, and five grams of detritus evacuated. Urine then flowed through perineal wound. Three days later patient became comatose and died. There was no suppression of urine.

334. Before the operation the patient had had incontinence of urine. After the litholapaxy the neck of the bladder gradually recovered its tone and the patient was able to retain his urine. A fortnight after the operation a lithotrite was introduced and detritus removed in its jaws, after which the instrument closed on something which I feared might be a fold of the mucous membrane. On withdrawing the lithotrite I found in its grasp a broom straw, an inch long, coated with phosphates. The patient confessed that he had introduced it three years before to excite erotic sensations. It had become the nucleus of the stone.

339. Nucleus of tinfoil, which seems to have been introduced for erotic purposes.

356. Fragments of elastic catheter, coated with sabulous matter.

372. Passes kidney stones. (See cases 389 and 406.)

389. Recurrent from 372. Same patient as 406.

394. Habitually passes kidney stones per urethram.

396. Recurrent from 355, May 4, 1896. Eight months after first crushing the patient was operated on by Dr. Hoffman, suprapubically, and a large stone extracted. The present stone, therefore, must have had a fresh nucleus.

397. A stone removed several years before by median perineal section. Has passed numerous stones per urethram.

406. Same as 372 and 389.

417. In this case the fragments were removed in the jaws of the lithotrite without aspiration.

418. As in last, removed without aspiration.

431. On second day after operation the penis was swollen and emphysematous with gas. On incising, the corpora cavernosa were found gangrenous. Diarrhea set in. On fifth day there was pain and tenderness in the region of the left kidney. On the ninth day he died. *Autopsy*: Purulent effusion along rectus abdominis muscle. Peritoneum not involved. Left kidney enlarged, with hemorrhagic patches in its substance. Small intestines intensely congested. Right kidney normal. Death from septicemia.

438. Was operated on suprapubically eleven years before by a surgeon in Cyprus. A ventral hernia as large as a cocoanut resulted. During the lithotrity the jaws of the lithotrite were frequently encumbered by shreds of rags, which had been used as tents during the after treatment of the suprapubic operation.

462. As in 417 and 418, removed without aspiration.

468. A year before had had a stone weighing 90 grams crushed by another surgeon. Symptoms of stone had continued, however, from time of operation. A nucleus of urates was found encrusted with phosphates, showing that the new stone was formed around a fragment of the old.

504. Recurrent from 458.

512. Fragments, not evacuated by the aspirator, became impacted in the urethra, causing urinary infiltration of penis and scrotum, and septicemia.

550. Passed a kidney stone several years before. Later had a stone removed from the urethra. Still later the present stone formed in the bladder.

553. Same as 564.

564. Same as 553.

576. Recurrent from 527.

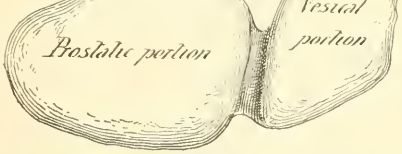
590. Crushed half the stone, when the lithotrite gave out, and, not having another at command, completed the operation by median lithotomy.

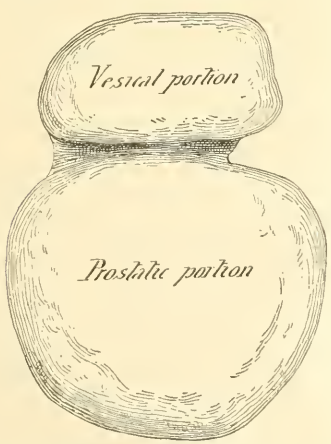
IV.—STONES EXTRACTED FROM URETHRA IN MALE, INCLUDING PROSTATIC AND PROSTATICO-VESICAL STONES.

No.	Name	Age	Residence	Duration	Date	Weight in Grams	Analysis	Result
170	Bulus	30 years	Der'ûn	2 years	June 3, 1882	173.	Phos., urate	Recovery.
241	Khalil	14 years	Zagharta	2 months	July 9, 1886	1.	Urates	Recovery.
244	Yusuf	15 years	Hamath	Childhood	Aug. 28, 1886	41.	Phosphates	Recovery.
254		70 years	Akkar		Mar. 17, 1887	1.50	Phosphates	Recovery.
256	Musa	2 years	Beirût	3 weeks	April 1, 1877	0.10	Urates	Recovery.
272	Hasîb	21 months	Beirût	4 days	June 15, 1899	0.10	Uric Acid	Recovery.
281	Ibn Giurgius-el Khal	1½ years	Beirût	1 day	Dec. 27, 1899	0.05	Phosphates	Recovery.
282	Nureddîn	2 years	Nabatiyeh	1 week	Dec. 27, 1899	0.15	Urates	Recovery.
287	Avidis	21 years	Antioch	15 years	Mar. 27, 1900	19.	Phosphates	Recovery.
310	Mahmud	2½ years	Beirût	4 months	April 30, 1901	0.3	Urates	Recovery.
321	Ahmed	12 years	Safîta	2 years	Mar. 22, 1902	17.5	Phosphates	Recovery.
330	Michail	9 years	Cyprus	10 months	June 17, 1892	4.	Phosphates	Recovery.
338	Ibrahîm	10 years	Sidon	2 years	Sept. 26, 1892	0.50	Phosphates	Recovery.
338	Muhammad	25 years	Habbûsh	8 years	Oct. 28, 1892	30.	Phosphates	Recovery.
374		2 years	Beirût	2 days	Mar. 5, 1895	0.10	Urates	Recovery.
391	Yusuf	14 years	Dhohr Sofra	5 years	Oct. 24, 1895	0.50	Phosphates	Recovery.
395		4 years	Damascus	3 days	Dec. 9, 1895	0.05	Phosphates	Recovery.
410	Muhammad	3 years	Beirût	1 night	April 20, 1896	0.05	Urates	Recovery.
434		23 years	Lebanon	7 days	Dec. 6, 1897	0.4	Urates	Recovery.
456	Berj	3 years	Beirût	1 night	Nov. 30, 1898	0.4	Urates	Recovery.
457	Muhammad Ali	48 years	Beirût	2 days	Dec. 3, 1898	0.30	Urates	Recovery.
464	Hassan	7 years	Sarîrîyeh	2 years	April 19, 1899	10.	Ur's coated with phosphates	Recovery.
465	Said	7 years	Deir-el Komr	1 month	April 24, 1899	0.75	Urates	Recovery.
470	Mustapha	3½ years	Beirût	2 months	July 10, 1899	2.	Phosphates	Recovery.
473	Rustem	2 years	Beirût	5 months	Jan. 4, 1900	0.50	Urates	Recovery.
476	Asaad	6 years	Burj-el-Berajeni	1 day	Mar. 5, 1900	0.30	Ox. Lime	Recovery.
489	Ibrahim	35 years	Beirût	12 days	Aug. 20, 1900	0.80	Uric Acid	Recovery.
492	Elias	5 years	Hadeth	5 days	Oct. 11, 1900	0.50	Urates	Recovery.
495	Muhammad	40 years	Beirût	3 weeks	Nov. 1, 1900	0.50	Ox. Lime	Recovery.
505	Anîs	1½ years	Aramûn	1½ months	Feb. 19, 1901	0.20	Urates	Recovery.
509	Salim	11 years	Tripoli	Some years	April 17, 1901	32.7	Urates	Recovery.
532	Abd-ul-Aziz	40 years	Akkar	4 months	April 1, 1902	2.	Urates	Recovery.
533	Abd-el-Latîf	15 years	Tripoli	4 months	April 3, 1902	0.20	Phosphates	Recovery.
539	Salim	2½ years	Beirût	1 year	June 23, 1902	0.80	Uric Acid	Recovery.
541	Ahmed	14 years	Dhunniych	8 years	July 6, 1902	16.	Phosphates	Recovery.
555	Ibrahim	30 years	Safita	1 year	Aug. 12, 1903	14.	Phosphates	Recovery.
557	Ibrahîm	16 years	Iskanderân	1 year	Aug. 16, 1903	4.	Phosphates	Recovery.
579	Elias	5 years	Kafr Akka	8 months	July 29, 1904	6.	Urates	Recovery.
581	Muhammad	60 years	Beirût	1 week	Oct. 31, 1904	0.30	Urates	Recovery.
601	Aayah	12 years	Barûk	4 years	Mar. 20, 1906	22.50	Phosphates	Recovery.
606	Muhammad	9 years	Beirût	2 days	May 31, 1906	0.20	Ox. Lime	Recovery.
607	Muhammad	9 years	Beirût	1 day	June 1, 1906	0.20	Ox. Lime	Recovery.
608	Edward	5 years	Beirût	2 days	June 1, 1906	0.20	Phosphates	Recovery.
29		35 years				9.		Recovery.
114		20 years	Akkar		Jan. 12, 1878	4.30	Phosphates	Recovery.
98	Husein	8 years	Dhunniyeh	From infancy	April 1, 1877	15.	Phosphates	Recovery.
015								
121	Ibrahim	7 years	Lattakia	2 years	July 9, 1878	10.5	Uric Acid	Recovery.
36								

Notes.

170. In removing this stone the constriction at the neck of the bladder was divided in several places until the vesical lobe of the stone could be drawn into the perineal incision. There was severe hemorrhage from the vessels divided to provide for the release of the prostatic portion. They were tied. The peritoneum bulged into the wound posteriorly, but was not cut or torn. After the arrest of the hemorrhage the wound was packed around a rubber tube. In twenty-nine days the wound was healed and the patient discharged with perfect continence of urine.





244. The constriction at the neck of the bladder was incised at several places to release the stone. Wound healed in fourteen days, with complete continence of urine.

254. The patient had had phymosis, for which he had been circumcised. There was a stricture at the meatus, and an inch behind it a stone .005 long, .004 broad, .002 thick. It was removed, after incision of the stricture of the meatus, by means of Civiale's forceps. Five inches from the meatus was another stone, a little longer than the first. It was also removed by Civiale's forceps. A third was found in the bladder. The urethra was then dilated to 20 English, and the stone extracted without crushing. It was .006 long, .005 broad, and .003 thick. The patient had perfect continence of urine.

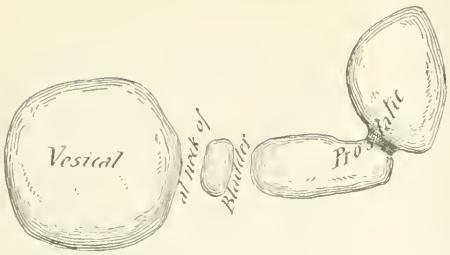
256. Three weeks before operation patient began to have retention. Ineffective attempts had been made by others to pass a catheter. Author succeeded in passing a catheter, but did not detect the stone, which was doubtless pushed into bladder. The catheter was introduced daily to draw the urine. After three weeks a stone came down to navicular fossa, from which it was extracted. It measured .003 x .002 x .001.

272. Stone impacted in bulbous portion of urethra. As it could not be removed either by scoop or forceps, the scrotum was drawn forward, and an opening made behind it into the urethra. The wound continued to dribble urine for twenty days, and then healed.

281. Pried with probe out of navicular fossa.

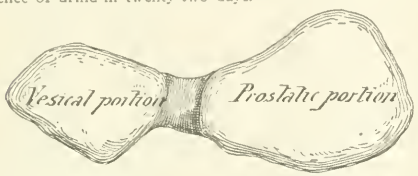
282. Pried out of navicular fossa, with grooved director.

287. Bladder stone weighed 11., that at neck 0.50, at prostatic 7.50. Patient recovered in twenty-five days, with complete continence of urine.



310. Crushed with dressing forceps in navicular fossa and extracted piecemeal.

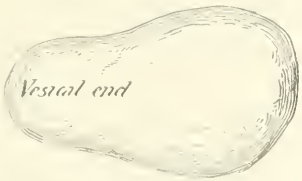
321. Prostatic portion weighs 11 grams, vesical 6.50. Broke at neck in extracting without nicking the constricting collar at the neck of bladder. Patient regained continence of urine in twenty-two days.



330. Broke down in extracting. Continence of urine regained second day after operation.

335. Three years previously the author had removed a stone (see Case 264) by median lithotomy. For two years patient remained well, but then began to have dribbling of urine. He then began to feel a small lump forming in his perineum. By median section two stones, articulating with each other, were found in prostate. Patient continued to dribble a little urine after operation.

338. Stone extended from neck of bladder to triangular ligament. Had no incontinence of urine, as bladder was not entered by the incision, which was lateral.



301. No incontinence. Bladder not entered

305. Impacted an inch behind meatus. Broken with fine forceps and extracted.

410. Fried out of navicular fossa.

434. Impacted in bulb. Removed with scoop.

456. Impacted at scroto-penal junction. Extracted with forceps. The same patient (Case 448) had had median lithotomy four months before, and a stone weighing two grams extracted from bladder.

457. Impacted at scroto-penal junction. Having failed to grasp with forceps or evacuate with scoop, on account of stone slipping back, made median section to triangular ligament, steadied stone with left forefinger, grasped with forceps, and extracted through meatus. Fistula closed in six days.

464. Operation commenced as a suprapubic. As it was found impossible to deliver the prostatic portion through the suprapubic opening, after it had broken off at the neck, a median perineal incision was made and the stone removed. The suprapubic opening was then sutured, and the perineal wound tubed.

465. Impacted in glans. Upper and lower aspects of meatus nicked, and stone pried out.

470. Removed by median incision. Continence of urine perfect after healing of wound.

473. Impacted in bulb. Scrotum drawn forward and stone cut down on and removed. No dribbling from wound.

476. Impacted in navicular fossa. Extracted with forceps.

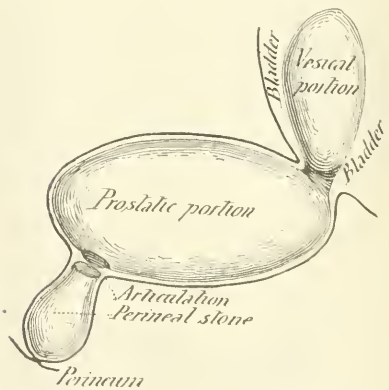
489. Impacted in navicular fossa. Extracted with forceps.

492. Impacted at peno-scrotal junction. Extracted with scoop.

495. Impacted in navicular fossa. Broken up by probe and pried out in pieces.

505. Impacted in navicular fossa. Incised meatus, hooked stone forward, and extracted with forceps.

509. Many years before a stone had been removed by lateral lithotomy by another surgeon. The new stone had, as usual, a large prostatic and a smaller vesical portion,



separated by a constricted neck. Near the distal end of the prostatic portion, on its inferior surface, was a facet, articulating with a perineal stone, the pouch of which communicated with a fistulous opening into the perineum. The latter weighed 2.5 grams.

532. Has had partial obstruction of urine for four months. Stone in a pouch behind the bulb. Removed by perineal incision.

533. Total obstruction for four months. Numerous and extensive perineal fistulæ. Laid open the fistulæ and found a stone as large as a pea in the membranous urethra. The third day after the operation passed an elastic catheter from meatus into bladder, packing it in the perineal wound with gauze. The fistulous opening closed, and patient regained continence of urine.

539. Impacted at scroto-penal junction. Removed by incision at that point. Wound healed well.

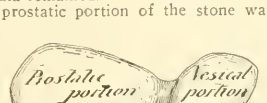
541. Perineal fistula on the right side of scroto-penal junction, through which most of the urine flows. The urethra anterior to this is of the caliber of that of a boy

of eight years, and not permeable at its proximal end. A prostatic stone can be felt by a finger in the rectum. Removed by median incision. The proximal end of the anterior portion of the urethra was then detached from its adhesions and sounds passed through to the bladder. The wound healed in eight days.

555. Prostatic stone. Was operated on in infancy by Arabic method, which left a recto-urethral fistula. This was operated on with partial success by Fuller's method of torsion of the rectum 90 per cent. toward the right.

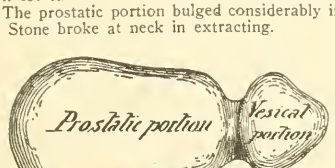
557. Had a stone in infancy, operated on by Arabic method. Two years ago was operated by median lithotomy by another surgeon, and a stone extracted from bladder. Author found a perineo-urethro-rectal fistula, with one prostatic stone in bladder. Laid all open and extracted stones. Fistula remained.

579. The prostatic portion of the stone was, as usual, the larger.



581. Has a history of passing stones by urethra. Present stone impacted in navicular fossa. Pried out. On sounding found a large stone in bladder. Patient declined operation for it.

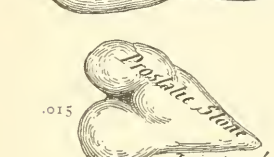
601. The prostatic portion bulged considerably into perineum. Stone broke at neck in extracting.

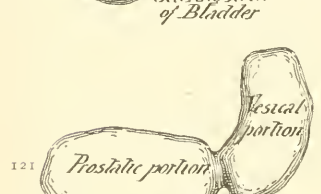


606 and 607. One week before first operation had pain in right renal region, with colic and fever. Two days before operation total retention of urine. The bladder was distended above umbilicus. Stone impacted at scroto-penal junction. Broken with forceps and extracted piecemeal. The following day had again retention. A stone was detected at the same point, and extracted entire with forceps. Since then no more stones.

608. Six days ago had renal colic. Two days ago began to have obstruction, then partial retention. A small stone was pushed by Dr. Iskandar Barüdi into the bladder, but descended again, and was lodged at neck of bladder. Writer pushed it back into bladder, crushed, and removed in jaws of lithotrite.

Figures 27, 114, 98, 121, and 36 are of stones reported in previous tables of July 28, 1877, and October 30, 1880; .015 is of a stone not operated on by the author. It seems to have been moulded by lobes of prostate.





V.—STONES EXTRACTED FROM THE FEMALE BLADDER.

No.	Name	Age	Residence	Duration	Date	Operation	Weight in Grams	Analysis	Results
195	Rosa	3 years	Beirût	4 months	Oct. 5, 1883	Lithotrity	2.	Phosphates	Recovery.
257	Jamili	10 years	Beirût	2 years	April 12, 1887	Dilatation	2.		Recovery
278	Akabir	4 years	Hasbeiyeh	2 years	Oct. 21, 1889	Litholapaxy	1.25	Uric Acid	Recovery
295	Mesihiyeh	35 years	B'shern	10 months	Aug. 21, 1890	Lithotomy	6.	Phosphates	Recovery
310	Fattüm	20 years	Beirût	1½ years	Jan. 5, 1892	Lithotrity	55.	Phosphates	Recovery
348	Fätimeh	21 years	Beirût	8 months	April 27, 1893	Lithotrity	4.	Ox. Lime	Recovery.
382	Liza	5 years	Dibbiyeh	6 months	July 8, 1898	Lithotrity	3.50	Phosphates	Recovery
409	Salimeh	4 years	Lattakia	6 months	Oct. 11, 1896	Suprapubic	3.50	Phosphates	Recovery
415	Um Saad-ed-Din	50 years	Berja	2 years	April 1, 1897	Lithotrity	6.	Phosphates	Recovery.
447	Zeinab	2 years	Beirût	6 months	July 8, 1898	Lithotrity	6.	Phosphates	Recovery.
546	Hassaneh	60 years	Beirût	1 year	Aug. 25, 1902	Lithotrity	2.50	Phosphates	Recovery.
558	Hassaneh	61 years	Beirût	1 year	Aug. 25, 1903	Lithotrity	2.50	Phosphates	Recovery.
571	Fätimeh	20 years	Hamath	4 months	April 29, 1904	Litholapaxy	12.50		Recovery
578	Hassaneh	61 years	Beirût	3 months	July 19, 1904	Lithotrity	2.50	Phosphates	Recovery
582	Amineh	3 years	Beirût	6 months	Nov. 2, 1904	Suprapubic	2.50	Urates	Recovery
588	Takla	4 years	Deir-el-Komr	8 months	Jan. 8, 1905	Litholapaxy	1.20	Urates	Recovery.
599	Saniyeh	4 years	Beirût	2 years	Jan. 30, 1906	Litholapaxy	1.	Urates	Recovery.
600	Mert Tilio	55 years	Beirût	1 year	Feb. 18, 1906	Lithotrity	5.	Phosphates	Recovery

NOTES.

195. Complete continence of urine. Stone crushed with dressing forceps and extracted piecemeal.

257. Stone cylindrical, ¼ inch in diameter, extracted from right ureter.

295. Seven years before the author had done a kolpokleisis. The stone had formed in the vagino-vesical pouch. After extraction the opening was closed by three silver wire sutures. Continence of urine reestablished as before the formation of the stone.

310. After breaking up the stone, the fragments were mostly removed by forceps.

348. Stone extracted entire. Continence of urine perfectly restored.

382. Crushed with dressing f rceps and extracted piecemeal.

409. Continence perfectly restored.

415. Fragments extracted with forceps. Continence restored.

447. Fragments extracted with forceps. Continence restored.

546. Fragments extracted with forceps. Continence restored. Same case as 571 and 578.

558. Fragments extracted with forceps. Continence restored.

571. Same as 546 and 578.

578. Fragments extracted with forceps. Continence restored.

582. Same as 546 and 558. Wound tubed. Urine returned by urethra in twenty-two days.

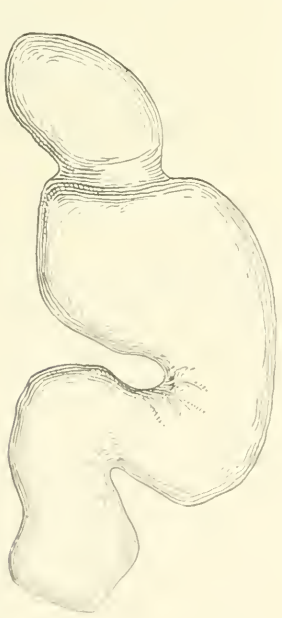
600. Fragments extracted with forceps. Continence restored.

VI. STONES IN THE KIDNEY AND URETER.

No.	Name	Age	Residence	Duration	Date	Operation	No of Stones	Weight	Analysis	Results
325	.....	7	Beirût.....	2 months..	May 15, 1892	.....	1	0.02	Phosphates..	Passed by urethra.
308	Krikor.....	30	Cesarea.....	Childbood ..	Jan. 7, 1896	Nephrolithotomy..	1	19.00	Ox-Lime....	Death.
402	Artin.....	..	.....	.....	June 13, 1896	Nephrectomy and ureterolithot'y ..	1	66.50	Phosphates..	Death.
416	Moksour.....	40	Zableh..... ...	2 years....	April 3, 1897	Lumbar extraction.	1	1.30	Phosphates..	Recovery.
471	Lebibeh.....	35	Haifa.....	1 year.....	Oct. 25, 1899	Nephrectomy.....	2	12.50	Uric acid...	Recovery.
472	.....	..	Schweir.....	18 months.	Oct. 28, 1899	Removed from vaginal vault.....	1	25.00	Phosphates..	Recovery.
501	Taunoos.....	53	Zuk Musbik.....	5 months..	Jan. 18, 1901	.....	1	0.20	Uric acid...	Passed by urethra.
548	Im Taufik	50	Lattakia.....	3 years....	Oct. 9, 1902	Nephrectomy.....	3	1.50 0.005 0.002	Uric acid...	Death.
565	Adma.....	28	Beirût.....	3 years....	Jan. 16, 1904	Nephrectomy.....	1	0.50	.....	Death.
586	Dhurriyeh..... ...	20	Damascus.....	.....	April 19, 1906	Nephrolithotomy...	9	2.50	Phosphates..	Recovery.
589	.....	60	Khunsharah.....	.....	June 19, 1906	Nephrotomy.....	.....	.....	.....	Sloughing of kidney.

NOTES.

398. Krikor, 30. Cesarea. Had symptoms of stone in the right kidney from childhood. January 7, 1896, nephrolithotomy. An exceedingly rough stone, 2x1x1 inches removed from pelvis of kidney. There was much hemorrhage at the time of the operation, arrested by tamponing the wound. The acrid caustic urine, saturating the tampon, seemed to cause sphacelus of the substance of the kidney and of the surrounding tissues, which became gangrenous. The patient died of exhaustion the fifth day after the operation.



402 Artin. Came to hospital with symptoms of cystic kidney as large as a cocoanut. June 13, 1896, the right kidney was removed. No stone was found. The pain which the patient had felt, and for which the kidney had been removed, was not relieved. It was found to extend from the stump of the ureter to the bladder. The loin was then laid open by a vertical incision from the middle of the oblique incision, by which the kidney had been removed, downward to the crest of the ileum. The dissection was pursued retroperitoneally to the ureter, and a stone, weighing 66.50 grams and of the shape and size of the accompanying diagram, was removed. The pain was at once alleviated, but the patient, after ten hours, succumbed to the shock of the second operation following so soon after the first.

416. Two years before had an abscess in left hypochondrium, which was opened by a surgeon in his town, and a quart of fetid pus evacuated. Sinus did not heal. It was lined with epidermis for an inch in depth; stone extracted from kidney through sinus.

471. Lebibeh. Thirty-five years. Haifa. Duration one year. *Operation, Transperitoneal Nephrectomy.* The dilated kidney measures 8x6x6 inches. There were two stones, weighing together 12.5 grams. The margins of the peritoneal envelope of the kidney were sewed to the margins of the parietal peritoneum, and the edges of the wound in the wall of the abdomen brought together with several intervals for drainage strips of iodoform gauze. Patient recovered perfectly.

472. Schweir. Forty years. Duration one and a half years. Six months before October 28, 1889 the author had removed the kidney for pyonephrosis. After this operation she had symptoms of metritis, for which she was treated gynecologically. When she came again under the author's treatment she complained of a painful swelling in the right fornix of the vagina. On incising, a stone weighing twenty-five grams was removed. It had evidently been in the ureter at the time of the nephrectomy, and had worked its way down to the fornix. Patient recovered.

548. Im Taufik. Mersine. Had symptoms of stone in the ureter for three years, followed by gradual dilatation of kidney. October 2, 1902, tapped cyst and drew off 750 grams of bloody serous fluid. October 7 removed kidney from loin. Found three stones at pelvic mouth of ureter, weighing respectively 1.5, .005, and .002 grams. Patient sank, with symptoms of uremic poisoning, probably from amyloid degeneration of other kidney.

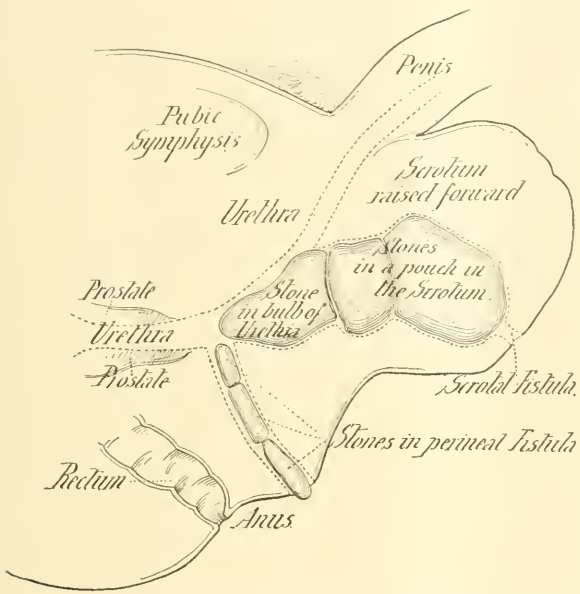
565. Adma, 28. Beirût. For three years had gradually increasing swelling of left kidney. Transperitoneal nephrectomy January 16, 1904. During operation one of the cysts burst into the peritoneal cavity. Patient died on third day from continuance of shock. Stone weighing one gram in pelvis of kidney.

586. Dhurriych, 20 years. Damascus. For several years has had symptoms of left cystic kidney. On April 19, 1905, the author made an incision four inches long half an inch below the last rib on the left side, and parallel to it, and on reaching the exterior border of the quadratus lumborum muscle, extended the incision to the pelvis of the kidney. Nine stones, weighing in the aggregate 2.5 grams, were extracted. The patient recovered from the operation, but with a lumbar fistula, through which most of the urine from the left kidney flowed. Nephrectomy advised. On the 23d of April, 1906, nephrectomy was done, the wound being packed with gauze after removal of the kidney.

Three stones were removed from sinuses in the kidney. The patient made an uneventful recovery. The wound was quite healed. Urine of normal quantity and constantly improving quality passed.

589. Presented himself with a tumor extending from the left lumbar region forward to the precordial region. It was as large as a man's head. On aspiration a straw-colored fluid was withdrawn. An incision three inches long was made in the left lumbar region, from the twelfth rib downward, just anterior to the external border of the quadratus lumborum muscle, and continued to the pelvis of the kidney. The fluid contained in the cysts drained away from this incision, which was packed with iodoform gauze. No stone was found. Several days after the nephrotomy fecal matter began to appear in the discharge and gradually increased in amount, until all the feces passed by the wound. After a fortnight the fecal matter began to be mixed with foul gangrenous shreds. A month after the operation the whole kidney with its cysts emerged as a stinking, sphacelated, macerated mass of shreddy tissue. In the pockets of this were several stones, weighing three grams. An orifice of considerable size connected the descending colon with this cavity from which the sloughy kidney had emerged. As in case 378, the acridity of the urine seems to have determined the gangrene of the kidney and the sloughing of adjacent tissues. Patient left the hospital. Result unknown—probably fatal.

VII. Scrotal and Perineal Stones.



148. Lutf Allah, 22 years, Beirut. At five years of age the patient was operated on for a large stone. During the period of contraction of the perineal wound a stone formed, and continued to the present time. A fistula existed half an inch in front of the anus, extending to the membranous portion of the urethra. This tract was occupied by a chain of three stones, the exterior of which projected from the perineal sinus, as seen in the figure. From time to time the exterior stone had been driven out, and a new one formed at the deeper part of the sinus. Many such had passed.

At the bottom of the scrotum, pointing toward its left side, was a congeries of fistulous openings, from all of which urine passed in micturition. These openings connected with a sac, containing three stones, as seen in figure, the posterior of which extended to the membranous urethra, and was faceted to the posterior perineal stone.

Operation.—The patient was placed in the lithotomy position and the scrotum laid open, the stones extracted, and the sac dissected. The perineal tract was also laid open, the stones extracted, and the fistulous tube exsected. As it was impossible to control the hemorrhage by ligatures, the cavities were packed. Subsequently their walls were approximated and healed by granulation. A small stone formed during the healing process, but was extracted, and the fistulæ then closed entirely. The weight of all the stones extracted during the first operation was 32.5 grams.

THE FUTURE OF MEDICAL JOURNALISM.*

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The fourth estate in the profession of medicine is of importance equal if not superior to any of the other elements whose combination welds it into the most important factor in modern life. On the one hand, original research is at the basis of all knowledge, but of what value is original research if its results be not made known to the public? On the other hand, the intelligent practice of the art of healing is the chief object of the medical man, but how can he practise intelligently if the methods of doing so are not placed at his disposal? In the center between these extremes lies the medical press, in touch not only with these main professional factors, but with every other element small or large which contributes to professional success—in touch with all, strengthening all, supporting all, binding all into one mighty progressive whole and lending to all the qualities indispensable to success.

*The President's Annual Address at the thirty-eighth annual convention of the American Medical Editors' Association at Atlantic City, N. J., June 3, 1907.

In our own country this department of professional endeavor has attained especial development. Few realize how many physicians are engaged in medical journalism. I admit that while my own estimate of the number was high, it was not until I entered upon the duties of the important office with which this Association honored me at its last meeting that I began to gain a definite knowledge of it. And it was entirely without a full appreciation of the magnitude of the task I was assuming that I entered last year upon the work of constructing a catalogue of all the medical editors in the United States and Canada, including in my plan all participants in medical editorship, whether editors-in-chief, assistant editors, associate editors, or department editors. In order to render later indexing easy, I entered each person with his journal upon a separate slip of paper and it was wonderful how these slips multiplied, pile on pile, until finally no less than 1,150 exponents of the medical phase of the art preservative were represented, and doubtless there were still some whose names had escaped my search.

It was then among a considerable population that the American Medical Editors' Association found the field for the recruitment of its membership. There was no doubt but that every one of the

eleven hundred and fifty eligibles should be gathered into the Association and, acting upon this theory, I wrote a personal letter to each one of them, and to some of them several, inviting attention to the Association and suggesting cooperation in its objects. The correspondence involved in this campaign then was rather considerable, the formation of the catalogue itself requiring the despatching of some three hundred, and the further campaign for members among the eligibles, whose names had been listed, made necessary the preparation of over twelve hundred letters, the whole mounting up to a total of more than one thousand five hundred letters involved in one phase of the work of the president's office this year, in addition to the correspondence demanded by other features of the work.

Of some of the results of this work you have already learned from the report of the executive committee, other results in the way of increasing the efficiency, extending the authority, and widening the influence of the organization will, it is hoped, manifest themselves with the progress of time.

Much depends upon united effort. The days of sociological individualism have in all phases of human life been supplanted by aggregation. The progress from the human unit—with every man's hand against him and his own hand against the world—to the family, the tribe, the nation, and the imperial aggregation of states is the story of the growth of humanity from savagery to civilization. Collective action so long recognized in the realm of higher politics has pushed into the region of economics. The wastefulness of scattered and individual labor has become so apparent as to make consolidation the watchword of the day, even in some instances to a dangerous degree.

Collective professional study has long been an ideal of the advanced exponents of medicine, but never hitherto has it attained the importance which it has reached to-day. Association for professional advancement has irradiated into every department of the healing science, and who can deny its imperative necessity? How can the sanitarian, the gynecologist, the ophthalmologist, the general surgeon, or the military surgeon obtain the professional facility essential to scientific success without the hints, suggestions, and information to be obtained from the practice of his fellows? So essential is this that the specialist who fails to avail himself of such opportunities had better lay aside his special pretensions at once—discard his speculum, lay down his scalpel, resign his commission—for he writes himself down clearly as one who fails to read the fundamental signs which spell success. The absurd position of the aspirant to recognition as a specialist who abstains from joining with his fellow specialists in the collective development of the branch of the art, to special proficiency in which he pretends, because forsooth he "already belongs to so many societies that he cannot do justice to them," is a spectacle for gods and men! And yet a spectacle which not infrequently obtrudes itself upon the attention of the profession.

More specialized than any other medical specialty, the field of medical journalism has for nearly two score years been held together with varying degrees of firmness by the American Medical Editors' Association. Much of the time inadequate to its opportunities it has nevertheless during the passage of years been a fair reflection of prevalent sentiment as to the desirability of combined conduct. And with the crystallization of opinion and the materialization of the necessity for organized action in other directions, it has stood well abreast of the other participants in the great procession of progress. Participation in the work of the organization is to-day more necessary than ever to him who proposes to practice the specialty of medical editorship.

During the past year the Association has fixed its feet more firmly than ever before upon the rock of endurance and in the highway of usefulness. The adoption of a well considered system of government in its new constitution and by-laws has contributed to it a permanent and definite foundation. The increase of its annual dues to a fairly reasonable figure has provided an assurance of sincerity to its aspect and a promise of productivity to its soil. The publication of the handsome booklet in which the proceedings and papers of the last meeting are perpetuated gives it a definite position, a personal literature, and a manifest reason for existence.

Under the guidance and inspiration of an Association such as this the future of medical journalism insures a brilliant career for the medical journalism of the future.

The field of medical journalism is broad—wide as the lapse of the ages during which man shall be born, live out his brief day and pass into eternity. The possibilities of medical journalism are only limited by the boundaries of human endeavor. It may not be said of the medical press that

> "There is a tide in the affairs of men
> Which, taken at the flood, leads on to fortune;
> Omitted, all the voyage of their life
> Is bound in shallows and in miseries,"

but rather that there is an ever-present opportunity who loudly advertises that

> "They do me wrong who say I come no more
> When once I knock and fail to find you in,
> For every day I stand outside your door
> And bid you wake and rise and fight and win."

The prospects of medicine are brilliant. This wonderful century, with its tremendous forward strides, is but the borderland of the boundless field of medical endeavor—but the title page of the mighty book of medical knowledge whose pages posterity will turn one by one and whose teachings will not only illumine the dark spots in the medical work of the day, but furnish material in vast amounts for the greater periodicals, and even for the most highly technical publications. The professional teacher, the original investigator, the aspiring specialist, the earnest practitioner will, as before, abound in thoughts appropriate for expression in current journalism.

It has been said that man is a talking animal and if that be true the physician is a reading animal. And this is essential. For his education is never complete. Before half a score years have followed the period of his pupilage in lecture room, clinic, and laboratory, the face of his science is so transformed by the protean mutations of medicine that, without constant following of the progress of science, he would be impotent either to cope with his fellow practitioners or to meet the demands of his clientele. The medical journal is the textbook of the practitioner and this fact is the key to the most important function of the medical journalism of the future. To meet it medical periodical literature must cast aside the opportunism which has so largely characterized it in the past and become more of a creator of literature that shall be well balanced and comprehensive.

The great general medical journals already in

the field will continue to grow apace with their enormous editions and their broad fields, and judicious and intelligent management will hold them secure in the point of vantage which their precedence in establishment has insured for them.

But along with these a continual outcrop of new general journals—weeklies, bi-weeklies, monthlies, and semi-monthlies—will appear, a fortunate circumstance, for anything like monopoly of the journalistic field would savor too much of suppression to be for the good of the profession. A free course and a fair field for the journalistic aspirant whom new ideas or exceptional ability may have inspired to enter the contest for the favor of his compeers will continue to be assured by a generous, just, and high-minded profession.

With the widening of the field of medical knowledge the demand for restricted special medical journalism will increase in the future as it has during the past. The further subdivision of specialties, foreshadowed by all the auguries of the age, will necessitate additional exponents for each new phase of medical science, culminating in an extension of special journalistic work as noteworthy as it will be encouraging. Each new discovery will have its special spokesman and, as the number of practitioners grows, they will increase in number as well as in circulation.

It is hardly to be supposed too that new medical sects will fail to arise hereafter as hitherto and with each of these a new crop of medical journals will spring up.

There will continue to be a field also for the weaker grade of journals whose function is to provide an outlet for the energy of the ambitious young man both in the editorial and the authorial capacity. Men will continue to write *for* practice as well as *from* practice. Nor can we expect that this class of publications will improve to any great extent in character, although they may well have a fuller table of contents.

The greater the number of journals then with their voracious call for pabulum to nourish the mental appetites of their readers, the greater will be the productivity of the profession. The quantity of medical literature published is enormous, but the amount which never escapes from the trammels of the author's manuscript is perhaps still greater—certainly equally great. At a meeting of a medical society with a membership in two States, of which I am a member and which holds regular annual meetings, there were presented last year ten set papers and fifteen clinical reports, not one of which has been offered for publication in a medical journal. In the medical society of my county, which meets quarterly, about a dozen papers are presented each year, and some of them followed with active and interesting discussions, and I recall but one of the papers which has emerged into the light of publicity through medical journalism. I can hardly conceive of a very different situation prevailing in other parts of the country. So that it is evident that there is an abundance of material available for publication, much of it not in suitable shape for the printer it is true, but all of it nevertheless available for the pruning, shaping, and revising hand of the editor. But little of this material is without value. Occasionally it is true a paper is but a rehash of or possibly a wholesale steal from a textbook or a journal, but more frequently they represent the opinions and practice of the average physician, whose work does not get beyond the audience of his society or neighborhood. This is often due to modesty on the part of the author, frequently it arises from a lack of knowledge of the mechanics of literary construction, and in many instances it is because of the busy life with its absorbing cares which prevents the final preparation for publication. It is evident then that the journalism of the future, judging by the criterion of the present, need not lack for material upon which to feed its public.

I differ quite fundamentally from many of my colleagues upon the question of restricting the work of many more or less inefficient contributors to medical periodical literature. I favor the writer who makes one case the text upon which to found a discussion of the literature of an affection. The study which he has devoted to the preparation of his paper cannot but be of advantage to him, and, if perchance the publicity which it gives to its author should bring to him other cases in consultation and otherwise, the resulting intelligent experience will enable him to produce still more and possibly more original material upon his subject.

On the other hand the readers of the paper cannot fail to derive some benefit from the effort—whether it be from the consideration alone of the case upon which it is founded or from the review of the literature with which it is accompanied. Few men are so erudite that they cannot be benefited by a refreshment of memory. Man is so frail that it is a never-ending "line upon line and precept upon precept" by which the mental machinery must be kept constantly rubbed up and polished or the rust of forgetfulness and intellectual lethargy will clog his practice and obscure his judgment. The personal touch of acquaintance with the author, perhaps even the habit of referring to familiar pages, may incite the perusal of a paper—whatever be the cause, the act cannot but reflect beneficially upon the reader even though it accomplish nothing but the extraction of forgotten facts, theories, or methods from his own subconsciousness.

But the medical journalism of the future will be characterized particularly by certain outgrowths of the present situation, each a development of existent conditions, an elaboration of contemporary circumstances. The evolution will occur along lines resulting in the production of two ideals of medical journalism—the recorders and the creators—both of the greatest necessity and both of the highest value.

To the former class will pertain the majority of the association and society journals which have already attained so high a degree of efficiency and whose important function will chiefly be to record the work of the members of the organizations for which they are mouthpieces and thereby to inspire them to renewed and combined activity along the lines of their profession. No man can foresee the tremendous consequences that may arise from the influence of this factor in medical journalism in unifying the profession, stimulating thought, and extending the influence and authority of the medical man in the community.

The other chief factor in the medical journalism of the future may be the product either of a private publisher or a public endowment—in any case it must have no obligation to publish any material that may be submitted to it by agreement with medical societies or individuals. Its editor will be autocratic in his action upon all matters published in its pages. It will contain few voluntary contributions, for its space will be largely taken up by well proportioned studies undertaken at the suggestion of the management by experts selected

for the purpose. Its editor will have at his disposal funds for commanding original research by members of his staff. He will have assistants in every department of medicine whose duty it will be to keep a careful lookout for new theories, original discoveries, and promising advances in the art of healing and the allied sciences. He will be able to attach to his journal writers of facile expression, authors of attractive diction, students of untrammeled originality, and observers of unvarying accuracy. He will furnish to his readers the complete facts concerning every advance in medicine and avoid the loose threads and unconcluded topics which are so common in the general press. His journal will never be an organ for the exploitation of any special line of thought, any medical fad, feature, or sect, but it will be catholic in its views, comprehensive, and conclusive in its text, well balanced and well proportioned in its contents, a leader and guide to the practitioner, an inspiration and stimulant to the student, and an instrument of real value to the world.

Is this an ideal? It may be so, but it is an ideal that may readily be transmuted into a reality, a reality which the future medical journalist will beyond peradventure behold.

The medical journalism of the future then, with these two great divisions and the numerous intermediate phases in which it will appear, will not fail to be an advance upon that of to-day, an advance along all lines, an advance significant not only of a progressive profession, but an advance inspired by a fuller appreciation of the duties, responsibilities, and opportunities of the medical editor. In this the American Medical Editors' Association will be a governing and guiding factor. Its face will always be set toward higher and better things and its attitude will be characterized by the glorious persistence which marked the conduct of the famous Genoese mariner, when

> Behind him lay the gray Azores,
> Behind the gates of Hercules;
> Before him not the ghost of shores,
> Before him only shoreless seas.
> The good mate said: "Now must we pray,
> For lo! the very stars are gone.
> Brave Admiral, speak—what shall I say?"
> "Why, say, 'sail on, sail on, and on.'"
>
> "My men grow mutinous day by day;
> My men grow ghastly, wan, and weak."
> The stout mate thought of home; a spray
> Of salt wave washed his swarthy cheek.
> "What shall I say, brave Admiral, say,
> If naught we sight but seas at dawn?"
> "Why you shall say at break of day,
> 'Sail on, sail on, sail on and on.'"

And so shall we, too, in the high vocation of cultivating and perpetuating the knowledge which shall diminish suffering, alleviate pain, and lengthen life press on and on and on. The future of medical journalism will continue to brighten and its activities never cease to expand throughout the ages during all of which it shall ever crown the mighty archway of medical practice as the great keystone of knowledge which shall time without end unite theory with application and learning with practice in the ever glorious aims of deferring disease, delaying death, and maintaining health.

Uterine Cancer.—One-half pint daily of a strong decoction of powdered Ceylon cinnamon will limit hemorrhage from uterine cancer, and is claimed to reduce the fetor of the discharges.—*Medical Council.*

SYPHILITIC TUMORS OF THE BREAST.*

By JOSEPH B. BISSELL, M.D.,

NEW YORK,

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The breast is a not infrequent location for the early specific lesions. The primary sore, mucous patches, condylomata, and the early eruptions, often occur upon the nipple and its neighborhood. These common symptoms require, as a rule, long and tedious description, which the syphilographers delight in, but which are of no special surgical interest to us. For the purpose of this brief paper it is enough to consider the late manifestations, the gummatous form of the infection. It appears in two varieties, either as one or more large circumscribed tumors, or as an infiltration, somewhat extensive, dense, usually deep seated in its origin, and most interesting to us from the standpoint of treatment.

Proper treatment of any disease or abnormal physical condition can come only from correct diagnosis, and a thorough understanding of the affection to be treated. Most particularly does this hold true in tumors of the breast.

An amputation of this part, even to the extensive details of the Halstead or Willy Meyer methods, can be easily done, though at times it may be prolonged and tedious. But it means at best mutilation and a certain amount of risk to the patient. Moreover, in the more youthful cases, those which occur before the climacteric, such an operation produces a certain mental and physical effect upon the human body, more especially if it be that of a woman, which unfits her for certain functions in life. Whether this disturbance is due to the altered internal secretions, or to the shock which such an extensive procedure causes, or to both, is still undetermined, but it is present and should be considered in making up the surgical verdict. Lopping off half of the anterior surface of the breast, or in some cases both breasts, down to the ribs, and dissecting out the axilla, besides being an artistic and physical desecration, has a psychical and moral side to it which should cause us to consider carefully all the possibilities before deciding upon operating.

In malignant growths the longer one waits before removing them, the greater the chances of their early return. When the indications are definite and clear there should be no hesitancy in doing an immediate and complete operation. But just because we have the skill and the tools with which to do this work, it does not follow that we should always be using these tools. It is much easier to cut than to cure without cutting, especially if the diagnosis has been hastily and crudely made. Hence this plea for a thorough examination, ample deliberation, and, if possible, a more exact diagnosis.

The text-books on surgery almost without exception give very little attention to gumma of the breast. Von Bergmann dismisses the subject with the curt statement that "it is extremely rare." Keen, in his newest publication, says the diagnosis may be quite impossible, excepting for the treatment. Most of the text-books ignore the condition. Recently a number of cases have been reported; the writer has had at least six in which the diagnosis was made and treatment followed by recovery confirmed it.

Gummata of the breast are to be differentiated from cysts in the organ, from tuberculous disease of the breast, and from malignancy. Other tumors of this

*Read at the meeting of the Hospital Graduates Club, March 28, 1907.

region are, as a rule, easily eliminated in the diagnosis. Cysts, or chronic cystic mastitis, consist of individual nodules or cysts in the breast substance, which fluctuate and are not adherent; there is no reddening of the skin when uncomplicated; the nipples, if retracted, are only slightly so. Frequently fluid can be squeezed out of the nipple. The number of fluctuating insensitive tumors, the smooth breast surface with the sensation of a bag of marbles at times, together with absence of glandular enlargement in the axilla, determine the diagnosis.

Tuberculosis of the breast is characterized by an inflammation of the breast gland, which varies from a circumscribed cold abscess to a disseminated nodular infiltration, much resembling multiple carcinomatous nodules. Sooner or later these inflammatory foci become confluent and break down, opening at various points of the thin and translucent skin. The nipple is retracted and the breast irregularly softened and hardened in spots. The axillary glands are thickened and often broken down. This condition may continue a long time without great local or constitutional changes. The disease in this location is not common: it is usually found in women, is generally easy of diagnosis, and is not likely to be confused with gumma of this region. Frequently tuberculosis of other organs is present. The diagnosis in the later stage is not difficult, and can be determined beyond question by means of the microscope or by guinea pig inoculation.

If, as is rarely the case, the disease is primarily in the breast, the treatment indicated is like that for malignancy, complete removal of the disease by the knife. The diagnosis between gumma and cancer of the breast varies from those cases where the symptoms differentiate the two diseases quickly and surely and with ease, to the cases in which this differentiation is almost impossible. The necessity of making such a diagnosis is obvious, for it is essential to the best treatment and in order to obtain good results, to avoid uncalled-for mutilation and destruction of parts of the body as well as injury to the mind.

Syphilitic symptoms elsewhere, the history of earlier lesions, a knowledge of the disease at any time in the marital partner, should create more than suspicion. The fact that a lumpy swelling has occurred before in one or both breasts and disappeared with or without treatment points toward a specific infection. These gummatous tumors develop slowly and painlessly, and they ulcerate and discharge much earlier than cancerous nodules break down. They are free nodules early in their course. Often after breaking down they discharge a thick, sticky fluid, and they leave a cicatrix on healing. They begin probably in muscular or fibrous tissue. The nipple as a rule is not retracted, and when it is differs from the typical retracted nipple of malignant disease. The new growth in cancer is more dense than in gumma, which occurs as a rule earlier in life than carcinoma. The lymph glands were found enlarged in some of my cases and not in others. Those in the axillary space are not to be made out as a rule in specific disease.

The glandular enlargements are hard, sharply rounded, and entirely painless in cancer. In syphilis, if present, they are not so hard, and are more irregular and broad or thick in shape. Where the deposits in the breast have been present a considerable time and there are no axillary glands involved, the diagnosis favors syphilis.

Cancer is almost always in the outer upper or lower quadrant. Gumma may occur in any part of the gland, but it originates as frequently in one position as another.

The main test in differential diagnosis is, after all, that of treatment. This is always available, and now that a modern mode of treatment allows of a quick determination it is the most valuable diagnostic help.

In the hypodermic administration of mercury we have a method which demonstrates rapidly, safely, and surely the presence or absence of syphilis. With this means available it is fair to assert that for the most part little difficulty should stand in the way of a differential diagnosis. The hypodermatic injection of a mercurial salt can be pushed quite rapidly if necessary. If time presses, in such a case injections of a soluble salt may be given every day for a number of times. Recently a patient at the hospital under my care was given two injections a day for thirty days, with no objectionable symptoms from the use of the drug, and with great benefit to his serious syphilitic invasion. The following cases illustrate the subject:

Case I.—A woman, married, thirty-two years old. January 17, 1898. Has had a "lump" in her right breast for nearly a year. A few months ago she noticed a similar condition in the left. At first there was no pain, but later at times there was sharp pain, always at night. Examination made on the date of first visit showed a tumor, irregular and flat in shape, not tender to the touch, involving the inner half of the right breast and extending in a hooked-shaped process outside and below the breast gland into the pectoral muscles. The left breast was in a similar condition, but less marked. The right nipple was retracted to one side, no enlargement of the axillary lymph glands could be discovered, but the epitrochlear glands were typical, as were also those of the cervical region. A history of repeated attacks of sore throat, of mucous patches, falling of the hair, and a scaling eruption made the diagnosis positive. The rapid melting away of the tumors under heavy doses of mixed treatment proved a satisfactory sequel. Within three months the patient had lost all of the abnormal growth, and I heard from her a few years ago, saying she was free from any symptoms of syphilis, and that her health was apparently normal.

Case II.—Mrs. J. C. H., forty-eight years old. December 28, 1903. Presented herself at the hospital for operation for cancer of the breast. She had in her right breast, situated in the lower inner quadrant, an irregular indurated tumor, flat, the size of a lemon, fluctuating at several points. It had been present nearly a year, increasing very slowly until in the past six months, when fluctuation appeared, and it had developed rapidly. The patient gave a typical history of syphilis. She was put on antisyphilitic treatment and the tumor disappeared slowly. In June, 1904, there was no evidence of any trouble in the breast.

Case III.—A woman of middle age, with an indurated growth in the right breast, outer lower quadrant, was operated on by a colleague of mine at the suggestion of his house surgeon. Soon after beginning the operation he became suspicious of the diagnosis and an incision into the tumor showed characteristic structure of gumma. He did not remove the breast and under appropriate treatment a cure was effected.

Case IV.—Mrs. R., thirty-nine years old. November 3, 1906. The patient was seen in consultation for a growth in the right breast, outer side. It did not involve the skin, but went deeper than the

breast gland; nipple retracted toward the outer circumference, no enlargement of lymph nodes, no pain, very slow growth. The patient gives a history of syphilis several years ago. Hypodermic injections of 1-4 gr. of arseniosalicylate of mercury, together with the iodide of potassium which she had been taking for some months previous to my seeing her, produced a distinctly beneficial effect, lessening the size and tension of the growth decidedly. And on her second visit, February 8, 1907, a note was made that the tumor had decreased in size perceptibly in the last three months, but, becoming impatient, she lost her temper because I could not promise an immediate cure by operation, without deformity to the breast, and deserted me for another surgeon, who informed her he thought the diagnosis was probably syphilis. I have no doubt that this was a late syphilitic lesion, curable by suitable treatment, although the possibility of a coincident malignancy is possible.

Case V.—January 25, 1905. Mrs. R. H., thirty-five years old, whose husband had been under my care for syphilis some years before. She had never had any evidences of infection, but about two months before this date she had noticed a lump in the left breast, which had gradually increased, without pain. It is now the size of a small egg, flattened out and irregularly ridged, with a retraction of the nipple toward the greater prominence of the tumor, which is situated in the lower half of the breast. Epitrochlear and cervical lymph nodes were made out, but none in the axilla. She was given hypodermics of arseniosalicylate of mercury, 1-4 gr., every third day, till the tumor began to disappear, then less often for several weeks, at the end of which time it had entirely gone, leaving the breast apparently normal.

From the experiences of my own and those of others I would draw the following conclusions:

1.—That gummata of the breast are not as rare as the authorities would lead us to infer.

2.—That as a rule these late syphilitic lesions of the breast can be quite easily differentiated by careful diagnosis.

3.—That to a certainty some breasts can be saved from operative procedures, which heretofore have been needlessly sacrificed.

4.—That in case of doubt an effort should first be made by means of this quick method of treatment to exclude absolutely the possibility of the tumor being syphilitic.

46 West Fifty-fifth Street

THE PREVENTION OF VENEREAL DISEASE.*

By A. H. BAKER, M.D.

Elmira, N. Y.

So much has been said and written concerning the prevention and treatment of the many manifestations of tuberculosis it has gradually overshadowed all other medical subjects in the medical and lay mind. There is, however, another subject of just as vital importance to the individual and to the public which is slowly receiving the attention it deserves and regarding which the public is slowly becoming educated, and on this subject I wish to speak to-night. It is the better education of the public regarding the immediate and remote effects of venereal diseases.

*Address of the retiring president delivered before the Elmira Academy of Medicine, January 2, 1907.

It was my privilege, during my recent stay in New York, to listen to a symposium by members of the Academy of Medicine and some invited guests on this subject, and I then determined to bring it before our Society at the first convenient opportunity. The men who contributed to the symposium were Drs. Bovée and Johnson of Washington, Marrow, Grandin, Goffe, and Jacobi of New York; and other men, notably Dr. John A. Wyeth, entered heartily into the subject and gave to it their best thought and attention. I mention this because I think it affords a suitable explanation of why we may think and write on this subject, and I only regret that I am unable to bring the power of thought and argument to bear upon it it so richly deserves.

The victims of tuberculosis are, to a notable degree, the weaklings of society, and, when looked upon without sentiment or sympathy, perhaps wisely removed by an unchangeable natural law; on the other hand, victims of social diseases are, in most instances, healthy and well developed, and physically best endowed to propagate a healthful race of men and women.

Of the two diseases, gonorrhea and syphilis, I think it is now conceded by most observers that the injurious effects, immediate and remote, on the person suffering with the disease, are greater from gonorrhea; while the evil results to the offspring are greater from syphilis. Dr. Prince A. Morrow in his work entitled "Social Diseases and Marriage," says the influence of syphilis upon the offspring is expressed in one word, "polymortality." In this paper where figures and statistics are given they are largely taken from Dr. Morrow's book, supplemented by some jotted down at the medical meeting referred to above. Seventy-five per cent. or more of the male population suffer at some period from gonorrhea, and from 5 to 18 per cent. from syphilis. Opinions vary somewhat as to the percentage of cures in these diseases. In gonorrhea a conservative estimate places the uncured at 33 1-3 per cent. in both men and women. When the disease passes the internal os and attacks the endometrium, tubes, and ovaries, practically no woman recovers. In syphilis the percentage of uncured is much greater, but the virulence of syphilis seems to diminish as time goes on so that succeeding offspring show less and less its blighting effects. Gonorrhea, on the other hand, no matter of what age or attenuation, when planted in virgin soil, develops its most active and baneful consequences. I do not wish to be understood as claiming that all women who marry men who are not cured will be ruined, or that all children born of mothers who have gonorrhea will become blind; nevertheless many such women will be ruined and many such children will be made blind.

Another fact, brought out by Dr. Jacobi, is that the little children of infected parents often contract gonorrhea of the genital tract resulting, in little girls, in endometritis which produces in later life sterility; and causing, in both little boys and little girls, pyelitis and fatal kidney complications. Every practitioner who has observed the abdominal surgical work necessary in women, cannot have failed to note that a very high percentage, variously estimated at from seventy-five to ninety, is directly traceable to gonorrheal infection. And, as in nearly all other diseases, the higher the intellectual and social position of the patient the less the resisting power and the more far-reaching and destructive the disease.

And when the sum of the knowledge of these statistics is placed before us, what is the lesson it teaches? To my mind it is this: Educate the young men and young women, arouse in practitioners a livelier sense of their responsibilities and a desire in them to treat more conscientiously and follow up more diligently their cases of venereal diseases until they know a cure has been obtained. When I say educate the young men and young women I do not mean to proclaim a subject so unclean from every housetop, but at every proper time and opportunity it should be brought before them with all the force of argument of which we are capable. One of the most reprehensible practices of which medical men in the past have been guilty is the minimizing of the immediate and remote effects of venereal diseases. Imagine, if you can, a more undesirable position than that of a medical man when called to attend a young woman, infected in her early married relations, and he makes the audible diagnosis of violence, cold, wet feet, or any one of the many explanations which satisfy the laity, while in his heart he knows she is but an added victim of man's ignorance or viciousness. Morrow says: "She is an 'innocent' in every sense of the word—she is incapable of foreseeing, powerless to prevent this injury. She often pays with her life for her blind confidence in the man who ignorantly or carelessly passes over to her a disease he has received from a prostitute. Such misfortunes do not befall alone the vicious and abandoned women who indulge in licentiousness and irregular living. The victims are for the most part young and virtuous women, the idolized daughters, the very flower of womankind. They are the women endowed by nature with all those physical attributes of health and vigor which fit them to become the mothers of the race."

At every convenient opportunity I deem it to be the duty of every physician to explain carefully to the young men who come to him professionally the dangers and far-reaching consequences of venereal diseases, their incurability, and that the baneful influence of gonorrhea and syphilis may become manifest twenty years after the primary infection. How much more accurate the knowledge thus obtained than that acquired from evil youthful companions or more evil men, usually the only source of information! A clear knowledge of the sequelæ of gonorrhea, such as urethral stricture, seminal vesiculitis, and diseases of the prostate, bladder, and kidneys; and of paresis, locomotor ataxia, blindness, etc., from syphilis, would have a restraining influence on a large number of young men, and especially those whose mental and physical attributes make them worth saving. The various means for preventing infection at the time of exposure are becoming very popular at present, but to me they seem of doubtful morality and to encourage unclean living.

Young men should be taught that a continent life is not detrimental to health, and to avoid the unclean woman as they would pestilence or plague. Warn them against the danger of an illicit intercourse after they have become engaged to marry. How many of us have had cases of venereal disease to treat in men, contracted after the date of their marriage was set and there was insufficient time under any circumstances for them to recover? Also explain to them that the fathers and mothers of marriageable daughters will be taught that when a previously healthy girl develops a cystitis or pelvic inflammation immediately or shortly after marriage there is usually but one reason for it and that reason is the presence of venereal disease in the young husband.

Advocate early marriages. If there is one thing more than another medical men should set their faces against it is the demand of society that a man shall be able to furnish every luxury and comfort in a home before he marries. It simply means he will finally come to the marriage covenant unfitted either in years or health or both to give to society that which could be justly expected of him. Arouse and instill in the minds of young women the exalted position of a mother over that of the social, childless butterfly.

If this advice be given, if this duty be faithfully performed I have the profound faith and confidence in the young men of our land who are becoming so interested in athletics, in education, in clean, wholesome living, that once the path is pointed out to them the majority of them will follow it, and bring to the nuptial couch the same degree of purity in themselves they so jealously demand of the one who is to share with them life's burdens.

313 Baldwin Street.

CHRONIC PERFORATING ULCER OF THE BLADDER.

By HENRY K. LEAKE, A.M., M.D.,

DALLAS, TEXAS.

In the *Journal of the American Medical Association* of March 23, 1907, Dr. G. Walker gives a report of two personal observations of patients asserted to have simple ulcer of the bladder. He describes two types of the disease—acute and chronic—and states that the symptomatology closely simulates that of cystitis, from which it can be differentiated only by cystoscopic examination.

Many years ago, in an article which I published on this subject, I said that in English literature Lawson Tait was the first to call the attention of the profession to this rare affection of the diseases of women, and that he had given the credit to Rokitansky for having preceded him in describing it. Writing to the *Lancet* for March, 1871, Tait gave the brief histories of four cases of chronic perforating ulcer of the bladder of which he had personal knowledge. Two of these cases he treated in association with his great master—Sir James Y. Simpson. The third case was in his individual practice and he was present at the post-mortem examination of a fourth case which, he says, put him in a position to prove the views of Rokitansky, the well-known distinguished pathologist.

On analysis of Tait's article it is evident that in the first three cases he may have made an error in diagnosis, for the symptoms were not different from those of ordinary cystitis—a disease not infrequent in women—and as cystoscopy was then in an inchoate stage, no inspection of the bladder was undertaken. In the fourth case, I assume that no diagnosis was made previously to the death of the patient, after which the post-mortem discovered "a limited perforating ulcer," presumably situated at the neck of the bladder, for Tait says the perforating ulcer most frequently seems to exist at this point.

Tait had a double purpose in sending his communication to the *Lancet:* First, he eulogizes his revered teacher, Sir James Y. Simpson, for having originated the operation of vesicovaginal fistula to cure chronic perforating ulcer of the bladder; and,

second, to warn the profession of the existence of a rare disease in women which, imitating cystitis in its clinical history, might deceive the physician who, relying upon the ordinary means for treating cystitis, might delay or neglect the adoption of surgical measures, by which alone the successful treatment of what Tait calls this "terrible disease." may be accomplished.

That, exceptionally, it may be, a perforating ulcer may exist in the bladder remote from its neck, I had occasion to show in the article above referred to, wherein I narrated the history of a very interesting and instructive case that had occurred in Dallas several years after the publication of Tait's article.

The wife of a prominent and greatly esteemed physician, recently deceased, a middle-aged and nervous woman but otherwise in the very best health, was taken with symptoms ordinarily attending inflammation of the bladder. Her condition growing gradually worse, several physicians were called in to the case. One of these urgently advised, and ultimately made forcible dilatation of the urethra, the patient being anesthetized. The operation was followed by an aggravation of all the symptoms, which became progressively intensified to such a degree as to render the condition of the patient most pitiable. For weeks she suffered the greatest agony, except when under the influence of powerful opiates, which added their baneful effects to those of the original disorder. She was transferred to New York and placed under the care of a gynecologist of world-wide fame. From reports received I understood that this gynecologist was puzzled as to the exact nature of the case, but treated it on the hypothesis that the symptoms were owing to a severe form of cystitis, although he refrained from making a vesicovaginal fistula which had been recommended by Emmet in the treatment of such cases. The patient remained in New York several months without the slightest benefit from her visit, her condition from day to day becoming more serious. Finally she returned to Dallas and I was called to attend her. From a woman of good physique and lively temperament I found her emaciated, neurasthenic, and melancholy. With a view of at least giving rest to the bladder from its frequent and painful contractions, I made a free vesicovaginal fistula and as suggested by Emmet, introduced a drainage button to keep the incision open. This procedure gave much immediate relief, but did not entirely remove the pain, which soon began and continued above the bladder. After weeks of constant suffering and exhaustion, death occurred, the patient retaining her mental faculties to the very last. A post-mortem examination disclosed a uniformly round ulcer in the region of the fundus of the bladder above the trigone, which had perforated all the coats. The edge of the ulcer was clean cut without undermining and with little if any thickening in the outlying tissue. There did not appear to be much cystitis, nor was there apparently any change of structure in the vicinity of the neck of the bladder, a fact remarkable considering the characteristic tenesmus which always had been a prominent feature of the case. However, a more careful perhaps microscopical, examination of the parts might have shown substantial alteration. There was marked pelvic peritonitis, in excess overlying and radiating from the base of the ulcer; there were no sloughs in the cavity of the ulcer which seemed to have formed gradually by molecular disintegration, and the mucosa appeared to be of normal character almost to its circumferential edge; in short the ulcerating cavity seemed as though just recently punched out except over its very base, where a large amount of peritoneal infiltrate had occurred.

I have seen the more or less chronic perforating ulcer at points in the intestinal tract, several times in the duodenum, and I have operated on patients with gangrenous perforating ulcer of the appendix which was neither inflammatory, tuberculous nor typhoidal—a disease which recently by English surgeons, from its course and pathology, has been separated from the ordinary forms of appendicitis. In all these examples I am impressed with a similarity in appearance of the ulceration, the same fundamental cause being common possibly to the entire class although, of course, this view may be questioned. On account of the oftentimes insidious origin and progress leading to fatal termination, these ulcers are of great interest to the physician and surgeon. Particularly would I cite the gangrenous perforating ulcer of the appendix just mentioned, for here death may ensue upon a fatal perforation of the organ which had been preceded by little or no symptoms to indicate the disease, and this is what might be expected in such cases. Much depends upon the location of an ulcer in the body of the appendix and whether or not inflammation has radiated towards the base of the organ and involved the peritoneal attachment, for a large portion of the appendix is devoid of sensory nerves and thus may be involved in disease without giving rise to pain, either objective or subjective. The gangrenous perforating ulcer of the appendix referred to is seldom, if ever, attended by inflammation and therefore may perforate unrestrained by contiguous peritonitis, a feature so conspicuous in the case of the perforating ulcer of the bladder described above. Should the ulcer be situated near the base of the appendix, definite symptoms may exist that will direct attention to disease which may exist at this point.

Mr. Tait did not venture upon an explanation of the pathological cause of these perforating ulcers of the bladder; he simply stated that he endorsed the views of Rokitansky which, unfortunately, he omitted to give in his article. The explanation put forward by Dr. Walker is a generalization too narrow to enlighten us as to the real cause of this malady. He says it is "due probably to local disturbance in, or complete blocking of the terminal, or by an interference with the trophic nerves." The nervous and circulatory systems provide for the nutritional activity of every part and which, being affected by the primal cause, act as secondary factors in the beginning and progress of most morbid processes. This is now known to be true in the case of gastric ulcer which formerly was thought to be caused directly by a localized thrombosis or embolism, but the primal cause has to do with defective cell metabolism, the origin and nature of which we do not quite understand; it may be that the environing blood plasma of the cells supplies the disturbing agency which initiates their destruction.

Although the anatomical constituents of the hollow viscera are somewhat different—for example the variety of glandular tissue—nevertheless an argument may be drawn from this fact—that a common cause lies at the root of these perforating ulcers, so much alike in appearance, history, and termination, and that this cause is abnormal cell metabolism which in some mysterious way has been set up in a particular part of the organism, and brings in its train secondary factors which further contribute to the deranged function and finally to the utter destruction of tissue areas involved in the process.

REPORT OF A POSTOPERATIVE CASE OF FIBROID SARCOMA UNDER THE ENZYME TREATMENT.

By WILLIAM T. DORAN, M.D.,

NEW YORK.

Mrs. U., age 27, native of the United States. Family history, negative. Personal history, she had the usual diseases of childhood, but was otherwise well until July, 1906, when she noticed increased length of menstrual period, increased menstrual pain, and sallow color of face, which she attributed to liver trouble.

This continued until the following December, when the family physician was consulted on account of menorrhagia. Dr. J. C. Taylor, to whom the patient was referred, advised an immediate operation. He placed her in the New York Polyclinic Hospital, and on December 21 operated, assisted by the writer. A panhysterectomy was done and the involved glands removed so far as was possible (the obturator glands were involved at this time). The specimen was examined by Dr. Jefferies of the New York Polyclinic Laboratory, and a positive report of fibrosarcoma was made.

Recovery from immediate effects of the operation was uneventful, but within the second week following the inguinal glands on right side became involved. Later on there was involvement of the glands on the left side. Upon bimanual examination continued enlargement of the obturator glands was found. There was marked induration of all the involved glands, but no evidence of inflammatory conditions. Enzyme treatment was suggested; nothing was promised at the time from its use, save a possible nutritional gain. After conference with Dr. Margaret Cleaves, the enzyme treatment was instituted on January 7, 1907. At this time the patient weighed 115 pounds and was weak and anemic. On the first day five minims of trypsin (special strength) was given hypodermically. This was gradually increased each day until on the fourth day twenty minims of trypsin was administered. At this time the use of amylopsin was begun and injections of twenty minims of trypsin and amylopsin were given daily. The doses were gradually increased until February 9, when the patient left the hospital, at which time she was receiving thirty minims of each daily. Up to this time there had been only slight rise in temperature (1.5°) and an increased pulse rate. Treatment was continued at home every other day, forty minims of both ferments being used. In the beginning of the third month of treatment there was marked tenderness in both breasts, particularly in the left one, which was accompanied by a dragging sensation. Examination revealed no enlargement: coincidentally the patient suffered from nausea and headache. These symptoms I ascribed to the treatment. The dose was gradually increased until sixty minims of each was given every other day. The glands gradually diminished in size and the patient increased in weight and strength. Since April 10 the patient has been treated twice a week only, the maximum dose of sixty minims each of trypsin and amylopsin being given.

During the treatment the patient has taken internally, holadin, twelve grains daily; pancro hepatic (extractum pancreatis, three grains; inspissated oxgall, one grain) daily. Extra diet was encouraged, iron tonics used for blood. The patient was examined weekly by Dr. Taylor. The glands gradually diminished until a very slight enlargement of one inguinal gland on the right side only is to be noticed at date of writing.

To-day the patient expresses herself as feeling entirely well, takes very long walks without tiring, has good color, and weighs 137 pounds, a net gain of twenty-two pounds since commencement of treatment.

This patient has never had hypodermic abscess.

129 East Fortieth Street.

A New Method of Shoulder Joint Excision.—At a recent meeting of the London Clinical Society Mr. T. H. Kellock presented a paper on this subject. He noted that in excision at the hip the section of bone was made within the capsule, and no muscular attachments to the femur were disturbed. In excision at the shoulder the humerus was divided through the surgical neck, insertions of important muscles into the tuberosities were sacrificed as well as, in a child, the most important seat of growth of the humerus. The operation described was an endeavor to save these muscles, and the epiphyseal line while preserving a movable joint; it was carried out by removing the necessary amount of bone from the scapular instead of the humeral side of the joint. After opening the joint by a long anterior incision, the muscles attached to the upper end of the humerus were retracted, the coracoid process was broken, but not completely separated, and turned a little downwards with the origins of the biceps and coracobrachialis muscles. The neck of the scapula was sawn through and the glenoid cavity completely removed, sacrificing only the long tendon of the biceps and a part of the middle head of the triceps, structures of comparatively little importance. The operation had been performed on a man, aged forty-one, who had sustained dislocation of the left shoulder complicated by fracture at the surgical neck of the humerus eleven weeks previously. The fracture had united firmly in good position, but the subcoracoid dislocation remained unreduced. Passive movements were commenced early. The result had been fairly satisfactory; flexion and extension were quite good, abduction fair, but rotation of the humerus on its own axis poor, but all these movements were improved by exercise and rubbing. Another time it might be advisable to add a posterior incision and divide the neck of the scapula from behind.—*British Medical Journal.*

An Appreciation of Hunter.—In a recent Hunterian lecture Mr. Henry T. Butlin spoke as follows: "There is no machine with which to measure greatness; and if there were one it would have to be made in many different forms. For the qualities and actions which go to make up the greatness of one man would so ill befit another, equally great in his own particular sphere, that the same mould could not be applied to both. There is, however, one test which is generally accepted as evidence of a great mind, whether it be the mind of a ruler, of a philosopher, of a poet, or of a man of science. It is that 'deep things should be discovered to him out of darkness'; in other words, that he should see clearly truths which are still hidden to ordinary mortals. And on this test I venture to class Hunter as one of the greatest men that ever entered our profession. Not for the museum which he made, or for his discoveries in physiology and comparative anatomy, or for the wondrous example of industry and determination which he has bequeathed to us, and certainly not for the improvements which he actually introduced into the practise of surgery, although any of these things would have entitled him to a high place in our esteem, and all of them together would have placed him very high indeed, but because the true relation of surgery to science was revealed to him nearly 100 years before it was so clearly recognized by those who followed him that they were forced to act upon it."—*Lancet.*

MEDICAL RECORD.

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DIET AND STERILITY.

IT is the fashion in these days to attribute many of the ills of modern life to injudicious eating. The great consumption of flesh meat especially is blamed for a larger proportion of the noninfectious maladies which plague civilized man. Gout, rheumatism, cancer, arteriosclerosis and kidney disease, epilepsy, some forms of insanity, and the protean manifestations of autointoxication are among the more serious of the evils which are attributed to an indulgence, or at least an overindulgence, in meat. To this list Dr. Malcolm Campbell of Edinburgh would add, tentatively, a diminution in the birth-rate. It occurred to this investigator that the alarming and persistent decline in the birth-rate might be due in part to uterine changes induced by an unphysiological diet, and he accordingly undertook a series of experiments to determine this point. The account of his investigation is given in the *British Medical Journal* of May 25, 1907.

The animals employed in the research were female rats. The uteri of eighty-six animals were examined both macroscopically and microscopically, the tissue for examination removed being from the same area, the junction of the distal and mid thirds of the uterus. Eight wild rats, in various stages of development, from the immature to the adult animal, were examined in order to form an opinion as to the structure of the uterus in animals living, presumably, under natural conditions. The remaining animals were divided into five series, namely: (*a*) Thirteen animals fed, from weaning, for periods of from nine to fourteen weeks on an exclusively milk diet; (*b*) twenty-seven animals fed for periods of from twenty-one days to nine months on bread soaked in milk; (*c*) eleven animals fed for periods of from four to fourteen weeks on a rice diet; (*d*) five animals fed for varying periods on a diet of porridge or oats; (*e*) twenty-two animals fed for periods of from twenty days to eight months on a raw meat diet. The uteri of the animals fed on milk and bread soaked in milk approximated most nearly to the type of structure in the wild rat. The use of what the author called a "nonphysiological diet"—for example, exclusive flesh, rice, or porridge—induced in the great majority of cases a modification in the structure of the uterine mucosa. The change was most profound in animals fed from weaning on an exclusively flesh diet. In such animals the development of the uterus was also most interfered with. This structural change was associated with sterility, and it was found that the rats fed on meat alone, especially when this diet was begun immediately after weaning, were almost invariably sterile.

Dr. Campbell's experiments are interesting, but they are hardly conclusive. We doubt whether a diet of milk or milk and bread is any more physiological for rats after weaning than is one of grain or meat; a mixed diet is probably more normal for them as it is for man. Our assumed arboreal ancestors were probably prolific on their diet of nuts and fruits, yet, as we do not know who they were, it may be that this particular species became extinct, and survived only in our less remote progenitors, who lived by the chase and gave birth to numerous offspring while gorging, in the intervals of hunger, on the raw flesh of other animals and probably also that of their own kind. It may be, however, that the evil effects of a merely exclusive meat diet were counterbalanced in the case of our forebears by the active life led in dodging their enemies and hunting their prey, for we know that even now the man who leads an active outdoor life can partake of a larger amount of flesh food with impunity than his sedentary brother. There is no doubt that an excess of meat in the dietary, as an excess of food of any kind, is injurious, and the more so the less the eater lives in the open air: but it may be also that it is the quantity rather than the quality of food that injures the eater. As regards the diminished birth-rate, there are undoubtedly some factors at work other than voluntary restriction, *pace* Mr. Roosevelt, and it may be that an excess of meat in the dietary, combined with a sedentary habit, is one of these factors. If so, we, at least the female portion of us, must resort to the carbohydrates; but the late Dr. Schenk told us that such a diet would result in the production of children of one sex only, and this, unless we can make practical the Christian Science theory of parthenogenesis, would be the surest road to race suicide.

SANITARY METHODS AND THE MARCH OF SANITATION.

No one can deny that progress in sanitation has been the means of saving innumerable lives and of lengthening the lives of as many others. Whether this result will be for the ultimate good of the human race is another question altogether. Some men whose opinions carry weight contend that many lives are thus saved which are not worth the saving, and hold that the "survival of the fittest" is the doctrine which, if carried into effect, will most benefit the community at large. Nevertheless, it must be admitted that the object of modern medicine and of modern sanitary science is to preserve as many lives as is possible and to lengthen life to its utmost limit. This being so, the nations in the van of civilization naturally vie with each other in their efforts to gain this end.

At one time, and not so many years ago, Great Britain led easily in all matters pertaining to sanitation. She was the pioneer of modern sanitary methods. Of recent years Great Britain has lagged in this respect, and in no department of sanitation more conspicuously than in that relating to the control of her milk supply. In the *Lancet* of May 25 is a decidedly sharp criticism by Dr. J. H. Garrett,

Medical Officer of Health of Cheltenham and a well-known authority on the subject, of the present methods of administering the public health acts in England. It would not interest readers of this journal to notice all the points brought forward by Dr. Garrett, many of which are of a purely local nature, but the main features of his criticisms should be of interest to sanitarians in all parts of the world. The principle upon which English sanitary control is now founded is that of decentralization. The power is vested in local authorities, and Dr. Garrett shows up the defects of this system. He is of the opinion that "the narrow minds of rural councillors are always unduly affected by consideration of expense and by that conservative policy of let-be which permits of the fool's paradise in which they are usually so content to dwell." The writer further draws attention to the notorious fact that the capacity in individuals of ruling the mass of the populace with good effect is not a common one, and the smaller the district the less likelihood of its containing men capable of becoming effective rulers.

A select committee on the Housing-of-the-Working-Classes Act has issued recently a report on the housing of the working classes in rural districts of Great Britain, which shows the hopelessness of any effective administration of the act by the existing rural district councils and the officers whom, in the capacity of sanitary authorities, they have appointed to serve them. In a few words, it would seem that the sanitary laws of Great Britain are in the main sufficiently good, but that in most instances, in rural districts at least, they are not properly enforced.

It has been proposed frequently during recent years that Great Britain should have a great central department of government with plenary executive powers over the whole country. This proposal is opposed to the essence of British government, which is based on the principle, as in this country, that the people should rule themselves, find out what they want, and find out how to get it. As a matter of fact, people cannot be made sanitary by law, and this statement especially applies to those with the freedom-loving Anglo-Saxon traditions. Both in the United States and in Great Britain the inhabitants to a large extent must work out their own salvation in matters sanitary as in other matters.

The mission of the skilled sanitarian is to educate and point the way. Of course, in large cities at any rate, it is necessary to have ordinances the enforcement of which is calculated to preserve health. But, on the whole, education of the masses will bring about the desired results more effectively than the most stringently enforced laws.

THE INFLUENCE OF METEOROLOGICAL CONDITIONS, REFUSE HEAPS, ETC., ON THE BACTERIAL CONTENT OF URBAN ATMOSPHERE.

The number and character of the bacteria in the air of cities are influenced by particular meteorological conditions, such as rain and wind, and by other conditions not meteorological, such as refuse heaps, density of population, proximity to lines of traffic, etc. Tests to ascertain the extent of these influences are difficult to make, since it is seldom possible to repeat an expriment under exactly similar meteorological conditions. In the *Scottish Medical and Surgical Journal* for June, 1907, C. J. Lewis publishes the results of a series of experiments, showing what a notable influence the above named conditions exert. He used both the gravitation and filtration methods to estimate the number of organisms present in the air, and as most of these organisms will grow on a gelatin medium, under aërobic conditions, at a temperature of 15° C., this method of culture was adopted. Of the meteorological conditions rainfall and wind exert the greatest influence. Rain washes the organisms out of the air into the soil. The result of Lewis' examinations showed that the extent of purification of air by rain corresponds in direct ratio with the duration and heaviness of the fall. Thus, a heavy rain of four hours reduced the organisms in the air from 162 per square foot per minute to 28, *i.e.* by eighty per cent.; two hours of heavy rain effected a reduction of only sixty per cent.; in the case of light rain the reduction amounted only to thirty per cent., the place of observation being the same in each case.

As regards the effect of wind, Lewis found repeatedly that there was an excess of organisms to leeward over those to windward. Furthermore, not only the quantity but the quality of the organisms was changed. On the windward side there were found generally harmless organisms, while to leeward were organisms of putrefaction and of sewage origin. When the plates obtained on the windward side of the town were incubated at 15° C. he found from eleven to seventy-five organisms per square foot per minute, while on agar plates obtained at the same time and place, and incubated at 37° C., only from one to thirty organisms were found. This is of clinical significance, as it shows that to windward of a town the air does not contain many organisms capable of growth at blood temperature—a characteristic attribute of organisms pathogenic to human beings.

With respect to dust particles, Lewis found that there was a numerical relation between them and the organisms deposited at the same time and place. When the number of organisms was high the count of dust particles was high. Very high numbers were obtained in places where there was heavy and rapid traffic, showing definitely the effect of the latter. It is a somewhat trite observation that the number of organisms in the air is smaller in winter than in summer. Lewis found that this general rule usually held, yet on several occasions (the conditions of wind, humidity, rain, and barometric pressure being the same) he found fewer organisms deposited on warmer days; he therefore believes that the influence of temperature is overestimated. Barometric pressure and humidity in themselves were not constantly associated with any direct variation of the number of organisms.

As regards the influence of locality, densely populated districts, refuse heaps, and polluted soils were all found to have a notable influence upon the numbers and character of the organisms present in the atmosphere. On a sewage farm *B. coli communis* and the streptococcus frequently appeared on the plates. In the proximity of slums the average of

several observations showed 949 organisms per square foot per minute, contrasting strongly with 132 per square foot per minute obtained in less crowded districts. In the misfortune which befell New York last week in the strike of the drivers of the Street Cleaning Department, as a result of which heaps of refuse accumulated in the streets, an attempt was made to reassure the public by the statement that the accumulated refuse was only an offense to the olfactories, but that it offered no danger to health. This is incorrect, for with the vastly increased number of microorganisms in the air, there must be a proportionate increase of pus cocci and other pathogenic germs. The period around the murderous Fourth of July was a bad time for this condition of filth accumulation to exist.

The Internal Treatment of Acne.

Acne is a condition which has brought forth more methods of treatment, with few exceptions, than any other disease of the skin. Local procedures have perhaps been exploited to a greater extent than those of a general or systemic character, and the assumption is often made that the lesion is local rather than constitutional in its main features. Kapp (*Therapeutische Monatshefte*, March, 1907) again calls attention to the fact, already sufficiently proved, that intestinal derangement in many instances constitute the underlying basis upon which the disposition to the production of acne depends. In addition to these we have at the time of puberty a number of other conditions which enter into the problem. A skin poorly nourished and insufficiently supplied with blood offers less resistance to the entrance of whatever bacterial organisms may bring about the characteristic pustulation of this organ than one which is in a healthy and well nourished condition. Kapp's experiments throw considerable light on the importance of intestinal derangements in the etiology of acne. He found in the urine of thirty young patients afflicted with the disease a marked increase in the quantity of indol, indican, and a number of similar substances. This is evidence of intestinal decomposition of high degree, and as diminished intestinal peristalsis is usually present, particularly during the period of puberty, we have at hand the two main factors in the production of the lesions. Treatment should therefore be directed towards reducing fermentation and increasing peristalsis in the intestine. Kapp suggests precipitated sulphur (1.0) and menthol (0.25) two or three times daily as an efficient remedy. All forms of acne, even of the severest types, were markedly improved after three or four months of treatment, and in many cases were permanently cured. Local disinfectant treatment was at the same time employed in all the cases in order to prevent the spread of the infection. Notwithstanding these favorable results, Kapp admits that there are certain features in the relationship between intestinal decomposition and inflammation of the follicles of the skin, which cannot as yet be fully explained.

An Unusual Bladder Case.

The ideal method of removing concretions or foreign bodies from the bladder, namely by the action of solvent substances, is unfortunately impracticable in many instances. A remarkable case in which this procedure was successfully carried out is reported, however, by Lohnstein in the *Berliner klinische Wochenschrift*, June 10, 1907. The patient was a young man under treatment for obstinate cystitis, the nature of which could not be discovered. All ordinary etiological factors, including the introduction of a foreign body into the urethra, were energetically denied by the patient, but a cystoscopic examination revealed at the vertex of the bladder a yellowish white, smooth mass of about the size of a walnut. As it did not appear to be adherent to the bladder wall, the suspicion was aroused of its being a foreign body lighter than water, and therefore floating at the vertex of the bladder. As such a body could hardly be of either cork or wood the patient was taxed with having inserted wax into his urethra, and finally admitted that five months' previously, in order to allay an itching sensation in the urethra, he had made from a wax candle a bougie-like mass which he had allowed to escape into the bladder. Shortly afterward the vesical symptoms had set in. The author succeeded in removing the mass at two sessions by injecting into the empty bladder small quantities (15 to 25 gm.) of benzine, which the patient retained from 10 to 45 minutes. No noteworthy local or general symptoms followed the procedure, the vesical symptoms promptly subsided, and subsequent cystoscopic examination demonstrated the absence of the foreign body. The amount of wax obtained by evaporation of the benzine used was about 5 gm. The case affords an interesting illustration of the diagnostic value of cystoscopy, and is also remarkable for the fact that no incrustation of the foreign body took place during its long sojourn in the bladder.

Glycocoll in the Diagnosis of Gout.

The excretion of glycocoll is chiefly found in leukemia, gout, and during the crisis of a pneumonia. The only other pathological change common to these conditions is the increased production of uric acid, so that glycocoll is possibly a decomposition product of the latter. To prove this L. Hirschstein (*Zeitschrift für experimentelle Pathologie und Therapie*, Vol. 4, No. 1, 1907) administered to several patients large quantities of uric acid internally, and in each case found glycocoll in the urine. As a rule the output of uric acid and glycocoll showed almost parallel curves. This was not so, however, in cases of gout, in which there is an excess of uric acid in the blood, with a diminished amount in the urine, and where glycocoll appears in its stead. During the height of an attack of gout, there is a sudden increased excretion of uric acid, and, coincidently, the glycocoll disappears from the urine. While glycocoll is not present in all cases of gout, a probable diagnosis of this disease may be made when it is found in the urine without any other cause to account for it, and especially if there is at the same time a diminution in the amount of uric acid excreted. The appearance of glycocoll in the urine following the ingestion of uric acid, the constant relation which glycocoll and uric acid bear to each other in pathological conditions, and the experiments of Wiener and Schittenhelm, who obtained glycocoll by splitting up uric acid with certain ferments, all go to prove that this substance is a derivative of uric acid.

The Excretion of Euglobulin.

Euglobulin is an albuminoid constituent of the blood serum which may be separated from the latter by triple saturation with ammonium sulphate.

Although this substance has been shown to be of a complex composition and capable of being broken up into a number of parts, it may, for practical purposes, be considered as a single body. Joachim found in a case of chronic nephritis associated with amyloid degeneration of the liver, spleen, and kidneys that there was an increased excretion of euglobulin in the urine, and later on Wallerstein made a similar observation. The application of these findings for clinical purposes has recently been made the subject of an investigation by Zak and Necker (*Archiv für klinische Medizin*, Vol. 88, No. 3), who made a careful clinical and microscopical study of a series of cases. They believe that if the patient is kept under observation for a sufficiently long time the reaction can always be elicited in the presence of amyloid degeneration, although the quantity of euglobulin varies within wide limits. These variations could not be traced to either temperature changes, the food, increased cachexia, or improvement in the general condition, and they are of such a character that the writers venture to speak of an intermittent euglobulinuria associated with amyloid degeneration. Although the absence of this reaction does not permit us to exclude the diagnosis of the latter pathological condition, its presence seems to afford a pretty definite evidence that this lesion is present.

The Etiology of Trachoma.

It is not astonishing that the discovery of the spirochetes present in the lesions of syphilis should have led to renewed activity in investigating the etiology of various other diseases of obscure origin. Among these is trachoma, and several authors have lately published observations which seem to have a bearing on the causative agent of the affection. Leber has described the occurrence in the trachoma follicles of large cells with numerous peculiar inclusions. Halberstadter and Prowazek, working in Java, have recorded somewhat similar observations, and in addition to the larger inclusions have described much smaller granules occurring in pairs and present in the protoplasm of the epithelial cells of the conjunctiva. Greeff (*Deutsche medizinische Wochenschrift*, June 6, 1907) describes similar bodies, but states the important fact that they are to be found also in the cells of the follicles themselves. These bodies are only about one-fifth the size of ordinary cocci and may be seen both in sections and in the hanging drop. While it would be premature to attach too much importance to these observations, and many steps must be cleared up before they can be regarded as standing in an etiological relationship to trachoma, their discovery is a noteworthy observation, and it may be that in retrospect they will be found deserving of greater consideration than they seem entitled to at present.

The Diagnosis of Renal Calculus.

The diagnosis of nephrolithiasis is oftentimes attended with no small difficulty, and additions to its symptomatology are to be welcomed. Bittorf (*Münchener medizinische Wochenschrift*, June 4, 1907) believes that hyperesthesia to pressure of the testicle of the affected side is a characteristic sign of this condition. In a considerable number of cases of other renal and abdominal conditions examined for this sign negative results were obtained. The author explains the mode of causation of the symptom by assuming that it is due to a stimulation of the spermatic plexus, which either originates directly from the renal plexus, or has a common origin with this from the aortic plexus, and so is likely to be directly implicated. This view receives substantiation from the fact that ovarian hyperesthesia was present in a case of renal calculus in a woman. The symptom has not as yet been tested in a sufficient number of cases to establish its specificity, but it should prove an interesting subject for further observations. If found to be reliable it would prove of much service in differentiating the puzzling cases of right-sided abdominal pain in which renal, biliary, or appendicular involvement may exist.

News of the Week.

New Immigration Law.—The new immigration law became effective on July 1. Its provisions are designed to raise the standard of those admitted to the United States, and the head tax on all aliens entering the country is raised from $2 to $4. The excluded classes are increased by adding to the list of ineligibles imbeciles, feeble-minded persons, persons afflicted with tuberculosis, those certified upon medical examination to be mentally or physically defective to such an extent as to affect their ability to earn a living, and all persons coming into the United States for any immoral purposes. One section makes the decision of a board of special inquiry final, not only as to the rejection of aliens afflicted with loathsome or dangerous contagious diseases, or with mental or physical disability bringing them within the excluded classes, but also as to persons afflicted with tuberculosis.

For the Education of Poor Mothers.—In conjunction with the work of Junior Sea Breeze, the open-air camp hospital established last year at Sixty-fourth street and the East River for the purpose of taking care of sick babies, a staff of nurses has been organized whose function it will be to visit the homes of the poor and give the mothers instruction in the care of their small children. This work is to be carried on in the district between Thirty-ninth and Eighty-ninth streets and from Fifth avenue to the East River, with Junior Sea Breeze as a center. There will be ten nurses, each in charge of a section of this district, and another staff of ten nurses has been provided to do similar work in the districts adjoining the recreation piers. A physician is to be stationed by the Board of Health, and a kindergarten teacher by the Board of Education on each pier. A third staff of visiting nurses will devote their attention to maternity cases, in the interest of Caroline Rest, the convalescent home of the New York Association for Improving the Condition of the Poor, for mothers and newborn babies, at Hartsdale, N. Y. The funds for the Sea Breeze work and the visiting nurses are provided by Mr. John D. Rockefeller. Last year the Sea Breeze Home on Coney Island received 23,051 children for stays of varying duration, and it is expected that 25,000 will be provided for this year at a cost of about $50,000, collected by voluntary subscriptions.

Conviction of a Christian Scientist.—A Christian Scientist arrested some weeks ago on the charge of having permitted his six-year-old daughter to die of bronchopneumonia without medical attention, was found guilty last week in the Court of Special Sessions of having violated that section of the Penal Code which makes it a misdemeanor for a parent to fail to provide medical attendance for a minor. The sentence may be a fine of $500, a year's imprisonment, or both. An effort was made in behalf of the

prisoner by Justice Deuel to have the trial stopped on the ground that the new law regulating the practice of medicine, which went into effect on May 13, specifically exempts from punishment persons carrying out the practice of the religious tenets of any church. Whether this section of the law does or does not apply to the practice of Christian Science healing has not yet been settled by court decision, but it was decided that it was inoperative in the present case, as the child had died before the law went into effect. It is possible that this provision in the new law will be declared ineffective in regard to minors in any case.

An Appeal for Clean Streets.—Twenty-five organizations, among which are the Academy of Medicine, the Automobile Club, the Charity Organization Society, the City Club, the Women's Municipal League, and the East Side Civic Club, have presented to Mayor McClellan a memorial asking for better care of the streets. This action was not suggested by the strike of employees of the Street Cleaning Department, but the petitioning bodies were forced thereto by the utter failure of the Commissioner to keep the streets even passably clean. Four suggestions are made in the memorial as follows: (1) As a preventive measure of very great and obvious importance, that the Police Department be directed to enforce the very clear and comprehensive provisions of law that forbid the unnecessary soiling or littering of the streets. (2) That citizens be informed more adequately as to what is required of them, and as to the penalties for offenses against these laws. (3) That the working system of the Street Cleaning Department be thoroughly reorganized, and that the Department itself be required to conform to all laws applicable to it. (4) That the asphalted pavements throughout the city be washed daily, and that the most improved type of flushing machines be secured for that purpose. There is, as the memorialists remind the Mayor, an abundance of authority in the law as it stands for action under any of the above heads.

Free Milk in Jersey City.—The Health Board of Jersey City has decided to establish a depot in the basement of the City Hall for the free distribution of pasteurized milk. Poor women presenting prescriptions from a physician for pasteurized milk for infant feeding will receive it without charge. It may also be obtained without a prescription by paying the cost of the bottles. The free dispensaries maintained at drug stores for several summers will be abandoned and the dispensaries' appropriation will be used to support the free milk depot. Substations will be opened in the basements of public school buildings.

Opium in the French Navy and in China.—The use of opium in the French Navy is alleged to have become exceedingly prevalent among both officers and men. The Minister of Marine has been obliged to issue an order that the names of officers suspected of using the drug be reported to him, and has forbidden the presence on the vessels of any articles used in opium smoking. A new edict has been issued in China which orders all officials to use every effort to carry out the provisions of the anti-opium edict previously issued, and commands an investigation into the quantity of land at present devoted to the cultivation of opium. In addition to threats of punishment for officials dilatory in executing the regulations, rewards are promised for those who are active in the work.

Absinthe Not to be Forbidden.—The Commission on Hygiene of the French Chamber of Deputies has rejected the bill recently introduced which provided for the total prohibition of the sale of absinthe on the ground that its consumption was a menace to the prosperity of the country. The commission refused to sanction the measure, alleging that it could not discriminate between absinthe and many others liqueurs, but it recommended the passage of a law forbidding the sale of the cheap imitations sometimes sold under the name of absinthe.

Chicago Physicians Honored.—The honorary degree of LL.D. was conferred on Dr. George H. Simmons at the commencement exercises of the Northwestern University, held June 20, and the honorary degree of A.M. was conferred on Dr. James B. Herrick at the annual commencement exercises of the University of Michigan, held June 20.

Resignation of Prof. Carmalt.—Dr. William H. Carmalt, for thirty years professor of surgery in the Yale Medical School, has resigned this post and been made professor emeritus.

Tent Hospitals for Militia.—Major T. J. Sullivan, Surgeon of the Seventh Regiment, I. N. G., favors the idea of tent hospitals, such as the regular army has adopted, and the surgeons of the Illinois National Guard are almost unanimously in agreement with him.

New Hospital for Chicago.—On June 16 ground was broken for the new People's Hospital at Twenty-second street and Archer avenue. This building will be three stories high and of pressed brick and steel construction. The building is to be erected under the auspices of the People's Hospital Association, of which Dr. I. C. Gary is secretary and William D. Schaefer is president.

Bequests to Charitable Institutions.—Bequests amounting to two million dollars provided for in the will of the late John C. Proctor of Peoria, Ill., among other charitable objects, are to be devoted to the establishment of a laundry to give employment to boys and girls, a manual training school for boys, and an orphanage. The sum of $350,000 has been set aside for a home for the aged and $300,000 for the Cottage Hospital.

Woonsocket (R. I.) District Medical Society.—At its annual meeting held in Providence on June 20 this organization elected officers for the following year as follows: *President*, Dr. E. D. Clarke; *Vice-President*, Dr. John J. Baxter; *Secretary*, Dr. William F. Barry; *Treasurer*, Dr. George R. Smith.

North Missouri Medical Association.—Officers as follows were elected at the annual meeting of this organization held in Gallatin on June 22: *President*, Dr. James Hanks of Brasbear; *Vice-Presidents*, Drs. Knott of Keytesville and D. F. Hanna of Gallatin; *Secretaries*, Drs. E. C. Grim of Kirksville and Oliver McEuen of Shannondale; *Treasurer*, Dr. Robert Haly of Brookfield.

Oregon State Homeopathic Medical Society.—At the thirty-first annual meeting of this society held in Portland on June 12 officers were elected as follows: *President*, Dr. Charles Billington of Portland; *Vice-President*, Dr. J. S. Bishop of Forest Grove; *Secretary*, Dr. H. S. Nichols of Portland; *Treasurer*, Dr. Emma J. Welty of Portland.

In Honor of the Late Dr. John H. Packard.—The visiting staff and former resident physicians of the Pennsylvania Hospital have decided to have painted a portrait of the late Dr. John H. Packard, one of the surgeons to the hospital from 1884 to 1896, to be hung in the institution,

in recognition of his services as teacher, surgeon, and author.

Death of Prof. Schüller.—Prof. Maximilian Schüller of the University of Berlin died last week of cancer of the stomach. Prof. Schüller was an ardent advocate of the parasitic theory of cancer, and had made many contributions to the literature of the subject. He had also prepared a serum which he believed at one time to be curative of the disease which killed him.

Obituary Notes.—Dr. Charles F. W. Ebner of St. Louis died in that city on June 18, at the age of seventy-six years. He was a native of Germany and received his medical education in the universities of Halle and Goettingen. He came to this country in 1852, and had practised in Chicago, Baltimore, and Millard, Neb. He served as regimental surgeon in a New York infantry regiment during the Civil War.

Dr. James D. Folsom of St. Johnsbury, Vt., died on June 20 after a long illness. He was born in Wheelock in 1828, and was graduated from the medical department of Dartmouth College. He had practised for many years in Lancaster, and had been a resident of St. Johnsbury for thirty-five years.

Dr. Charles E. Severance of Brattleboro, Vt., died on June 20, at the age of seventy-three years. He was born in Leyden, Mass., and received his medical education in the College of Physicians and Surgeons of this city. He practised in Shelbourne Falls, Mass., from 1861 to 1885, and then practised for a time in Newark, N. J. In 1890 he removed to Brattleboro.

Dr. George W. Carr of Providence, R. I., died on June 18, at the age of seventy-three years. He was born in Pawtucket, and was graduated from Brown University in the class of 1857. He received his medical education in the National Medical College of Washington and the University of Pennsylvania Medical School. During the Civil War he held several medical positions in the army, and at one time was Brigade-Surgeon of the Fourth and Sixth Army Corps. At the close of the war he resumed practice in Providence, and in 1868 was appointed physician to the Rhode Island State prison. He was Brigade-Surgeon of Rhode Island for several years, and was made Medical Director of the militia when that body was reorganized. When the Rhode Island Hospital was established he was its first surgeon, and he held the post until 1888. A few years ago he retired from active work.

Dr. Franklin J. Voss of Brooklyn died suddenly on June 27, in his fifty-sixth year. He was graduated from the medical school of the University of the City of New York in 1885 and had practised in Brooklyn ever since.

Dr. Frank Horace Getchell died at Philadelphia on June 27, at the age of seventy-two years. He was a great-grandson of Dr. Obediah Williams, a surgeon in Stark's regiment during the Revolutionary War, and he was graduated from Dartmouth Medical College in the class of 1862 and from Jefferson Medical College in the class of 1871. During the Civil War he served as surgeon in the Third Maine Volunteers until his health failed, when he was detailed to army hospitals at Philadelphia.

Dr. John Benson of Chatham, N. B., died on June 24, at the age of sixty-eight years. He had practised for many years in Newcastle and in Chatham.

Dr. A. W. Corner of Butte, Mont., died on June 21 of septicemia contracted from a patient. He was born in Missouri and received his medical education in Washington University, St. Louis. He had practised in Butte about six years.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

HOSPITAL SUNDAY—INTERNATIONAL RED CROSS CONFERENCE—PATHOLOGICAL SOCIETY'S FINAL MEETING AND PRESIDENT'S ADDRESS—TO RELIEVE OPIUM-EATERS—OBITUARY.

London, June 14, 1907.

The week began with Hospital Sunday and collections were made in most places of worship. So far as can be ascertained, the contributions promise to equal those of last year, but time must elapse before the accounts can be made up, as many remittances have yet to arrive.

The eighth International Red Cross Conference has occupied attention this week. It was opened at the Medical Examination Hall on Tuesday by Field Marshal Earl Roberts, who read messages from Queen Alexandra and the Empress of Russia. The delegates of the participating countries numbered 150. The Queen's message, as president of the British society, expressed the "greatest pleasure" in welcoming all on the occasion of the first meeting on British soil, and the assurance of her "warmest and most heartfelt sympathy in their united endeavors to further still more the great scheme for relieving the sufferings of the sick and wounded." The delegates are invited to Buckingham Palace for to-morrow. Messages were also received from Miss F. Nightingale and the presidents of the French and German societies.

There is also an exhibition of appliances and devices for finding, raising, and transporting the wounded, which has a claim to be called international, as eleven countries contribute to it—not with a view, however, of giving a comprehensive display of all Red Cross appliances, but rather to set before the delegates such devices as any constituent society may consider worth the attention of the others. Here were a brace of trained ambulance dogs, exhibited by Major Richardson, whose breeding and training of them has done much to promote their use and give a new meaning to the phrase "the dogs of war." For raising and removing the wounded on litters and stretchers many devices are shown. The applications of the bicycle to ambulance work form a notable exhibit. Aluminum splinting, recommended by Sir F. Treves, for dealing with all kinds of fractures on the battlefield, and many surgical appliances are also on show, and have proved very interesting to the delegates and others.

On Wednesday the report of the Augusta fund was submitted and discussed. In this it is mentioned that a year's interest had been contributed towards the erection in Copenhagen of a model hospital of fifteen to twenty beds, to be a model clinical hospital during peace and to be for treatment of officers in war time. Another year's interest went to the German society for work in Manchuria. One of the German delegates remarked that the late Empress Augusta had desired the fund to be used for good works in time of peace. He proposed favoring a plan for giving a sum to enable four to six delegates to visit and report upon Red Cross institutions in various countries. This was agreed to and four delegates appointed.

Other subjects discussed were the organization of help for prisoners of war, the extension of work in time of peace, the misuse of the Red Cross, and the need of legislation in some countries to prevent such abuse.

On reassuming the sittings yesterday an invitation for the ninth conference in 1912, to meet in Tokio, was received with cheers. General Prion read a paper on the position and functions of women in hospitals and sanitary work in time of war. Professor Renault followed with a paper on Red Cross work at sea. The conference adopted a resolution in favor of cooperation between the Admiralty and societies for the succor of the sick and wounded.

Sir F. Treves presented a report on the British society. It was announced that the primary duty of aiding the sick and wounded rested on the medical departments of the navy and army and that the Red Cross Society should offer such additional comforts and help as might be considered beyond the reasonable scope of the official bodies. The Red Cross Society has been officially recognized as the channel for voluntary offers of assistance and it is therefore an object of its care to examine, systematize and coordinate all such offers and by preventing overlapping and waste to render them of the utmost value.

Mr. Geo. H. Makins of St. Thomas' Hospital submitted a paper on the rôle of the society during maritime war. He said in many countries ships could not be provided by societies, which might undertake the equipment and personnel for medical officers and nurses (male or female) would be required in numbers far above those which a navy could supply. Stores and dressings would differ little from those of military warfare, though the rarity of rifle wounds and the frequency of extensive shell wounds, burns, and scalds rendered a much larger type of dressing necessary.

Dr. Nagao Ariga, professor of international law, Japan, read a paper on the work of the Japanese Red Cross during the late war and the principles by which it was guided. This paper was full of detailed and official information and showed the excellent work of the Japanese society, which employed 5,170 persons during the war, organized into 152 relief corps, and spent over half a million of money. The society prepares everything during peace and places all at the disposal of the army and navy on the outbreak of war. It submits in every detail to the authority of the army and navy and attempts nothing independently, so that it is not semi-official, as some have supposed, but a purely private association, supported by the subscription of its 1,300,000 members. The Emperor is president, but that is only a matter of honor, and his subscriptions are purely personal. The society extended its work to the sick and wounded of the enemy. There is strict centralization in the control and financial work and the consequent exclusion of all volunteer members of the Relief Corps, except those who are ready to undertake real earnest work in time of war.

Lieutenant-Colonel F. Rho, an Italian delegate, said that the Italian officers who saw the work of the Japanese society were deeply impressed with its excellent organization.

M. Pérouse presented a report on the ambulance appliances in France and moved a resolution that the improvization of the means of removing the wounded from the battlefield deserved the study of all Red Cross societies, and exhorting those members who lived on frontiers to practice in peace those duties which would devolve on them on the outbreak of war. This was carried.

Dr. von Petersen reported on the relief work of the Russians in the war with Japan, from which it seemed that the Russian forces were ill-prepared for the requirements of the sick and wounded.

The conference may be pronounced a success. You will afford us space for mention of the entertainments offered to the delegates, which were on the usual scale; the visit to Windsor Castle yesterday; the reception of the Lord Mayor in the evening being most prominent. To-morrow will be the reception by the Queen at Buckingham Palace.

The Pathological Society on the 4th instant passed its final resolution declaring itself dissolved. It has become the pathological section of the Royal Society of Medicine. At the meeting in question there were two or three characteristic communications. Dr. F. P. Weber, for instance, exhibited an osteolipoma of the base of the brain, about the size of a haricot bean. Its site had been between the optic tracts corresponding with the infundibulum. The small bony focus contained red marrow. It was remarked that a similar case had been recorded by Dr. Bristowe in an early volume of the Society's transactions.

Drs. Sambon and Seligmann exhibited specimens of ten new hemogregarines which they had found in the red corpuscles of different snakes in the Zoological Gardens. In all the organism was capsulated and there were lines on the capsules which were held to indicate lines of future cleavage through which the parasite escaped. Free forms were found in the blood. The authors had traced the penetration of the red corpuscles. They had observed the parasite also in the leucocytes. For the completion of its life history the parasite had to reach the intestine of a blood-sucking host.

Dr. Nabarro had observed that sometimes leucocytozoa occurred in the blood of rats. In some cells two parasites were present, presumably of different sexes.

The experimental production of goiter was the subject of a communication by Dr. Bayon, who did not accept the theory of embryonic residue. He said parenchymatous goiter began in hypersection and epithelial proliferation, and the accumulation of epithelium was a further irritant and could not be got rid of as "casts" in the kidney are. Such changes Dr Bayon had produced in animals by injecting toxins into the thyroid artery. Ligature of this artery led to localized necrosis and the formation of nodular adenomata. Anything which damaged the epithelium would incite enlargement of the gland. Graves' disease had been observed to follow infective diseases. In some cases of myxedema and cretinism there had been previous acute infection. Such infection might ultimately lead to atrophy of the thyroid.

The President, Dr. Pye-Smith, gave a valedictory address in which he mentioned the successive presidents since the foundation of the society in 1846. It is a roll of great physicians and surgeons who saw the importance of pathology and did much to promote its study. At the foundation Dr. Pye-Smith said pathology was but the handmaid of medicine, but now it has attained an independent position and is itself the foundation or "institute" on which rests the prevention and treatment of disease. Morbid anatomy was the beginning of rational pathology. Then came experiments on living animals, such as those of Harvey, Hunter, and others. The rise of bacteriology was the third chapter. The fourth is chemical pathology, now in its infancy, but probably destined to open new paths to investigation. Especially fruitful will probably be the borderland between animal and vegetable pathology. Recent investigations on nerve degeneration dealt with conditions, chemical as well as histological, and opposite changes have been studied. But the future of experimental pathology, said the president, lies on the knees of the Royal Commission on Vivisection. Let us hope the result will be greater freedom. The minute anatomy of disease is not complete; the chemical aspect of pathology is only begun; nowhere is the ground more promising than on the confines of physics and physiology, between botany and zoology, between chemistry and physics. Professor Farmer has shown how complicated may be the structure of a single cell. But complex or simple, it still baffles every attempt to explain its functions and their mechanism.

In the Museums Journal of the Malay States there is an account of a drug alleged to render the opium eater indifferent to the privation of his indulgence. It is an infusion of *Combretum Sundiacum* leaves and is said to have been discovered by some Chinese woodcutters who had run out of their tea and tried to replace it by the leaves of this creeping plant. In the Malay States the drug has been largely tried in the prisons and lock-ups, where the opium eating prisoners suffer intensely at first from the sudden deprivation of their drug. It is said that the infusion of the *Combretum Sundiacum* alleviates their sufferings and does not substitute another habit in place of opium eating.

An injunction in Chancery has been granted restraining Dr. Geo. L. Eastes from carrying on his pathological laboratory. The judge said it had been shown that the work of Dr. Eastes was for the advantage of medical practitioners throughout the country, but the covenants of the lease precluded it from being carried on on those premises. The injunction therefore must be granted, but Dr. Eastes must be given a reasonable time to remove his laboratory, the injunction would therefore be suspended until September 29.

A letter from India gives the news of the death of Major David Macbeth Moir, A.M., M.D., professor of anatomy in the Calcutta College. Born in 1860 he took his M.D. in Edinburgh in 1899 after being in the Indian Medical Service. He was in the Chin-Lushai expedition, 1889-90, for which he received the medal with clasp. In 1891, up to which time he had remained in the military medical service, he was appointed to various offices on the civil side, including that of professor of anatomy and surgeon to the hospital, Calcutta. He attained the rank of major in 1900.

Dr. Samuel Lawrence Gill died on the 11th inst. within seven days of attaining his eighty-fourth year. He was for many years surgeon to the N. L. Railway. Took the M.R.C.S. and L.S.A. in 1846, L.R.C.P. Ed., 1859. He contributed on puerperal mania and recovery from traumatic tetanus to the medical press and the doctor

OUR PARIS LETTER.

(From Our Special Correspondent.)

PROPHYLAXIS OF SYPHILIS—THE COMBAT AGAINST TUBERCULOSIS—THE PRACTITIONERS' CONGRESS—ARTERIAL GRAFTING—NECROLOGY.

PARIS, April 25, 1907.

DELORME presented an interesting study on the prophylaxis of syphilis before the Académie de Médecine. He was able to determine by statistics obtained from the army records that primary syphilis is more than three times less frequent in soldiers than among civilians of the same age, and that the same relationship obtains for the other venereal diseases. It has been well known that morbidity through venereal diseases has been progressively decreasing in the French army owing largely to the efforts that have been made toward the moral and hygienic education of the soldiers. Delorme directed attention to the dangers of clandestine prostitution and to the relative safety afforded by the regular houses under medical supervision. Public health requires protection through legal measures and the speaker

was of the opinion that the Académie should intervene in this question and continue the crusade against syphilis begun in 1888. Fournier expressed his agreement with the views of Delorme and suggested that the Académie should appoint a commission to consider the steps that should be taken.

Prof. Robin proposed to the Académie a tentative plan of clinical organization for the purpose of combating tuberculosis. He considered that the antituberculosis campaign should comprise the following elements: Prophylaxis, education of the public, treatment of the patients, and aid to the patient and his family. Robin described the organization of the Antituberculosis Bureau of the Hôpital Beaujon. In this the patients are divided into seven classes: (1) The nontuberculous, (2) the pretuberculous, (3) patients who have friends in the country and who are sent back there by the bureau, (4) the incipient cases, which are sent to the sanatorium of Angicourt, (5) patients with extrapulmonary lesions, (6) consumptives requiring hospital treatment, (7) patients that can be cared for at home. The bureau distributes codliver oil, meat, gelatin, and medicines; it supervises the disinfection of dwellings and the improvement of their sanitary condition. It also offers material aid to the patient and secures work for those who are able to do it. The work of the bureau cost, in 1905, 6,803 fr. for 935 patients; that is to say, 7.27 fr. per patient.

The Congress of Practitioners held its sessions in Paris from April 12 to 14. More than 14,000 practitioners and over a hundred medical societies were enrolled for the congress. The success of the convention was all the more striking since it was unexpected, for this was the first time that a similar assemblage has been held in France. This was the first occasion on which the French practitioners have united to discuss the future of their profession, and both the members of the Faculty of Medicine, with their years of experience, and the enthusiastic students took active part in the sessions of the congress. The inaugural address was delivered by the president, M. Gairal. Among the topics discussed was the question of reforming the teaching methods. Hirtz and Caussade presented a paper on the hospital as a center of clinical instruction; they pointed out that clinical instruction could be obtained only at the bedside and that a theoretical education was merely of supplementary value. In order to render the facilities of the hospital more available for educational purposes, they suggested that the medical faculties should be enlarged and opportunities be given for every man of merit to rise to the highest rank. They also suggested that the institution of Privat-Docentism, which exists in nearly all countries, should be established, and that the hospitals should be made the centers of medical education from the clinical and therapeutic standpoint. Huchard also discussed at length the question of medical education and suggested numerous ways in which the present complicated system could be simplified and rendered more practically useful.

Gairal read a paper on the right of the patient to select the physician, and urged that all mutual aid societies should organize their medical service in such a way as to respect the independence of their members and to give them the right to choose their physicians.

Before adjourning, the congress decided to maintain a permanent committee, whose function should be to supervise the relation between the medical profession and the public and to educate the latter in regard to the legitimate rights of the physician.

Delbet read before the Sociétie de Chirurgie a report on an attempt at arterial grafting in man.. The patient was a man of seventy-four years, suffering from general arteriosclerosis, not of syphilitic origin, and who had a rapidly growing femoral aneurysm. Delbet decided to excise the aneurysm and to attempt to reestablish the continuity of the vessel by the implantation of a section of artery supplied by M. Schwartz, who, while Delbet was extirpating the aneurysm, performed an amputation of the thigh for a case of osteomyelitis of the femur. The limb was at once taken to Delbet, one of whose assistants dissected out the popliteal artery. A portion of this, about 9 cm. in length, was then introduced in place of the aneurysm that had been removed. Unfortunately the vessel walls of the patient were so friable that it was impossible to apply the necessary sutures and ligature of the artery itself could be carried out only at a level above Hunters' canal. The result of the operation was what was apprehended, for some days later gangrene of the foot appeared and the leg had to be amputated at its lower third. The patient's condition at present is satisfactory. Tuffier reported a case in which a successful arteriovenous anastomosis performed for obliterating arteritis of the femoral artery had resulted fatally in a few days as the result of gangrene and thrombosis of the femoral artery.

During the past month the medical profession has suffered the loss of two of its prominent members, Prof. Poirier and Dr. Ferré. Poirier died suddenly of an affection of the liver at the age of only fifty-three years and after having attained all the honors that the medical career can offer. While still a young man he had been made Professor of Anatomy in the Faculty of Medicine in Paris, hospital surgeon, and officer of the Legion of Honor. He has left behind numerous scientific works; his original contributions on the synovial membranes, on the ganglia of the sympathetic system, and on the lymphatics are classics. His treatise of surgical anatomy which he wrote in collaboration with Prof. Charpy is of great importance, and his courses of anatomy were always very popular because he possessed to an unusual degree the faculty for instruction and knew how to address his students with eloquence and magnetism. He was popular with the undergraduates and was always able to hold the attention of the most restless audience. Only a short time ago he presented before the Académie de Médecine a communication of unusual weight on the prophylaxis of cancer, as a result of which a formal society having this object in view was formed.

Dr. Ferré, physician of the Hospice de Bicêtre, died at the age of fifty-four years. By means of his work in experimental biology he was able to play a large part in revolutionizing psychological methods. Among his very numerous works were "The Pathology of the Emotions," "The Neuropathic Family," "Degeneration and Criminality," "Animal Magnetism," "Disorders of the Intellect," "Aphasia and Its Various Manifestations," "The Home Treatment of the Insane." His noteworthy experiments on muscular work and on the physiology of voluntary motion, on muscular fatigue, and the reaction time, have all contributed to establish his reputation as an investigator and thinker.

SOME ASSUMED OBJECTIONS TO VIVISECTION.

To the Editor of the Medical Record:

Sir:—May I be allowed space for a brief presentation to your readers of certain aspects of the reverse side of vivisection?

Thoughtful members of the prime great profession—that of medicine and surgery—are ever ready to admit, along with other deductions from history and from human nature, that some of their methods may prove mistakes, and that some conclusions reached by this generation may be discarded by the next. Persons interested in the small controversy about vivisection believe that method and many of its conclusions to be among the doomed. Their reasons for such an expectation are generally such, perhaps, as appeal to the lay mind rather than to the expert, and yet one of those reasons, I think, is of the opposite character.

What Lawson Tait called the "prima facie" objection to vivisection is, of course, the fact that certain branches of it involve a considerable amount of severe vicarious pain. The causing of such pain is in itself increasingly repugnant to our age and any practice involving it is placed somewhat upon the defensive. It is true that the slaughter house, the fur-trader's line of traps, the milliner's purveyor of plumage, the seal fisheries, the sportsman's "bag," and too often the farmyard and stable, furnish other examples of vicarious suffering, and that for ends (except the first) immeasurably meaner than the experimenter's. But, on the other hand, a real difference between vivisection and these other practices is indicated by the fact that in slaughter, hunting, the fur and feathers trades, and domestication of animals, their sufferings are largely incidental. Much is caused by haste and bustle; much by ignorance, and much by the greed of untrained minds. But in the laboratory ignorance, greed, haste, and bustle are rare or unknown. Vivisection is not full of these incidental and thoughtless cruelties. The "prima facie" objection to it is the essential character of its resultant pain. When we have established the woodfall trap, the humane and hygienic abbatoir—when the sportsman leaves gun for camera, and the docked horse is no more seen, vivisection, if freely practised, must still be a secret from children, and a sorrow to the informed.

Its supporters cannot, however, allow this to be a sufficient reason against the practice which inflicts pain for a noble end. Nor is it a sufficient reason from the exclusively logical standpoint, though psychologists and historians may discern a large truth in Froude's remark that "the heart often corrects the folly of the head." There are other reasons why vivisection, well considered, appears a doubtful benefit to the whole nature of man. The late Master of Balliol was accustomed to say that in his opinion vivisection tended to effeminatize the race. May not its tendency indeed be to appraise too highly the prolonging of the individual life? Dr. Jowett perhaps undervalued

the pains and miseries of mankind. But can we, even to relieve these, afford to reduce the courage of our race, the risking spirit of our forefathers? Are we in no danger of being taught to value our bodily comfort at too high a figure?

Mr. H. C. Merwin, lately of the Massachusetts Legislature, believes in the reality of such a danger. His able article in the *Atlantic Monthly* some five years ago, presented with remarkable clearness this aspect of the situation. Certainly there is a moral danger in all laying of burdens upon vicarious shoulders. A society like that of Greece, founded upon slave labor, was not politically disciplined to withstand the shocks of change. A church like that of the fifteenth and sixteenth centuries, assuming a vicarious responsibility for the sins of the people, was full of the seeds of a reformation. The gravest danger to our race from vivisection is perhaps a moral danger.

But there is, in the minds of a minority, a serious physical danger allied with this. If we may look, in an increasing degree, to preventive serums to insure our health, shall we not be severely tempted to neglect those laws of hygiene which have never become a habit? This is, I believe, a very sandy spot in the foundations of vivisection. Large classes of the human race now knowingly (whether of their own accord or through economic pressure) violate the laws of health. They bend their backs over ledgers, or sewing machines; they surfeit themselves with excitement; they breathe exhausted air; they neglect sinks and drains, and feast upon "gamey" meats. But they believe the penalty may be paid, as the disease is studied, by proxy. A series of rabbits, or of mice, which have observed the laws of nature, may be caught and inoculated with the desired culture, their reactions studied, and conclusions drawn from the application of various remedies. Nature has decreed health to the rabbits and sickness to certain classes of men. Man, however, subverts natural justice, and substitutes a vicarious order. But are scapegoats ever wholesome for those who escape? Will they be ultimately benefited by the success of a system of "getting well quickly" rather than keeping well slowly? And is Nature's justice so readily outwitted?

This will be regarded, perhaps, as a theoretical question. The practical results of vivisection, on the other hand, are in everybody's mouth. Our family physicians rely on diphtheria antitoxin, and we hasten to be vaccinated if smallpox breaks out in the neighborhood. And when we read of Midshipman Aiken's case, and think it might have been some near friend of our own, we think a shade more lightly of the sufferings of animals in vivisection.

But a careful estimate has yet, I think, to be made of the direct profit and loss of the practice. As the accounts of a cooperative commercial enterprise are balanced and audited, so might the records of this institution be balanced by candid experts, and audited by the general public—the most interested party. A long list would then, I think, have to be made out of wasted skill, wasted time, and wasted pain—not, indeed, wasted in the worst sense, as time and skill are wasted by the idle, or the enemy to society, but wasted as were the efforts of great minds in the past to discover the philosopher's stone, or the kingdom of Prester John. People of thirty years old and more can recall several "lymphs" and "elixirs" on which large hopes were founded, only to end in disappointment.

To the layman vivisection appears to be placed in a dilemma. If the structure of animals closely resembles that of man, the presumption must be that their sufferings, too, in general resemble the sufferings of man in like conditions; and this would make the vivisection question exceedingly grave. If, on the other hand, animals differ radically in structure from man, this would seem to cast many doubts upon the general utility of experiments upon them, and to suggest that the conclusions drawn from such experiments can be of little or no value until tested in the clinic.

S. N. CLEGHORN.

MANCHESTER, VT.

PILOCARPINE IN SYPHILIS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR,—Regarding the use of pilocarpine as an adjuvant in the treatment of syphilis, as advised in the MEDICAL RECORD of June 15, I would say that three years ago, studying symptomatology, I remarked, though never *coram publico*, that mercury causes ptyalism, as does potassium iodide, and I asked myself whether the specificity of both does not lie in their sialogogue action, by which the syphilitic toxins or microorganisms are removed from the body. Of course, the next thought was the use of pilocarpine in syphilis as a very well known sialogogue, but I never made any experiments with it. Two years later, after having studied Ehrlich's sidechain theory, I came to another theoretical result, which differs entirely from the explanation of Dr. W. J. Robinson, the author of the mentioned article. It is a known fact that after administration of pilocarpine to an animal, in which are found certain antitoxins, the quantity of the latter increases, this being due to the action of pilocarpine upon the internal secretion. In case of injection of a certain quantity of toxins into an animal, in the blood of which are the specific atagonistic antitoxins, the toxins disappear, being neutralized, in a shorter time, when an injection of pilocarpine follows. Knowing Ehrlich's sidechain theory, one can easily come to the following conclusions: (1) By injection of pilocarpine the increased quantity of antitoxins and antibodies would antagonize the circulating toxins in blood and lymph. (2) The organs secreting the antibodies would be freed in a shorter time from these antibodies, by which action those organs would be less endangered by the action of the antigens. (3) The same organs would be stimulated, secreting a greater quantity of antibodies.

How mercury and the salts of iodine act in syphilis is still unknown. It is only known that they are the best remedies in the treatment of syphilis. They cannot be called specifics for syphilis, as they do not cure the disease, removing only the symptoms for a shorter or longer time, and do not, like the antitoxins of diphtheria, neutralize entirely the toxins of the disease. There is a possibility that mercury and the salts of iodine are only stimulants to some organs, producing under their influence a greater number of the hypothetical antibodies against syphilis. In case they fail to do it, for unknown cause, which is rare, pilocarpine will be the best stimulant as a remedy against syphilis, as the facts adduced by Dr. Robinson show.

M. L. FREUNDLICH, M.D.

1 E. 113TH STREET.

Progress of Medical Science.

New York Medical Journal, June 22, 1907.

Hygiene in Relation to the Heredity of Disease.—After some observations on hygiene in general, P. A. Morrow enumerates a long list of diseases in which the hereditary element has been definitely established. In order to bring modern hygiene to bear on this problem the author states that the most radical preventive hygienic measure would be to prevent the physically unfit from marrying, but he realizes the impracticability of this in the statement that the influential motive to marriage has never been the improvement of the race. Selective breeding cannot be applied to improve the race. But the principle of selection should be so applied as to exclude from marriage and parentage certain types, the reproduction of which tends to deteriorate the species, for thousands of children who die before being born, or come into the world with the mark of death on them, are victims of the ignorance or disobedience of parents to the terrible laws of pathological heredity. The end to be attained will, in the author's view, be treated by education rather than by restrictive legislation. The birth of a tainted, diseased, or degenerate child should not be regarded as an "act of Providence," but as a fateful expression of the parents' transmitted tendencies. The educational propaganda should begin with the medical profession. The causes which underlie hereditary phenomena should be carefully studied by physicians, their significance rightfully interpreted and the resulting knowledge be popularized for the enlightening of public opinion. The more essential condition is that the springs of heredity should be kept pure and undefiled from the taint of syphilis, tuberculosis, insanity, alcohol, and other hereditary factors in the production of a vitiated progeny.

Surgical Aspects of Some Digestive Disorders from the Standpoint of the Internist.—J. R. Arneill declares that countless sufferers from gall-bladder disease, ulcer of the stomach, and duodenum, and their secondary crippling effects on stomach, bowel, and pancreas are daily being treated for bilious attacks, gastralgia, and dyspepsia, with small prospect of permanent relief and with great danger of subsequent development of malignant disease of these organs or at best of extreme debility, neurasthenia, and ill health from prolonged starvation and suffering. The author admits that unsatisfactory results sometimes follow upon surgical intervention, but he urges on all physicians that it is their duty to insistently and persistently recommend and advise exploratory operations, when a conscientious, intelligent, and scientific examination of a serious case leaves doubt as to the diagnosis and treatment. This recommendation will apply most often to dyspeptic cases, in which there is a suspicion of cancer; also to obscure

conditions in the right hypochondrium, in which gastric ulcer and gall-bladder disease are suspected, but not proved. The dangers of exploration are much smaller than those of procrastination. Thousands of lives will be saved, awful suffering assuaged, and the sum total of human happiness wonderfully increased, when the exploratory incision becomes the routine practice in such cases.

Experimental Immunity to Colon and Typhoid Bacilli.—This paper recounts the experimental results of V. C. Vaughan and M. Wheeler. The authors refer to their previous work on the effects of bacterial and other proteids and their split products on animals. They then describe the two portions into which the cellular substances of the colon and typhoid bacilli have been split. These two portions they designate respectively as poisonous and nonpoisonous, and their attempts at immunization with the latter. Their views are condensed into the following propositions: (1) All the proteids with which they have worked contain a poisonous group, and the probabilities are that this is true of all proteids, be they bacterial, vegetable, or animal. (2) Proteids may be split into poisonous and nonpoisonous groups, either artificially in the retort or in the animal body. (3) The splitting up of the proteid in the animal body is due to a proteolytic ferment which is the product of certain cells, probably the mesothelial cells that line serous membranes and the blood-vessels. (4) This ferment is specific for the proteid which calls it into existence. (5) Their conception of the origin and nature of these specific ferments is as follows: The cell is made up of molecules; the molcules consist of atoms, and the atoms of electrons. The molecule may be likened to the universe, composed of suns, planets, and satellites. These are in harmonious and rhythmic motion. The molecule of the foreign proteid introduced into the body has a structure similar to that of the cell molecule, and when one is brought within the attractive range of the other, one or the other, or both, must undergo certain disturbances. Suppose that an atomic group is split off from the animal cell and enters the attraction sphere of the molecule of the foreign proteid, then the harmonious arrangement of the atoms and electrons of the latter will be affected; indeed, the molecule may be disrupted as completely as it is in the retort under the influence of dilute alkali. The residues evidently have the same effect on the cells of the body that the proteids from which they come do, and in this way may be explained the specific action of the residues. The special group broken off from the cell molecule depends upon the composition of the proteid which comes within its attractive sphere, and it seems that its residues contain that portion of the molecule of the foreign proteid which possesses this property of bringing into existence, or rather of activating, its own specific ferment. The ferment is, according to the authors' conception, a portion of the animal cell, an atomic group within the cell molecule, and does not become a real active ferment, or it is not activated until the foreign proteid comes within its sphere of attraction. It occurred to them that if this theory has much of truth in it they might test it. They thought that the introduction of a small portion of the residue might give some immunity immediately. They therefore injected doses of 25 mg. of the colon and 12.5 mg. of the typhoid residue into the abdominal cavity of guinea pigs, and 30 minutes later inoculated these animals intraabdominally with living cultures, and found that the colon animals had in that short time acquired an immunity of five units and the typhoid one of six units. However, they found that larger immunizing doses did not give results so good, and this is easily explained by supposing that this ferment set free or activated by the residue is in part used up in its reaction with the residue itself. The reason why multiple doses repeated at intervals give us a higher degree of immunity than single doses may be due to more cells being acted upon or to the accumulation of the ferment in the blood. The theory of the modus operandi of the residue which they have offered is tentative, and they hope to be able to investigate it further.

Journal of the American Medical Association, June 29, 1907.

Non-Operative Treatment of the Middle Turbinate.—J. A. Stucky says that the primary cause of the average case of disease of the middle turbinate is systemic, and the exciting factor of the acute attack is not so much exposure to cold and draughts as injudicious eating and drinking. The condition is not seen in any one who lives plainly and uses sparingly, or not at all, alcoholics, coffee, tea, and sweets. The patients are generally highly neurotic, good livers, and lead inactive lives; they are troubled with frequent colds, stuffy feelings in the head, stopped-up nose, and accumulation behind the palate. They are usually more or less constipated, their complexions are abnormally florid or muddy, and they complain of the liver. Such symptoms and history lead him at once to suspect indicanuria, with probable excess of uric acid. When there is an abundance of indican in the urine in such cases, there is no satisfactory or permanent relief until this is thoroughly eliminated, the diet corrected, and the bowels regulated. The treatment he recommends is mainly the thorough cleansing of the intestinal tract and the use of salicylates, well diluted and in moderate doses. He rarely finds local treatment necessary except in the beginning, when the nasal cavity is cleansed with physiological saline solution containing a small amount of menthol and adrenalin, the latter not in stronger solution than 1 in 7,000. He sums up the treatment of disease of the middle turbinate as follows: (1) Correct faulty intestinal metabolism; (2) restore bodily resistance; (3) cleanse, soothe, and protect the diseased or irritated area.

The Early Symptoms of Pernicious Anemia.—J. A. Lichty takes up the question of whether or not it is possible to diagnose pernicious anemia by the early symptoms before the appearance of the characteristic blood picture of the disease. In his cases, achylia gastrica with diarrhea was present in fourteen, and in nine it was a very early symptom. In one case it seemed to have been present thirty-five years before the blood condition was recognized, in another it was present eight years before the blood picture developed, and in still another it was present six years before. The nervous symptoms may be early or late, but in only one of his six cases with early nervous symptoms did they appear before the signs in the blood were found. The cardiovascular are the least characteristic early symptoms, in only one of his five cases presenting them as such did he properly interpret them before finding the pathognomonic blood signs. He is, therefore, unable at present to describe a symptom-complex indicating pernicious anemia before the occurrence, or discovery of the blood changes, but he believes that such a symptom complex exists.

The Opsonic Treatment of Paresis.—Accepting Ford Robertson's *Bacillus paralyticans* as the cause of general paralysis of the insane, as confirmed by inoculation and agglutination tests made by him, J. D. O'Brien reports the results of opsonic treatment of seven paretics at the Massillon (Ohio) State Hospital. The patients were selected from the ordinary run of paretics admitted. The beginning dose of the vaccine was a small one, but enough to evoke a satisfactory response, and then it was regulated by the length of the negative phase till a satisfactory standard dose for each individual was secured. There was marked improvement in all the cases reported, nearly all passing in a comparatively short time from a marked demented or excited condition into one of partial or nearly complete remission. The change from the negative to the positive phase was attended with marked mental improvement, within a few hours. The control cases of paresis, while under the same treatment, with the exception of the vaccinations, showed no improvement.

The Lancet, June 15, 1907.

Meditations on Gout.—These "meditations" were penned by C. Mercier during an attack of gout, himself being the sufferer. He asks why, if the kidneys act freely and the greater part of accumulated uric acid is excreted, the toe joints should suffer. His explanation is that the blood is supersaturated with the acid, that there are more urates in it than the kidneys can manage, but that the urates carried on to the toe exist in the blood in some combination which renders it proof against renal elimination. The author believes that gout is due to uric acid, but not to mere excess of this. During an attack the acid must exist in some peculiar combination. The combination is not always the same in every attack in a given individual. There are probably many urates which agree in being noxious and being more or less proof against renal elimination, but which differ in their pathological effects. In regard to joint localization in the disease, the author suggests that the articular cartilages may secrete a substance which has a predominating power in breaking down the harmful combination, separating the urate from the blood, breaking down the combination of the acid with its (presumably) organic ally and converting it into sodium urate. This action may be conservatism toward the general organism and analagous to the action of the blood-cells in separating bacilli and consuming them. When a pernicious combination of uric acid is circulating in the blood, damaging the kidney, thickening the arterioles, perhaps perverting the action of the brain, it may be as valuable and as conservative for this combination to be broken down, even at the cost of a gouty joint, as it is to have a brood of streptococci extruded, even at the cost of an abscess.

Notes of a Case in Which Glycosuria, Depending Upon Cholecystitis and Cholangitis, Disappeared After Drainage of the Bile Ducts.—The history of the case is given by C. A. Mansell Moullin his patient being a stout middle-aged woman who had had an attack of biliary colic eleven years previously. The attack referred to in the title began with vomiting and severe abdominal pain, jaundice quickly supervening, and constipation. The patient's low general condition precluded immediate operation. The bowels were cleaned out and the symptoms gradually abated, so that in two weeks it was possible to open the abdomen. A calculus was found in the common duct and the gall-bladder was found full of small facetted calculi of the ordinary variety. A drainage tube was fastened into the common duct, another in the gall-bladder, and two long gauze drains were inserted, one in front of the common duct and the head of the pancreas (which appeared normal), and the other into the right renal pouch. Recovery was uneventful. The interest of the case lies in the disappearance of the glycosuria as soon as efficient drainage was established. From the repeated attacks of cholecystitis which the patient had had (there was a vague history of several others besides these two of which the dates were known), and from the fact that she had lost much weight in the past few years it is probable that there was some degree of chronic pancreatitis, though the pancreas had not the stony hardness usually present in this condition. But the disease must have been merely of the interlobular type, and not as yet have involved the islands of Langerhans. Under the influence of septic inflammation spreading up the duct the interacinar portion of the gland became involved and glycosuria followed. Fortunately, as soon as a thorough drainage was established the inflammation subsided so quickly that to all appearance no permanent injury was inflicted upon the gland. Hitherto glycosuria, when occurring in association with cholecystitis and cholangitis, has been regarded as a bar to operation. As a matter of fact, it is one of the strongest arguments in favor of it. Thorough drainage not only prevents further injury being inflicted upon the gland by the septic organisms that have invaded it, but, as in the above case, restores the gland to the condition in which it was before the septic invasion took place.

Causes of Colitis, with Special Reference to Its Surgical Treatment.—J. P. Lockhart Mummery presents a tabulation of thirty-six cases under the headings of sex, age, symptoms, duration, and conditions found. In several cases no cause whatever could be ascertained. A large variety of lesions were respectively present in the other cases. In a group of five cases cancer of the sigmoid flexure was present, in quite a large group catarrhal inflammation was observed, showing varying degrees of congested mucosa, hypertrophy, small polypi, papilloma of rectum with malignant base, ulcerations, etc. The author has found this latter group the hardest to cure, although the patients are easily made more comfortable. A group of cases presented inflamed appendices. The author says we do not know exactly how appendicitis may cause colitis. He advances the following possibilities: (1) Appendicitis is generally accompanied by inflammation of the ascending colon and cecum, and in some cases this inflammation of the colic mucosa may spread into the transverse colon and even reach the sigmoid flexure. It is not uncommon during the operation for appendicitis to find that the inflammation has spread into the ascending colon. (2) Appendicitis may also cause colitis by the formation of adhesions between the appendix or cecum and the sigmoid flexure. These adhesions by interfering with the lumen of the gut either through direct constriction or by causing abnormal flexures and angles may result in a local inflammatory process being set up and the symptoms of colitis subsequently develop. The first result of such adhesions is usually constipation, to be followed in a shorter or longer time by diarrhea and the passage of mucus. (3) It would seem probable that a chronically inflamed appendix may cause symptoms of colitis by the frequent discharge of septic material into the bowel. It has become customary to describe the colon and rectum as septic channels, though there is no justification for this. As a matter of fact, septic organisms are not at all usually numerous in the large intestine and the pathogenic flora of the mouth is far more numerous than that of the rectum and colon. Even the skin is a more common habitat for septic organisms than the colon. It is not surprising therefore that a chronically inflamed appendix which is continually discharging septic organisms into the bowel may be the cause of colitis, just as we know that carious teeth and septic conditions of the mouth can cause gastritis. We have very positive evidence that removal of an inflamed appendix will in many cases lead to a complete cure of colitis.

British Medical Journal, June 15, 1907.

On the Radical Cure of Urethral Stricture by Internal Urethrotomy.—J. Macmunn says that the ideal instrument in the operation named should stretch the tissues, cut the roof or floor, cut to any depth desired, cut the widest as well as the narrowest coarctation, localize the lesion it divides, and cut from before or from behind. The object desired is to restore the normal urethral axis, thus avoiding friction in urination, to remove as much of the obstruction as possible commensurate with safety and to avoid unnecessary section of healthy tissue and blood vessels. The author then describes and figures his favorite urethrotome. Section should be made at the point where the stricture mass is greatest, where bleeding will be least, and where drainage may be best secured. In regard to the amount of section, the author's rule is to cut a little over the surgical capacity of the urethra immediately anterior to the stricture, usually 1 mm. more. Besides cutting, sounds should be passed. The author prefers short wedge-shaped sounds and as large as possible, and with pressure to get them into the incision. He says that urethral sounds should have a curve only half the usual size. They should pass through the stricture only, not into the bladder. Chill and shock will then be rare. Postoperative treatment calls for: (1) Wound healing so that a permanent gap is left; (2) guarding the wound against urine contact for a time; (3) avoidance of complications.

Plugging the Posterior Nares.—A. O. Ward advises the following method: Pass the usual double thread (preferably of silk) through either nostril, using for the purpose an eyed probe, if the surgeon possesses one of sufficient length. Such an implement is a nearer approach to a Eustachian catheter in caliber than a Bellocq's sound or any urethral catheter; as all aurists soon learn, even a small Eustachian catheter sometimes fails to pass. Repeat the process through the other nostril with a fresh thread. The loose ends hanging from the mouth are now tied to each other and round a plug of gauze or of lint, and are cut short. By pulling on the ends hanging from the nostrils, and aided by a finger in the mouth, the plug is dragged up behind the soft palate, and more or less to one posterior nostril as may be necessary. Next (if required) plug one or both anterior nares, thread the silk ends through a piece of rubber tubing, and tie either in front of the nose or across the cheeks and behind the neck. Keep these ends long, so as to control the plug when, next day, it is pushed back into the mouth for removal. By this plan the discomfort to the patient is reduced to a minimum.

Berliner klinische Wochenschrift, June 10, 1907.

An Unusual Case of Prostatectomy.—Posner says that the longest period of catheter life that has been relieved by a prostatic operation is a case lasting twenty-eight years in which Freudenberg performed the Bottini operation. Freyer, Legueu, and Young have reported instances of twenty-four, eighteen, and fourteen years respectively. In view of these observations and of a case of his own, he urges resort to operative measures even in cases of the longest standing. His own patient had not voided urine spontaneously for eighteen years, and had had one vesical calculus removed by litholapaxy. The suprapubic operation was done and a second calculus removed. The prostate was enucleated and weighed 112 g. Recovery was uncomplicated and six weeks later the patient was able to urinate spontaneously at intervals of two or three hours without any residual urine.

Some New Conceptions of the Living Cell; Its Chemical Structure and Its Functions.—Victor C. Vaughan at the close of his paper says that a most important group of cellular secretions is made up of the ferments or enzymes. All the ferments are cellular products. A ferment is a substance of definite chemical composition formed by the rearrangement of the atomic groups within the cellular molecule. The action of the ferment, while it is determined by the cell which produces it, is not concerned in the "energy traffic" constantly going on between the molecules of the cell which produced it and other molecules external to this cell. With our present limited knowledge of the chemistry of the cell molecule, it is impossible, at least in many cases, to distinguish between the chemical reactions resulting from cell metabolism, and those due to ferments. The function of a ferment is to hasten chemical reactions which take place, but far more slowly, without the presence of the ferment.—*The Canadian Journal of Medicine and Surgery.*

Book Reviews.

THE JOHNS HOPKINS HOSPITAL REPORTS. Studies on Hypertrophy and Cancer of the Prostate. Volume XIV. Baltimore: The Johns Hopkins Press. 1906.

THIS volume follows one entitled "Studies on Urological Surgery." It contains three articles by Dr. Hugh H. Young, Associate Professor of Genitourinary Surgery at the Johns Hopkins University. The first of these deals with the treatment of prostatic hypertrophy by conservative perineal prostatectomy, and includes an analysis and a detailed report of 145 cases. The second is an appendix to the first, and deals with new procedures for the radical cure of rectourethral fistulæ, while the third is devoted to a study of forty cases of carcinoma of the prostate, four of which were treated by a radical operation. An appendix contains sixty-four complete case histories.

The present volume is a veritable thesaurus of statistical and other valuable information on prostatic hypertrophy and cancer of the prostate. A very large clinical material enters into its compilation, and it represents undoubtedly one of the most important modern contributions to the subject. The conservative variety of the perineal type of prostatectomy is advocated, following a technique original with Young and already familiar through his previous writings. In the treatment of rectourethral fistulæ following prostatectomy, the author advocates preliminary suprapubic cystotomy followed by a closure of the rectal and urethral fistulæ through the perineum. The work on carcinoma deals chiefly with the early diagnosis and the radical cure of the disease. One of the interesting conclusions reached by this study is the fact that cancer occurs in about 10 per cent. of hypertrophied prostates. The malignant process may begin as an isolated nodule in the prostate, and a case which for years has been evidently one of hypertrophy may suddenly develop signs of malignancy. Marked induration in men over 50 should be regarded with suspicion. When operating it is best to remove small sections of the prostate first, and to make frozen sections. These can be got ready in about six minutes, and if malignant disease be found the radical operation should be performed. The latter should include the removal of the seminal vesicles, the vasa deferentia, and most of the vesical trigone, with the entire prostate. In four cases this operation gave remarkably good results.

NOUVEAU TRAITÉ DE MÉDECINE ET DE THÉRAPEUTIQUE Publié en fascicules sous la direction de P. BROUARDEL et A. GILBERT, Professeurs à la Faculté de Médecine de Paris. XII. MALADIES DE LA NUTRITION: GOUTTE, OBÉSITÉ, DIABÈTE. Par H. RICHARDIÈRE, Médecin de l'Hôpital des Enfants-Malades, et J.-A. SICARD, Médecin des Hôpitaux de Paris. Avec 15 figures dans le texte. Paris: J. B. Baillière et Fils, 1907.

THIS new fascicle of the system of medicine edited by Brouardel and Gilbert, treats of the group of nutritive disorders commonly considered under one heading: gout, obesity, and diabetes. The volume resembles in scope and makeup its predecessors in this comprehensive treatise, and the diseases considered are dealt with in great detail from every viewpoint, discarding, however, obsolete material and including the most modern data and methods. For example, the use of high-frequency currents in diabetes will be found discussed with sufficient fullness, and the modern methods of diagnosis have received careful attention. No attempt has been made evidently to "cover" the modern literature of the subject, and bibliographic references are scanty. On the other hand, the published material on the diseases treated of has been sifted and quotations of entire paragraphs or even pages abound from a number of authorities, chiefly French. The style of the book is that clear, clean-cut phraseology which makes modern French medical writings so easy and so pleasant to read. The charming description of gout by Sydenham has been quoted in full in a most interesting historical review of this malady, and the volume opens with a specially prepared introduction to this group of diseases, which reads like a confession, so frank is it in its plea of ignorance as to their true inwardness.

TUBERCULOSIS AS A DISEASE OF THE MASSES, AND HOW TO COMBAT IT. Fourth issue, revised and illustrated. Prize Essay. By S. A. KNOPF, M.D., New York. Director in the National Association for the Study and Prevention of Tuberculosis; Associate Director of the Clinic for Pulmonary Diseases of the Health Department; Visiting Physician to the Riverside Sanatorium for Consumptives of the City of New York, etc. New York: Fred P. Flori, 1907.

THIS fourth edition of Knopf's well-known prize essay contains four new sections dealing with home hygiene, school hygiene, the installation for the sanatorium treatment at home, and a short historical review of the antituberculosis movement in the United States. This pamphlet is now published in twenty-one different languages, and thus can reach people in and from all parts of the civilized world. As a book for the masses who, more than others, need the information herein contained, Knopf's essay is unsurpassed.

A MANUAL OF OBSTETRICS. By A. F. A. KING, M.D., Professor of Obstetrics and Diseases of Women in the Medical Department of the George Washington University, Washington, D. C., and in the Medical Department of the University of Vermont, etc. Tenth Edition, enlarged and thoroughly revised, with 301 illustrations and three colored plates. Philadelphia and New York: Lea Bros. & Company, 1907.

FROM its first appearance, King's Obstetrics has occupied an enviable position as a text-book. In this tenth edition some errors have been corrected and some obsolete methods omitted; the chapter on Fecundation and Nutrition of the Embryo has been almost entirely rewritten; considerable changes have also been made in the chapters on Pelvic Deformities, Cutting Operations upon the Mother, Mutilating Operations upon the Child, Placenta Prævia, and Puerperal Septicemia. Forty new engravings and three colored plates have also been added to this edition. The general plan of the work remains as before; it is a first book, characterized by accuracy, brevity, and simplicity of statement. Many generations of students have found this book to be a most reliable guide, and it can still be recommended as probably the best small book on the subject.

TRAITÉ D'HYGIÈNE, Publié en Fasicules sous la Direction de MM. BROUARDEL et MOSNY: HYGIÈNE ALIMENTAIRE, par J. ROUGET et CH. DOPTER, professeurs agrégés au Val-de-Grace. Paris: J. B. Baillière et fils, 1907.

THE present volume forms the fourth part of the large treatise on hygiene edited by Brouardel and Mosny, and deals with dietetics and alimentary hygiene. It is the work of two of the professors at Val-de-Grace, the military medical training school. The first part of the book deals with the various articles of food, their composition, and other characteristics. A brief section deals with the mode of preparing food by cooking. Then follow chapters upon the various spices and condiments, the preserved foods, and the methods of preparing them, including the use of antiseptics. The different beverages are next considered in the same manner. An outline of the ordinary adulterations of foods and their detection follows. The next portion of the book deals with food more particularly from the physiological and medical aspects. The qualitative and quantitative relations of various diets are considered, not in respect of different diseases, but in a general way, as for example overfeeding, underfeeding, vegetarian diet, meat diet, etc. Finally, a very complete and comprehensive discussion is presented of the various disease conditions transmitted through food, and their prevention, *e.g.* parasites (trichinæ, etc.); bacteria (typhoid fever in oysters, etc.). Here are given summaries of the recent researches in these special fields of hygiene. The subject of tuberculosis is handled in a brief but very practical and sane manner. The book may be recommended especially to students of hygiene and to food inspectors and health officers. It is not particularly adapted for use by clinicians, save as a work of reference.

HYGROMEDRY. By HENRY EMERSON WETHERILL, M.D., etc. Fourth Edition. Revised, enlarged, with many new plates. Philadelphia: Published and Illustrated by the author, 1906.

"HYGROMEDRY," according to Dr. Wetherill, is the art of measuring the moisture of the body "and of its surrounding environment." The "hygromed" is the instrument devised by the author for this purpose, and consists of a hygroscope made up of a fine copper spiral, over which is stretched a hygroscopic membrane. The moisture enters the instrument through appropriate openings, and acts upon the membrane, which thereupon acts upon the spiral and the indicator points upon the scale of the instrument. If the author's claims as to the accuracy and sensitiveness of his instrument are correct, the "hygromed" is undoubtedly useful in determining the amount of surface moisture. This amount, however, is of but slight clinical importance, and any very great variations from the normal are quite readily detected without any instrument by the sense of touch. The book is ornamented by a portrait of Dr. Wetherill in his uniform of Lieutenant in the Pennsylvania militia, but though this undoubtedly adds to the value of the book, it does not entirely compensate for careless proofreading and inelegancies in diction which more or less mar the work.

Society Reports.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Third Annual Meeting, Held at Washington, D. C., May 6, 7, and 8, 1907.

[Special Report to the MEDICAL RECORD.]

(*Continued from Vol. 71, page 1054.*)

Tuesday, May 7.—Second Day.

GENERAL MEETING.

THE PRESIDENT, DR. HERMANN M. BIGGS OF NEW YORK, IN THE CHAIR.

The Campaign Against Tuberculosis in the United States.—By Dr. LIVINGSTON FARRAND of New York, Executive Secretary of the National Association for the Study and Prevention of Tuberculosis. Dr. Farrand's address was a survey of the general situation in the movement against tuberculosis in the United States, and called particular attention to the advances which had been made during the two years in which the National Association had been actively at work. The chief task of the association had been one of education, and it was recognized by its founders that organization was a prime necessity in the successful solution of the tuberculosis problem. The chief effort, therefore, had been directed toward the formation of State and local associations for the prevention of tuberculosis, which had as their function the conducting of the campaign in their respective commonwealths and localities. It was shown that two years ago there were seven States with organizations operating on State lines, these States being New Hampshire, Vermont, Pennsylvania, Maryland, Ohio, Indiana, and Illinois. During the past two years eight more, namely, New Jersey, Delaware, North Carolina, Georgia, Kentucky, Minnesota, Iowa, and Washington had formed State associations, making fifteen now definitely in existence and affiliated with the National Association. In addition to these, the plans for State organization were far advanced in Massachusetts, Rhode Island, New York, Virgina, Michigan, Missouri, and California, so that twenty-three States were now practically provided for, and from the point of view of State organization and geographical distribution the situation was well in hand in all parts of the country with the exception of certain sections of the South and far West. It was the plan of the association to push its campaign of organization through the southern States during the coming winter. An active and efficient society had also been formed during the past winter in Porto Rico, where the work of education and relief was being carried on along modern lines. Of even more interest was the growth of the movement in the larger cities of the country. By the census of 1900 there were thirty-eight cities with populations of over 100,000. When the association took up its work two years ago there were definite organizations for the prevention of tuberculosis in fifteen of these. During the past two years active societies had been formed in eleven others, making twenty-six of the largest cities in the country where an organized campaign of prevention was being carried on. Of the remaining twelve, plans for organization were far advanced in at least six, and it was hoped that during the coming year the situation would have been met in the entire list. Recognizing the fact that the tuberculosis problem was one which must always be met in the community in which it was found, the organized work had been pushed into smaller towns as well as in the larger cities, and there were now seventy-four local organizations in the United States affiliated with the national body. The rapid growth of this movement was shown by the fact that two years ago there were nineteen special local societies; a year ago the number had increased to thirty-two, and now there were seventy-four, an increase of nearly 300 per cent. in two years. Probably the most efficient single means of education has been the Tuberculosis Exhibition, which was organized in November, 1905, and opened in New York City under the auspices of the National Association and of the Tuberculosis Committee of the Charity Organization Society. Since that time the exhibition had been shown in sixteen of the larger cities of the country, as well as in Toronto and Mexico City. This exhibition, which had aroused intense interest wherever it had gone, showed to the public in simple, graphic form the facts regarding tuberculosis, its infectious character, its preventability, and its curability. Charts, photographs, models of sanatoria, sleeping shacks, window-tents, etc., were shown and lectures and demonstrations were given in each city during the time of the exhibition. The attendance thus far had been 372,000, and in all places it had proved a marked stimulus to the local campaign against the disease. The success of the exhibition had been so great that a number of permanent local exhibitions had sprung up as a result. In certain cities, such as New York and Boston, they were sent from quarter to quarter through the State, and were carrying the information regarding tuberculosis and its prevention to those classes of the community among whom it was particularly prevalent and who were particularly difficult to reach. In certain cases the States had seized the idea and had formed exhibitions which were being sent from town to town in an attempt to reach those citizens who could not have an opportunity of seeing the exhibition in the larger centers. Two years ago State sanatoria for the treatment of tuberculosis had been established in Massachusetts, Maine, Rhode Island, and New York. Since that time provision had been made and sanatoria had been opened or would open in the immediate future in New Jersey, Maryland, North Carolina, Ohio, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, and Kentucky, while bills had been introduced into the legislatures and were being actively pushed in Delaware, Florida, Kansas, Alabama, Texas, and California. There was little doubt that this movement for State sanatoria would extend in the immediate future in such a way that every commonwealth in the Union would have its institutions for the exclusive care of this disease. Side by side with the growth of State sanatoria had gone the movement for the establishment of local sanatoria, which the National Association emphasized as an essential feature in the campaign. The growth of dispensary establishment had also been most striking, and particular attention to this phase of the care of the tuberculous was being paid in our larger cities. The importance of proper care of patients in their homes by trained nurses, in cooperation with dispensary treatment, was now being recognized in all of our cities. Since last May eighteen new tuberculosis dispensaries had been established in the United States. The increase in the number of cities requiring notification of cases of tuberculosis with the health authorities was also most encouraging. Of eighty-five cities with populations of over 48,000 from which reports were obtained, more than fifty now required the reporting of tuberculosis. One of the strongest stimuli which the National campaign had received was the executive order of President Roosevelt issued over a year ago appointing a commission to inquire regarding the conditions existing in government offices and workshops for the prevention of tuberculosis in such buildings. This order resulted in a report from the commission, and was followed by a second executive order, directing the head of each department in Washington to cause to be printed and transmitted to all Federal buildings under his control rules prepared by the commission to prevent the spread of tuberculosis in such places. Through the distribution of these rules, and their conspicuous posting in such build-

ings as the post-offices through the country, a publicity to the movement against tuberculosis had been given which could hardly be attained in any other way. Following the President's example, governors of certain States and mayors of cities had taken up the matter, and were issuing orders similar in purport with regard to public buildings under their control. Less tangible but equally important was the formal action taken by certain national bodies of influence. The National Federation of Women's Clubs had made the subject of tuberculosis one of its chief subjects of study and work, and through its State and local branches was cooperating with the National Association in its educational measures. The Young Men's Christian Associations, through their Physical Education Department, had also taken the matter up with vigor, and through their classes were accomplishing much in a group where the age made them particularly liable to the disease. The recognition of the importance of the work by educational bodies, teachers' institutes, etc., was a further guarantee of the ultimate success of the campaign. The great task was one of prevention, and this involved the observation of a proper hygiene by every individual, and care against infection through the sputum of careless consumptives. The spread of this doctrine was now so rapid and the enthusiasm in the anti-tuberculosis campaign was so great that the prospects of ultimate success in stamping out this greatest of scourges seemed more than promising.

AMERICAN MEDICAL ASSOCIATION.

Fifty-eighth Annual Session, Held at Atlantic City, June 3, 4, 5, 6, and 7, 1907.

(Special Report to the MEDICAL RECORD.)

(*Continued from Vol. 71, page 1013.*)

SECTION ON SURGERY AND ANATOMY.

Thursday, June 6—Third Day.

Symposium on Ileus.—Professor K. G. LENNANDER of Upsala, Sweden, presented this paper, which was read by the Secretary, Dr. Cushing. After long experimentation, the author had reached the conclusion that pain was not transmitted by the vagus, that in order to have this special sense an organ must be innervated by other nerves. In demonstration of this it was cited that the upper aspect of the liver was insensible, because it was not reached by the cerebrospinal nerves. The parietal peritoneum and its subserous layer was described as transmitting the pain sense very sharply and invariably. The visceral peritoneum, however, was not endowed with this sense. Even a mild degree of stretching of the mesentery caused distinct pain. The same was true of adhesions if they were connected to the parietes. If, however, they were not so connected but were interenteric in their nature, almost any amount of traction upon them would elicit no pain. Sensation of pain, according to the author's observation, increased to its maximum in the neighborhood of the foraman of Winslow. Some one had well said that pain varied inversely as one approached the pelvis. As to the pain of perforation, which all clinicians knew to be an easily demonstrable and very constant factor, it was believed to be due to the contents of the organ coming into contact with the parietal peritoneum. This was the cause of the early pain. As was known clinically, this usually wore away gradually, and the secondary pain, which was equally characteristic, was due to and in proportion to the degree of secondary inflammation. The pain of colic was not due to the pressure of nerves brought about by distention, because the entire wall of the gut might be entirely but slowly crushed with artery forceps without causing pain. This latter could only be induced by traction on the parts already referred to. In general, the author concluded that colicky pains, or pains of any character originating in the abdomen, could not come from parts supplied by the vagus and sympathetic either alone or in conjunction; that spinal nerves, such as were found in the parietal peritoneum, were the only nerves which conducted pain sense from the region; that stretching of attachments of any kind whatsoever to the parietes caused pain; that a spilling of the contents of the perforated organ was the cause of the primary pain of perforation; that the sensitiveness of the parietal peritoneum increased until the inflammatory processes progressed too far to permit of continued sensibility of the nerve endings.

Experimental Studies of Intestinal Obstruction.—Dr. R. D. MCCLURE of Baltimore read this paper. He said that in obstruction situated in the oral portion of the small gut the symptoms were well known to be entirely out of proportion to the mechanical severity of the lesion. For it was to be remembered that patients suffering from dynamic ileus situated in the upper portion of the jejunum often perished with very characteristic and fulminating symptoms within from forty to eighty hours, whereas the same type of obstruction situated in the aboral or low iliac portion of the small gut would give rise to an entirely different set of symptoms, and might not terminate in death for a length of time often exceeding a week. A number of explanations had been offered to explain these phenomena. Prominent among these were the so-called nervous theory and the absorptive theory. He recited a number of interesting experiments which had been performed at the Johns Hopkins Laboratory and which were directed toward the elucidation of these unknown conditions. Under perfect asepsis, observations were made every day after an obstruction had been produced by simple ligation of the gut. It was definitely shown that after seventy-two hours, although purple, the loop would contract. He spoke of the characteristic tapering of the dilatation and described the giving of pilocarpine and other drugs after the intestines had been floated in a water bath. As a rule, at autopsy of animals dying of mechanically produced jejunal ileus, the dilatation of the loop was marked. Smears of the loop contents showed a large quantity of bacteria to be present, often of new and bizarre forms. Many of these would grow upon the usual media, whereas a very large portion of them would not. This had rendered difficult the determination of this type of intestinal flora, a subject which was at present being pursued in the laboratory. In an attempt to determine the degree of toxicity of the material contained in the loop, efforts had been made to transplant the contents from one loop to another, but these had been so far unsuccessful. Their experiments seemed to justify the statement that bile and pancreatic juice had nothing to do with the etiology of death.

Physiological Observations on Experimentally Produced Ileus.—Dr. WALTER B. CANNON of Boston read this paper. He dwelt first on the physiology of the peristaltic wave, stating that it was due to the action of a coordinated mechanism which lay in Auerbach's plexus. He then detailed the potato-bismuth observations, by means of which his studies had been carried on. As in previous observations, the shadows had been measured and the total length computed. This gave a very accurate means of determining the amount of food passing to a given place. He then showed the tabulated results of the effect of various stimuli which in succession and in conjunction were applied to the animal. When ether was given the discharge from the stomach was slow. If, under ether, the testicle of a cat be crushed, an immediate retardation or cessation of this discharge would at once be noted. He and Dr. Murphy, his collaborator, then turned their attention to the elucidation of the question: Did this retardation come through the splanchnics? In another series, accordingly, the splanchnics were cut. One week later

the animals were subjected to the above operation under ether. The result showed an absolutely normal passage of food, and the conclusion was self-evident that the reflex inhibitory stimulation from the injury to the testicles must have reached the intestines through the splanchnic nerves. Again the authors directed their attention to the answering of another important question, viz., Was there a local source of inhibition? This was studied by the application of a variety of local traumata, such as drying, chilling, etc. These were found to have no effect. Manipulation, however, resulted immediately in marked depression of activity and in the holding up of the passage of food for hours. Whence the inhibition? Was it reflex through the splanchnic, or of local origin? If the latter and the splanchnics be cut, then logically the same result should be obtained as in previous findings. This, however, was found not to be the case, and the conclusion was self-evident that there must be a local disturbance of the mechanism which lay in the wall. These studies were not carried on for the purpose of answering questions of purely academic physiological interest, but were intended to have a direct bearing upon the treatment of human ileus. Attacked from the standpoint of drug therapy, if extrinsic, inhibition of the splanchnics should help; whereas, if local, obviously a drug affecting the local conditions in the canal should be employed. It was found that physostigmine was restricted positively to those conditions where failure of peristalsis was due to reflex inhibition through the splanchnics. Tincture of aloes, known to be one of the most potent stimulants of a local nature to the intestinal canal, as well as a manipulation of the gut itself, did not help at all. A very interesting observation about physostigmine was that if given early it was valueless, but if given one hour after operation an immediate discharge of food was observed to begin. The effect, however, was temporary. The conclusion was that there were two factors in causing the form of ileus under consideration and that every effort should be made to differentiate them.

The Symptoms and Diagnosis of Strangulation of the Intestines.—Dr. JOHN B. ROBERTS of Philadelphia read this paper. He said that there was a striking similarity between the symptoms of obstruction and those of strangulation, the first usually being an accompaniment of the latter. This obviously made differential diagnosis extremely difficult, rendering it possible indeed in none but the very earliest stages. Whatever might be the cause of strangulation, the end results were the same. At the initiation of the condition the pain might be localized or diffuse. He made it clear that secondary pain was always due to peritonitis. He further called attention to the fact that practitioners should bear in mind that an overdistended bowel never gave a tympanitic note, but one which could in a measure be likened to that obtained by percussion of certain parts of the chest. Of the urine and feces, he said no important data were to be gained, while a study of the blood, although revealing occasionally a well marked leucocytosis, could hardly be depended upon as an important aid in diagnosis. Rise of temperature suggested the onset of peritonitis, but this was not an invariable accompaniment of such rise. In chronic obstruction there was invariably no visible peristalsis, whereas this was present in the acute form. In closing he emphasized that if a diagnosis could not be made positively in from twenty-four to forty-eight hours, the abdomen should be opened and the contents inspected.

Postoperative Ileus.—Dr. FRANK MARTIN of Baltimore had communicated with the leading surgeons of the country and, according to their personal reports, had found that the percentage of postoperative ileus varied from 1-10 to 2 per cent. This showed that the condition was by no means a rare one. Among other interesting facts, he stated that a number of surgeons had reported cases of ileus developing after operations in which the peritoneal cavity was not opened. These, he said, were usually classed as belonging to the adynamic type. Ochsner had reported from his immense service at the Augustana Hospital of Chicago no cases whatsoever of postoperative ileus. This he ascribed to the method of treatment, which was routine practice at the Augustana, viz., starvation, combined with castor oil. He stated that no adequate classification of ileus had yet been made and referred at length to Wilm's well known work on the subject. He said that the mechanical, the septic, and the adynamic were the three most important types. As to diagnosis, he held this to be extremely difficult, and insisted that the symptoms must be studied at the very incipiency of the disorder, because their characteristic was to so change in type as to be valueless for diagnostic purposes. In the early stages a stiffening of the belly wall was generally absent. Symptoms of shock were of great moment. In closing he spoke of the frequency with which abdominal adhesions were disposed of by natural processes.

Dynamic Ileus.—Dr. JOHN C. MONROE of Moston said that ileus had too long been considered a disease in itself. This it was not, but rather a group of symptoms which in their incipiency were characteristic. He held that the term should be abolished. Antioperative or postoperative obstruction might be severe or might be simple. He believed distention to be generally due to a preexisting peritonitis, for it was rarely seen in uncomplicated obstruction. Pneumonia and nephritis were not uncommon accompaniments, particularly in the derivatives of the primary mid-gut, it was of the utmost importance to avoid all forms of traumata. Lavage of both ends of the alimentary canal were very important and the most efficacious mode of conservative treatment. Cathartics, of course, were universally known to be exceedingly dangerous. This was an excellent illustration of the fact that an increase of the condition established by nature were the means best directed for the treatment of the condition. When the gut was obstructed increase of peristalsis would destroy the natural protective barriers. This, of course, was true of toxic ileus, which should in the rarest cases only be operated upon, was made worse by a catharsis, was to be treated by rectal irrigation, and was best relieved by the copious use of morphine. This relieved the pain, quieted the bowels, and acted consequently as a cathartic. In conclusion he stated that the common, acute, and postoperative form of ileus was generally due to trauma inflicted at time of operation or else to slight local infection. These, he said, should be treated rather than the ileus.

Resection for the Relief of Intestinal Obstruction.—Dr. WILLIAM J. MAYO of Rochester said that the delay in affording suitable surgical intervention was in almost all cases the cause for the need of intestinal resection. This, in other words, usually arose from interference with the blood supply. It had been definitely shown by many observers that the condition of obstruction by its very interference with the resisting powers of the intestinal wall allowed of permeation of that wall both by germs and by toxins. He said that the evacuation of the contents oral to the obstruction was of the very greatest importance, and stated that many lives would be saved in this condition by a more liberal use of the stomach pump. There was something exceedingly poisonous in the contents of the loop, and if this material were driven through the intestinal canal instead of being washed out, preferably at time of operation, by its removal from the loop or occasionally after it had regurgitated into the stomach by gastric lavage, a very high mortality was certain to result. Because of the fact of certain specific changes in the wall of the gut, produced by these poisonous materials, it was necessary, in case resection were undertaken, to cut out a liberal amount of gut. He said the distended intestine should not be handled; that no pull should be made

upon the mesentery; that it was much better to make a double incision through the abdominal wall than to attempt to reach the intestine from a misplaced opening. He advised lateral anastomosis, and stated that the opening must be at least two inches long. Save for slight angulation, such an opening, if properly made, would leave no final imprint on the course of the intestine. This lateral anastomosis was to be used in acute cases only, and preferably in the small gut where the contents were fluid. End-to-end anastomosis was perferable in chronic cases and in the large intestine. In the ileocecal region anastomosis should always be lateral. If a button were used it should always be protected by four interrupted sutures. As to resecting the transverse colon, he said that in four cases out of five the middle colic artery was its sole blood supply. It should not be forgotten that the splenic flexure and descending colon were normally empty, constituting, as it were, simply a passageway from the transverse colon to the sigmoid. Resection here had better be made in three stages, because the complete final operation had a very high mortality. He emphasized the value of the upright position to get drainage away from the diaphragm, which the researches of Buxton and others had shown to be the great medium for the absorption of bacteria and their products. In addition to this, he urged free rectal irrigation to aid elimination and gastric lavage for the removal of poisonous materials which so frequently entered the stomach.

Dr. E. Wyllys Andrews of Chicago opened the discussion. He presented a new method of intestinal anastomosis. It combined the speed and safety of the McGraw ligature, but by the application of a simple device was opened immediately. A pair of cutting forceps with slender blades completed the opening. He gave a demonstration upon a piece of intestine and showed the admirable working of his instrument.

Dr. S. J. Meltzer of New York continued the discussion. He confined himself to a consideration of Lennander's paper, devoting particular attention to the sensitiveness of the intestine as to pain, to the question of presence of nerve fibers, and to Lennander's hypothesis, explaining the cause of abdominal pain. He said that in his experience the intestine of dogs were very sensitive to pain. He wondered if there could be a difference in the species. In rabbits, he said, the intestine was not sensitive to pain. Another observation which he made was that cocaine has the property to abolish pain, not only locally, but in distant parts. It also quieted the animal. Absence of pain, as recorded by Lennander, he thought might be due to this hitherto unrecognized property of cocaine. He believed that a disappearance of the pain was probably the first sign of appearance of shock. Inhibition was probably the cause of this. Simple laparotomy had unmistakable effect upon the peristalsis, motor activity often disappearing with the opening of the peritoneal cavity. This had even been observed when incisions were made elsewhere.

Dr. W. G. MacCallum of Baltimore paid high tribute to the value of Dr. Cannon's paper, and reported two observations which he had made which he believed supported Cannon's conclusions. At operation it was not uncommon to find no sign of obstruction, but to discover the oral portion of the intestinal canal to be in such a state of chronic contraction as to present the characteristics of an absolutely rigid tube. This was due to the inflammatory process in the wall. Another case which he had seen he thought illustrated Cannon's observations upon the splanchnic innervation. The patient presented all classic of signs of obstruction and was operated upon. No obstruction was found, but a dissecting aneurysm was discovered which was making tight pressure upon the splanchnics, because of infiltration of the region through which they passed. He said that there was no transmigration of bacteria through the intestinal wall, unless that wall were deprived of its natural resisting power owing to deficient nutrition.

Dr. J. W. Draper Maury of New York said that Dr. Cannon's paper had done much to explain many important and hitherto unknown phenomena of intestinal obstruction. He cited certain observations which had recently been made in a series of experiments conducted at the Surgical Research Laboratory of Columbia. In brief, these researches verified the fact that obstruction oral to the bile and pancreatic ducts was much more readily tolerated by an animal than obstruction just aboral to the ducts. All the work had been done in the relatively aseptic region of the primitive foregut. On account of the proofs recently adduced by several observers, notable among them being Meltzer, of the existence in the bile of two substances, one a violent spasmodic and of the fact that a colloidal suspension of the bile was necessary to prevent the action of this convulsant, the speaker believed it probable that the explanation of the fact that death took place so much more rapidly when obstruction was situated high up in the intestine than when placed near the ileocecal region lay in the fact that the obstruction interfered with the normal colloidal biliary suspension in a degree proportional in its nearness to the bile duct. Absolute proof of this hypothesis was as yet wanting, but experiments so far conducted appeared to support it. If further experimentation verified it, it might be easy to suggest the use of some therapeutic agent which would chemically or otherwise counteract the effect of the biliary poison.

Dr. James F. Mitchell of Washington reported two interesting cases which appeared to support Lennander's contentions. He chose two types of men from among those presented in his service, one an uneducated negro, and the other an educated white. By the simple use of a free amount of salt solution, to which no cocaine whatsoever had been added, he opened the abdomen of each. No general anesthetic whatsoever was employed. The demonstrations of pain complained of by each patient were the same. Each objected to the section of the anterior sheath of the rectus, and each complained of severe pain when the parietal peritoneum was clamped. No pain was caused by clamping the suspensory ligament of the liver, and when the colon was rubbed in each case there was no pain; but traction always caused pain. The parietal peritoneum was in each case exceedingly sensitive. In the case of the negro the intestine was clamped and rubbed. It caused no pain. Traction on the mesentery, however, caused much pain and nausea. The same thing was observed on traction of the appendix. The highest pulse rate was 70. This occurred when the skin was cut, when the peritoneum was cut, and when the mesentery was dragged on. The lowest pulse was sixty.

Dr. John D. Murphy of Chicago said that he regretted very much that there was still a great diversity of opinion as to the classification of ileus. It constituted a complex aggregation of symptoms, of which pain, nausea, vomiting, and meteorism were the most prominent. He said that bedside study was of the very greatest importance. He believed that a pain sense existed in the intestine. For the dynamic cause he said that morphia was by all odds the best form of treatment. For the adynamic the cause should be treated. For mechanical ileus the treatment obviously should be by mechanical means.

Dr. John B. Deaver of Philadelphia said that there were three types of obstruction to be observed at the bedside. He thought that too much importance should not be accorded to laboratory findings. The types referred to were postoperative, mechanical, and, lastly, those resulting from infection. Most cases of ileus had occurred after sepsis. The condition was but rarely seen in a clean belly. Gauze, in his opinion, was not at all a frequent factor in causing it, as some speakers had already observed, for

gauze was used very widely in his service. He believed that thorough cleansing of the alimentary canal before operation and very careful feeding after operation constituted the open sesame to the avoidance of ileus.

Dr. McGraw of Detroit emphasized the necessity of an early diagnosis of the condition. Mechanical obstruction, he said, had certain cardinal symptoms in its early stages which disappeared often before the diagnosis was made. Of these pain and vomiting with no distention, with no fever, with no tenderness, were the most important.

Dr. Morris H. Richardson of Boston said that in his experience it had been very difficult to tell what was the real condition and what was not in certain postoperative disturbances. Abdominal pain was the most important sign, particularly when accompanied by vomiting and distention. How to tell just what to do with these cases or how to successfully prognosticate the outcome of the conditions had as yet baffled him. There certainly did exist a picture which bore close clinical resemblance to the true ileus and from which patients always recovered, which was very hard to diagnose. He believed that such cases might present what he called a peritonism, viz., a low degree of peritoneal irritation without peritonitis, which would explain the resemblance of the symptoms and the difference of the outcome.

Dr. Hemmeter of Baltimore agreed with Dr. Meltzer that cessation of pain was an indication of shock.

Diabetes in Surgical Relations.—Dr. A. E. Halstead of Chicago said that traumatic glycosuria should be considered in its relation to the healing of fractures. In general it was better to wait until dietary and other measures had effected a removal or disappearance of sugar from the urine prior to the undertaking of operative procedures. He thought that if this precaution were taken diabetes should not constitute a serious contraindication to operation. The risk of infection of operative wounds in the diabetic subject was very great, but even this risk was much reduced if attention were given to minimizing the amount of sugar in the urine. He spoke of femoral glycosuria following trauma in surgical operations and dwelt upon its significance and relation to true diabetes. So important was it to get all pus infection out of a diabetic that operations for the drainage of pus cavities should be undertaken immediately and without waiting for any preoperative treatment. All operations upon a diabetic should be done with the greatest possible speed and with the least traumatism of the tissues. Young patients were naturally the poorest operative risks, the acid intoxication, which in them was present to a much greater degree than in older diabetics, proving a greater menace to life than the arterial sclerosis which is characteristic of the old. General anesthesia should always be avoided if possible. Ether was the anesthetic of choice, for it was well known that acetonuria developed in sixty-six per cent. of normal cases anesthetized by chloroform. Nitrous oxide was not free from danger. Bicarbonate of soda was indicated at all times to keep down the diacetic acid reaction of the urine.

Dr. Henry S. Stark of New York spoke of the difficulty encountered by the general practitioner in making the tests for diacetic acid and other substances which render treatment demanded. He thought it was questionable whether such a thing as diabetic gangrene existed. It merely followed an obliterating endarteritis and morphologically resembled gangrene occurring under other conditions.

Dr. Shelton Horsley of Richmond recited the history of a white man who had been shot in the head. The bullet struck the malar bone and broke in two, one fragment lodging in the soft tissue of the temporal fossa, the other entering the substance of the frontal bone. Glycosuria was observed to begin a very few hours after the injury. There was no sugar on the eighth day and patient recovered.

Dr. A. J. Ochsner of Chicago said that for fear of permitting the statement to go unchallenged that varying forms of gangrene did not materially differ, he wished to say that whatever their morphological resemblance might be there was a very positive difference in them clinically. In the diabetic form he had noticed without failure that if the sugar in the urine was disposed of by proper medical measure, the tendency to gangrene would disappear. This statement was based on the result of the study of 30,000 cases personally operated on by himself. The usual proportion of these patients had suffered from diabetic gangrene. He considered it demonstrated that gangrene due to age-endarteritis would yield to no form of treatment, whereas the diabetic form could be helped by treatment. He insisted that a surgeon should never attempt to care for a diabetic patient, for the proper treatment of this disease demanded constant medical care year in and year out.

Trigger Finger.—Dr. Robert F. Weir of New York read this paper. He said that the disorder was not common and was but little understood. It was first described in 1850 and first treated by operation in 1884. Since that date forty-two cases, all of which had been relieved by operation, had been collected. He had suffered from the affection himself, and Dr. Abbey had operated upon it for him. The cause of the condition lay in a disproportion between the size of the sheath and the tendon, the increase in size of the tendon being due either to traumatism, to tuberculosis, or to the development of neoplasm. It was more frequent in the left hand and usually occurred on the flexor tendons. It was probably not due to excessive muscular action, but to direct constant pressure upon the palm, such as would arise in certain occupations. He said that a local anesthetic was absolutely necessary, so that it could positively be determined when the tendon had been sufficiently relieved. It was noteworthy that all cases operated upon were cured, although in several instances no sign of the lesion had been found at operation.

Excision of the Rectum, Sigmoid, and Part of the Descending Colon with Implantation of the Colon into the Anus.—Dr. Edward Archibald of Montreal, Canada, read this paper. It was based upon a case of chronic ulcerative tuberculosis of the rectum and colon occurring in a young man and existing for three years. A left colostomy was done. This afforded a measure of relief and was kept open for more than a year without, however, effecting a cure. It caused so much trouble to the patient and the pain of the disease was so great that he insisted on the performance of a radical operation. The technique of this operation was the important part of the contribution. It consisted in the cutting of the mesosigmoid, or mesocolon, to a sufficient extent to obtain adequate mobilization to enable the splenic flexure of the colon to be brought down to the anus. The speaker showed a most instructive series of preparations from the cadaver, the arteries of which had been injected after the ligation of the vessels necessary to effect this mobilization. In all cases in which this ligation and injection was performed there was shown to be a full and adequate blood supply to the entire region mobilized. He discussed the feasibility of utilizing this technique for radical operation on malignant neoplasms of the rectum and lower sigmoid. The Kraske's operation was attended by a very high mortality, and the combined abdominal-perineal operation as advocated by Mayo, even in his skilled hands, had a dangerously high mortality rate. There were in the operations upon this region three important points to consider, viz., the mortality, the postoperative control of bowel contents, the permanence of cure. One chief advantage of the form of technique offered by the speaker lay in the fact that by its employment all glands could be removed. That this

was a matter of the highest importance was demonstrated by the fact that Kraske now combines his original operation with abdominal section. The objection to the Mayo operation lay in the fact that the artificial anus was always bad and further there was an immediate high mortality due to shock. The ideal operation was a complete removal of the bowel with its lymphatics and a subsequent fecal control through the natural channels.

Direct Transfusion of Blood.—Dr. GEORGE CRILE of Cleveland said that off and on this work had been done more or less for the past four centuries. Most of it, however, was accomplished very crudely. His paper was based partly upon conclusions derived from 225 operations upon animals and partly upon what he had observed as a result of the application of such experiments to human beings. The conclusion reached was that the vascular systems of normal individuals of the same species might be connected if this were done according to modern technique without harm to either individual. There should be no clotting if technique were properly executed. The blood lost by the donor was usually regained in about five days. All manner of experiments have been performed, blood having been emptied from one animal into another and again into a third and vice versa. No metabolic changes could be found resulting from these operations. No hemoglobin was found in the urine. Overtransfusion, such as would be obtained in using a disproportionately large donor, was a dangerous factor, for the right heart might readily become engorged and frothy sputum appear at the mouth. Liver and spleen might be ruptured. The blood pressure was raised by transfusion higher than by saline infusion, for blood is physiologically better than water. The employment of this method was particularly applicable to resuscitation after severe hemorrhage, either accidental or induced. Induced hemorrhage followed by transfusion in cases of strychnine poison and after double nephrectomy did no good. It was curative of illuminating gas poisoning and of surgical shock. In this condition death was due to circulatory failure of vasomotor center. As a preventive of shock transfusion was probably the most important means of control at our hands. Animals physiologically overtransfused could not be killed by shock alone. In pernicious anemia and in leukemia there was no improvement. In cases of chronic suppuration there was a temporary improvement in vitality. In tuberculosis there was no gain. He referred to the immunity which could be contributed to certain animals in their ability to absorb tumors of sarcomatous type. In hemorrhage arising from a failure of the blood to clot the treatment by transfusion seemed to offer great promise.

Dr. BEEBE of New York said that it was a question what was the cause of immunity in animals. He exhibited charts which showed most beautifully the regression of tumors following transfusion.

Dr. LOWER of Cleveland spoke of the technique usually employed by Dr. Crile and his associates in practising human transfusion. He said that the radial artery was usually used; that the work was done under local anesthesia. Unless a large enough vessel were used there might be sufficient contraction to stop the blood stream. By the judicious use of local anesthesia one was generally able to accomplish the operation almost without the patient's knowing it.

Paraffin Injection Treatment of Inguinal Hernia.—Dr. M. L. HARRIS of Chicago read this paper. He said that this pernicious method had been introduced fifty years ago and been used extensively throughout the West by itinerant quacks. It had universally ben proven not to be permanent, and many accidents had followed its use. As to the position of the paraffin, he had found that in some cases it had been injected directly into the cord, in some into the tissues of the external oblique. He thought that it should be condemned as unsuccessful and unsurgical.

Dr. DEGARMO of New York agreed with the author of the paper.

Dr. ROBERTS of Philadelphia thought that there might possibly be occasions upon which the injection treatment might be useful.

Dr. BEVAN said that he had seen two cases of neoplasm occur after paraffin injections. These growths had been dissected out and under the microscope presented the gross appearance of Swiss cheese. The clinical behavior was that of paraffin, and it might be concluded that this condition may be produced by paraffin injection.

Pseudoarthrosis.—Professor SCHMIEDEN of Bonn read this paper. He said that in Bier's clinic a great many experiments had been made relating to the value of the injection of blood in cases of failure of bone union. He said that reaction was particularly marked if heterogeneous injections of blood were made into the part. The inflammatory reaction of simple fracture, he said, might be studied from this standpoint, and the bone deposit be shown to be the direct outcome of the hemorrhage at the site of break. On account of these facts Bier had for long held that failure to unite might be due to lack of a suitable amount of blood. It was therefore the hemorrhage which resulted from it and not the curettage which helped, when the ends of bones were scraped for non-union. Pseudoarthrosis was usually due to a bad condition of the patient rather than to bad treatment because of the generally good modern technique. Injection of blood was much better than that of other irritants. The technique was simple. It consisted in a puncture of a vein and the removal in a very strong syringe of from thirty to forty c.c. The injection was made between the fractured ends and around them. The blood should be introduced before coagulation could take place. A better result was obtained by taking blood from a different individual. One such treatment might suffice, or it might have to be repeated six times. He concluded that Bier's views were correct that the blood was the material which started bone growth.

Dr. DAWBARN of New York said that quacks had used a concoction for injection made of white oak bark and glycerin. This resulted in the formation of a glycerite of tannin. Callus was nature's glue, and it became whatever tissue it was placed in contact with. He spoke of the necessity of making a proper differential diagnosis.

Technique of Operation for Cancer of the Breast.—Dr. MILES F. PORTER of Indiana said that the principal object that we sought for was to secure as rapid and perfect recovery as possible. The incision advised for most cases followed the lower border of pectoralis major with oval about the breast. Vertical incisions in the axilla and those of acute angles were to be avoided. He said that a great deal more tension could be put on the skin of these parts than was usually supposed, and urged that skin grafting was in most cases unnecessary. He advised the employment of buried sutures in the axilla.

Dr. W. L. RODMAN of Philadelphia agreed with the speaker as to the desirability of free removal of the skin. The greatest danger to the patient, he said, had been a tendency not to cut away enough. The advantages of skin grafting freed the operator from the fear of too much skin removal. All efforts were to be made to avoid the formation of a bridle scar, and for this reason he advised not incising too low down on the arm. He thought that all muscles should be removed, and recent researches showed the truth of Halstead's stand, proving the desirability of removing all supraclavicular glands if the new growth were situated in the upper quadrant of the breast. He believed that it was just as well to drain.

Friday, June 7—Fourth Day.

Experimental Pathology and Surgical Treatment of Erysipelas.—Dr. ERNEST LAPLACE of Philadelphia read this paper. He spoke of the important results which had

been derived from the addition of tartaric acid to a solution of bichloride. It altered the soil and also altered the virulence of the germs. He considered that his experimental demonstration had shown the varying virulence of the streptococcus, the more alkaline the medium, the more violent the erysipelas. The well known lack of immunity from second attack agreed with the observation that opsonins disappeared quickly from the organism. He believed that scarification with ice cold applications of bichloride acid with tartaric acid would successfully limit most cases of erysipelas.

Dr. Ochsner of Chicago said that if the streptococcus should be changed in virulence this paper was to be regarded as reporting a great step in advance. He believed that practically it was a very important point to treat the disease in its very incipiency. If this were not done no form of treatment would control it. He recited the history of the epidemics observed in the German prisons where they had years ago observed that alcohol, if used in the very early stages, was curative. If there was uniformity in morphological changes in the germ, it was a remarkable observation. It was well known that there were mild types of infection.

Dr. Laplace in closing said that germs certainly do change in virulence. He applied the argument to the appendix, and said that in it alone there was presented an example of old-time hospital gangrene.

A Case of Benign Melanosis.—Dr. J. Clark Stewart of Minneapolis said that melanotic conditions, the result of dissemination of melanoid sarcomata, were relatively common, but that so far as was known benign conditions resulting in the staining of the milk, sweat, urine, etc., had not yet been observed in the human being. He reported such a case occurring in a woman who, fifteen years ago, when she was thirty-two years of age, was operated on for ovarian cyst. When the abdomen was opened the entire cavity was found to be lined with small melanotic daughter cysts, which at the time were pronounced to be melano-sarcomatous in origin. Examination, however, showed that this statement was erroneous, and clinically the diagnosis of a benign condition was established by the fact that the woman improved greatly under electrical treatment for the growth. Pregnancy appeared to start the condition of melanosis into great activity. The supposition was that the original cyst was either a dermoid or a parovarian cyst which had undergone degeneration. The cyst might have ruptured and have planted many smaller cysts in the peritoneum.

Anatomy of the Palate, Normal and Cleft.—Dr. Truman H. Brophy of Chicago, in this paper, affirmed his well known utterances on this subject and said that a continued study of the subject had led him to an even more definite conclusion of the truth of the finding that there was no actual loss of tissue in cases of cleft palate; that the normal amount of tissue was there, but that it was simply displaced laterally. There was a failure of union of the maxillary bones at the median line. He accounted for this failure in one of two ways. The predisposing cause was heredity; the exciting cause the application of force in the growth of the embryo. The mandible brings pressure which tends to separate the gap, as does also the tongue and the flexed position of the head. He concluded that the treatment consisted in a closing together of the bones within three months after birth, the soft palate being repaired later and the lips last.

Hepatic Abscess, Etiology, and Treatment.—Dr. John McDill of Manila read this paper. He said that this was the most important characteristic disease of the tropics. For some reason, owing probably to the character of their food, the Chinese were almost exempt. The whites furnished about ninety per cent. of the cases of abscess. He considered alcoholic excess to be the most important predisposing cause. The liver, he said, was normally a septic vault. The double blood supply helped to rid it of infection, and obviously anything interfering with this would tend to the formation of abscess. He referred to Musgrave's observations and said that he had finished his studies on the ameba. He said that diarrhea was not always present, even though amebas might be present in the intestines. The right lobe of the liver was generally infected. There was no relation of the abscess to intestinal ulcer. Death was due to admixed bacteria which killed by sepsis. The fever was irregular, if present. It might be entirely absent. Pain rarely appeared until the abscess reached the surface of the liver. Leucocytosis was constant. Primary intestinal disease, however, might give from fifteen to twenty thousand. This cause should be carefully eliminated by irrigation. A dry irritating cough meant that perforation into the lung was imminent. Exploration with the hollow needle was dangerous. He advised the transpleural route, describing a flap operation by which the tenth and ninth ribs were resected, and the gutter which had contained them closed. This loose wall was then pressed down and an opening made at the eleventh rib. The edges were clamped to prevent pneumothorax. This was then sewed up and abscess opened. He concluded that abscesses always contained the ameba; that early recognition could be made by finding them in the gut; that solitary abscesses were most frequent; that the best route was transpleural; that early operation resulted in ninety per cent. of recovery.

Dr. Powers of Denver said that probably no one present had seen anything like the number of cases which Dr. McGill had had the opportunity to study.

Dr. Cushing of Baltimore spoke of the new Manila School of Medicine and its importance to Continental United States. He asked whether it had been definitely decided that Shiga's bacillus was the primary invader or whether it was secondary to the ameba. He considered the transpleural route as described by the speaker as offering the most practical mode of access to the liver.

Dr. McGill in closing said he believed that most abscesses, if multiple, would coalesce and discharge through the primary opening. Amebas he believed to h every universal in their distribution, but they seemed to be more pathogenic in the tropics. The condition of the gut must be favorable to the development of the pathogenic form. He thought that everywhere routine examination of the stool should be made, and stated that one drop of the third or fourth movement after the giving of a large dose of salts was the most certain way of finding the parasites.

The Management of Dislocation at the Shoulder Joint, Complicated by Fracture of Neck of the Humerus.—Dr. H. A. Royster of North Carolina read this paper. He said that these fractures were more common than generally believed, and showed that the only rational treatment consisted in immediately cutting down over the joint and reducing both the fracture and dislocation at once.

Dr. Kocher of Berne said that an exact diagnosis of the character of the dislocation should be made before his father's method of reducing it should be employed. It did not apply to the correction of every type and might readily give a spiral fracture of the surgical neck.

The Results of the Operative Treatment of Deformed Fractures.—Dr. Carl Beck of New York, in this paper, emphasized the necessity of the careful routine employment of the *x*-rays as an aid to diagnosis and to treatment. He said that if this principle were followed out cases of nonunion would be very rare. He showed a great many interesting photographs demonstrating his paper.

Officers.—Dr. Rudolph Matas of New Orleans was elected *Chairman*, and Dr. Willard Bartlett of St. Louis, *Secretary*.

State Medical Licensing Boards.

STATE MEDICAL EXAMINING BOARD OF WASHINGTON.*

SPOKANE.

January 2, 3, and 4, 1907.

SURGERY.

1. Give the differential diagnosis between dislocation of the head of the femur and a fracture of the neck. Describe the treatment of the latter.
2. Give a summary of the treatment of fracture of the patella by the non-operative method.
3. Give the treatment of delayed union in ununited fracture.
4. Describe the different varieties of hernia, and describe one operation for inguinal hernia.
5. Name the different varieties of aneurysm, and the method of treatment of aneurysm in general.
6. Give the symptoms, diagnosis, and treatment of intestinal obstruction.
7. Give the symptoms, diagnosis, and treatment of chronic tuberculosis of the kidney.
8. Give the treatment of shock resulting from hemorrhage.
9. Give the contraindications for the employment of ether and chloroform.
10. Describe and give treatment of an infection under the palmar fascia.

PREVENTIVE MEDICINE AND MEDICAL JURISPRUDENCE.

1. Differentiate between idiocy and lunacy.
2. How would you determine that a full-term dead babe was born alive or still-born?
3. Give a detail account for an examination of a body from the standpoint of the coroner in charge.
4. How do you determine that an incised wound was inflicted by a blunt or a sharp instrument?
5. What constitutes expert testimony?
6. How long after recovery would you keep in quarantine a case of (*a*) diphtheria, (*b*) scarlet fever, (*c*) smallpox?
7. Name the portals of entry of tubercular infection.
8. State the best means of disinfecting sputum.
9. Describe the difference between contagion and infection.
10. (*a*) What are the effects of breathing impure air? (*b*) How many cubic feet per person should be allowed in a room for continued occupancy, and in a sleeping-room.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

1. How would you differentiate between chronic gastritis and carcinoma of the stomach?
2. Define constipation and give its causes, symptoms, effects, and non-medicinal treatment.
3. What is vertigo and its different varieties? Give the diagnosis and treatment of one.
4. Give the etiology, symptoms, and treatment of hydrothorax.
5. Give causes, symptoms, diagnosis, and treatment of myxedema.
6. Describe an attack of angina pectoris. Give its etiology, diagnosis, and prognosis.
7. What is asthma? Give its causes and symptoms.
8. Differentiate between hypertrophy and dilatation of the heart, and outline treatment for each.
9. What are the causes, symptoms, and effects of adenoids?
10. Describe an attack of enterocolitis in a child. Give its etiology and dietetics.

*It is proposed in this department to publish from time to time the examination papers of the various State Boards, in order that a candidate may become familiar with the character of the examination and so in some measure free himself in advance from the nervousness and dread which the unknown inspires. In furtherance of the same object answers to some of the questions will be published in order to show the candidate what the examiners expect of him. Not all the questions of all the papers will be so treated, for the answers to many, especially in the anatomical papers, are obvious or can be found in the Index of any textbook on the subject; the answers to other questions, especially in the surgical papers, must sometimes be omitted because of the space they would demand. The candidate for a medical license will not find in these answers a short and easy road to success in the examination, for he is not likely to meet the same questions in the papers placed before him by the examiners. The object of publishing the questions and answers is only, as noted above, to acquaint the candidate with the general character of these examinations and to inspire him with confidence in the result of his trial.

11. What are the etiology and symptoms of alopecia areata? How is it distinguished from ringworm?
12. Describe an attack of pertussis. Give its etiology, pathology, complications, and sequelæ.
13. What are the etiology, symptoms, and treatment of stomatomycosis?
14. Contrast ordinary dairy milk with human milk, and give a brief description of the essentials for the production of pure dairy milk.
15. Give symptoms and course, with differentiation, prognosis, and treatment of tubercular meningitis in a child.

OBSTETRICS AND DISEASES OF WOMEN.

1. Define presentation and position. Give three examples of each. Which of the latter is the most common?
2. Which is the greatest diameter of the female pelvis, also that of the fetal head? Give the mechanism of rotation of the latter during parturition in the first position.
3. At what time of gestation is the placenta formed? How would you treat an inevitable abortion subsequent to its formation?
4. In a difficult labor, upon what would you base your decision as to whether Cesarean section or the application of forceps would be the proper procedure?
5. What is placenta prævia? Name the different attachments of the placenta in the same. Give the method of management.
6. Give the symptoms and diagnosis of ectopic gestation.
7. Give the common causes of subinvolution of the uterus and the treatment of each.
8. Define metrorrhagia. Name two of its most common causes prior to the menopause. What would you suspect should it occur subsequent to the same? How would you verify your suspicion?
9. Give your treatment of a recent attack of specific vaginitis. Name two of its most common sequelæ.
10. Give two indications for hysterectomy. Which do you prefer, vaginal or abdominal? State upon what ground you would base your preference.

CHEMISTRY AND TOXICOLOGY.

1. What is an antidote to arsenic? What effect has arsenic on the gastrointestinal canal? What effect has it on the nervous system? In arsenic workers, what local condition may be found upon the hands?
2. What is an antidote to carbolic acid? What combination is formed by its administration? How would you make a diagnosis of carbolic-acid poisoning before death?
3. Enumerate the symptoms of chronic lead-poisoning and give the treatment.
4. Give the treatment of phosphorus poisoning.
5. What are the symptoms of nitrate of silver poisoning and what are the antidotes?
6. Complete the following formulæ: $Zn+H_2SO_4=$? and $BaO_2+2HCl=$?
7. What is an atom and what is a molecule?
8. What are isomeric compounds?
9. Describe the method of detecting uric acid by HNO_3.
10. Describe in detail a method of the quantitative estimation of sugar in urine.

ANATOMY AND PHYSIOLOGY.

1. Name in order the branches of the arch of the aorta.
2. Give the origin, course, and termination of the thoracic duct.
3. Describe the occipital bone and name the structures passing through the foramen magnum.
4. (*a*) What tendons form the inner hamstring? (*b*) The outer hamstring?
5. Describe a lumbar vertebra. In what points does it differ from a dorsal vertebra?
6. Describe the diaphragm. Mention the openings formed by it, and tell what structures pass through each. Give its nerve supply.
7. Describe the circle of Willis, and name the arteries forming it.
8. What are attachments of Poupart's ligament? How is it formed? Give its surgical significance.
9. How is the venous blood current maintained? What arteries carry venous blood?
10. Describe the normal heart sounds. Give causes which produce each.
11. Give the daily amount, composition, and functions of the bile.
12. What part does saliva take in digestion? What is its ferment? Name and give the physiology of the nerve supply.
13. Name and give the function of the various glands of the small intestines.
14. Give the physiology of visual accommodation to light and distance.

15. What is the physiology of blood formation?

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

1. Describe a sebaceous gland.
2. Name the layers of the mucous membrane, and give the locations where it is found.
3. Describe the cross-section of an artery.
4. Describe the iris.
5. Describe a peptic ulcer of the stomach.
6. Give the pathology of the blood in pernicious anemia.
7. Name the chief differential points between carcinoma and sarcoma.
8. Describe a method for staining tubercle bacilli.
9. Describe methods of culture of the diphtheria bacillus.
10. What is the Widal's reaction?

NERVOUS DISEASES AND DISEASES OF THE EYE AND EAR.

1. Give diagnosis and treatment of migraine.
2. What is tic douloureux? Outline treatment.
3. Mention etiology, symptoms and treatment of sciatica.
4. Describe a case of progresive bulbar paralysis.
5. Briefly describe a case of general paresis.
6. Define: hordeolum, chalazion, ectropion, entropion, ptosis, astigmatism and myopia.
7. Give symptoms and treatment of purulent conjunctivitis.
8. Give diagnosis and treatment of mastoiditis.
9. Describe and give the treatment of pterygium.
10. Give the three most common causes of otitis media.

MATERIA MEDICA AND THERAPEUTICS.

1. Define narcotics, anesthetics and sedatives. Give an example of each.
2. Define diuretics and diaphoretics. Give three examples of each.
3. Give the therapy of phosphorus.
4. Give the physiological action of opium and name its alkaloids.
5. Name the drugs you would exhibit in pneumonia, acute interstitial nephritis, and rheumatism.
6. Mention three heart stimulants. Give the adult dose of each.
7. Write a prescription for acute bronchitis, chronic constipation and acute cystitis.
8. Classify the following drugs: aconite, atropia, pilocarpine, ergot, elaterium and manganese.
9. Name four hypnotics and give the adult dose of each. Name four emetics and give the dose of each.
10. Define an alkaloid and give an example of the same. Define serum therapy. Mention three serums, the indications for their use and state the dose of each.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE MEDICAL EXAMINING BOARD OF WASHINGTON. SPOKANE.

January 2, 3, and 4, 1907.

SURGERY.

1. In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e.g.* on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture.

2. The knee is disinfected, then covered with antiseptic gauze, and firmly bandaged. The leg is extended on the thigh, the thigh flexed on the abdomen, a posterior splint is applied, and the foot is supported. In two or three days the bandages may be reapplied if the parts are in good condition, and a plaster-of-Paris dressing put on. The patient is then allowed to walk about; the plaster-of-Paris dressing remains on for about three weeks.

3. "When delayed union exists, seek for a cause and remove it, treating constitutionally if required, and thoroughly immobilizing the parts by plaster. Orthopedic splints may be of value. Use of the limb while splinted, percussion over the fracture, and rubbing the fragments together, thus in each case producing irritation, have all been recommended. Blistering the skin with iodine or firing it has been employed. If the case be very long delayed, forcibly separate the fragments and put up in plaster as a fresh break. If these means fail, irritate by subcutaneous drilling or scraping, or, better, by laying open the parts and then drilling and scraping at many places." (Da Costa's *Surgery.*)

5. The different varieties of aneurysm are: True; false; fusiform; sacculated; dissecting; arteriovenous, of which there are two varieties, varicose aneurysm and aneurysmal varix; cirsoid, and aneurysm by anastomosis.

9. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics:* "*Ether* should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

PREVENTIVE MEDICINE AND MEDICAL JURISPRUDENCE.

1. "Idiocy differs from other states of insanity in the fact that it is marked by a congenital deficiency of the mental faculties. There is not here a perversion or a loss of what has once been acquired, but a state in which, from defective structure of the brain, the individual has never been able to acquire any degree of intellectual power to fit him for his social position. It commences with life and continues through it." (Taylor's *Medical Jurisprudence.*)

4. A wound inflicted by a blunt instrument will have somewhat of the appearance of a contused wound; the edges will not be so clean cut, and the surrounding tissues will be more or less bruised.

5. In expert testimony the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can only be done by those perfectly familiar with the subject in question: but *practically* any (or almost any) physician with a license to practice is accepted as an expert witness.

6. (a) *Diphtheria:* till the patient is free from all signs of congestion or rhinitis, and continued bacteriological examination is persistently negative.

(b) *Scarlet fever:* till the patient is quite free from sore throat or discharges of any kind, and the desquamation has entirely disappeared; generally six to eight weeks.

(c) *Smallpox:* till all crusts or scabs have entirely disappeared.

7. The portals of entry of tubercular infection are: the respiratory tract, the alimentary tract, the skin, the mucous surfaces. It may be hereditary.

8. "In pneumonia and pulmonary tuberculosis, the sputum should be received in spit-cups partly filled with disinfectant solution, and kept covered when not in actual use. It may be treated with 5 per cent. of carbolic acid, or about 5 per cent. of any of the cresol compounds, or 1 per cent. of formaldehyde. Milk of lime and chlorinated lime are also efficient. Corrosive sublimate is very uncertain. By reason of its consistency and adhesive properties, sputum is one of the most difficult materials to sterilize." (Harrington's *Practical Hygiene.*)

9. *Infectious* diseases are such as are due to the presence of bacteria.

Contagious diseases are such as can be communicated by contact from a person who is infected to a healthy person.

10. (a) The skin becomes pale, there are gastric disturbances, general muscular weakness, mental impairment, and lowered vitality, resulting in the taking of various diseases.

(b) In a room for continued occupancy each person should be allowed 3,000 cubic feet of fresh air per hour, or at least 1,000 cubic feet of space with ample and adequate facilities for ventilation. In a sleeping room occupied by several people each person should have at least 750 cubic feet of space, with proper ventilation. A sleeping room occupied by one person only should have from 1,200 to 1,800 cubic feet of space.

PRACTICE OF MEDICINE AND DISEASES OF CHILDREN.

1. *Chronic gastritis* is generally caused by indiscretions in diet, or by mental worry; it may occur at any time of life, and is characterized by pain in the epigastric region which generally comes on after eating; there is apt to be morning vomiting, the vomitus consisting of mucus with undigested particles of food; there is seldom hemorrhage; the stomach may be enlarged, and examination of the gas-

tric contents shows free HCl diminished or absent, and the digestive ferments diminished.

Carcinoma of the stomach does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

3. *Vertigo* is a disturbance of the sense of equilibrium, a condition in which the patient or objects surrounding him appear to be in a state of rotation or oscillation. It is not a disease; but is a symptom of many pathological conditions.

The chief *varieties* are: (1) auditory, or labyrinthine, also called Menière's disease; (2) cerebral; (3) gastric; (4) toxic; (5) senile; (6) hysterical; (7) essential.

9. Adenoids a. *Causes:* The real cause is unknown, but the condition is generally observed in childhood; heredity is also supposed to be a factor; males are more frequently affected than females; malnutrition and scrofula seem to be causative factors; the condition is often associated with enlarged tonsils, enlarged cervical glands, hypertrophy of the nasal mucous membrane, deviations of the septum, spurs; it often follows some of the acute infectious diseases.

Symptoms: Mouth-breathing; snoring; open-mouth; a vacant, dull expression of the face; modification of the voice (nasal twang), with inability to pronounce certain letters.

Effects: Earache and other ear affections; mental deficiency; frequent attacks of coryza; nose-bleed; stunted growth; convulsions, laryngismus stridulus, and various other neuroses may also be noticed.

11. Alopecia areata. *Etiology:* The real cause is unknown; it has been regarded as a neurosis; as due to parasites; or as the result of malnutrition of the hair.

Symptoms: There are circumscribed round or oval patches of baldness, which may appear suddenly or gradually, generally in early adult life; the scalp appears unchanged or may be pale or hyperemic; there are no scales; occasionally the eyebrows or beard are involved.

It is distinguished from *Ringworm,* in that the latter is rare in adults, is characterized by scales in which are broken off stumps of hairs with split ends, and a microscopical examination shows the presence of the tricophyton fungus in ringworm.

13. Stomatomycosis is *caused* by a vegetable parasite, the oïdium albicans. The *symptoms* are redness, either general or in patches; swelling of lips, gums, cheek, and tongue; fetid breath; dribbling of saliva, or the mouth is dry; tenderness, and difficulty in eating. *Treatment* consists in cleanliness, antiseptic mouth washes, tonics, stimulants, and good general hygiene.

OBSTETRICS AND DISEASES OF WOMEN.

1. By *Presentation* is meant the part of the fetus which presents at the pelvic brim; examples—vertex, breech, face, By *Position* is meant the relation between a point on the fetus and a point on the maternal pelvis; examples, in a vertex presentation the positions may be (1) left occipito-anterior, (2) right occipito-posterior, (3) right occipito-anterior, (4) left occipito-posterior. The left occipito-anterior position of the vertex presentation is the most common.

2. The greatest diameters of the female pelvis are the transverse at the brim and the antero-posterior at the outlet; each of which is five inches.

The greatest diameter of the fetal head is the occipito-mental, which is five and a half inches.

3. "The placenta is formed by the union of the chorion frondosum and the decidua serotina, and therefore is composed of fetal and maternal tissues. In the third or fourth month of pregnancy it constitutes a distinct structure, although its site is indicated at a much earlier period by the increased thickness of the chorion at that point." (Williams' *Obstetrics.*)

6. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility. Nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy. Pains are often very severe, with marked tenderness within the pelvis. Such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating. This tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 *are positive signs.*" (*American Text-Book of Obstetrics.*)

7. Subinvolution of the uterus is commonly caused by: Lacerations of the cervix; absorption of septic products; mismanagement of the convalescent stage of the puerperium, chiefly too early rising; tedious labors; misplacement of the uterus; retained clots or membranes; tumors of the uterus.

8. *Metrorrhagia* is a uterine hemorrhage independent of menstruation.

Two of its most common causes prior to the menopause are uterine displacements and tumors (chiefly fibroids and polypi).

Occurring subsequent to the menopause, cancer would be suspected.

This suspicion would be verified by a microscopic examination of a piece of tissue excised from the cervix.

10. Two indications for hysterectomy: Carcinoma and fibroids.

As to preference between the vaginal and abdominal routes, the following is taken from Garrigues' *Gynecology*: "If the vaginal route is available, it should be preferred, because it entails much less shock, requires a simple after-treatment, does not leave any visible cicatrix, predisposes less to hernia, and allows the patient to resume work in shorter time. On the other hand, the vaginal route is more difficult on account of the limited space. Hemorrhage is more troublesome to check, adhesions are harder to separate, and the bladder and intestine more exposed to injury and less accessible for repair. The pelvic cavity cannot be seen so well and the abdominal not at all. If tissue is left to mortify, it emits an offensive odor."

CHEMISTRY AND TOXICOLOGY.

1. Antidote for arsenic is freshly prepared ferric hydroxide. Arsenic acts as an irritant on the gastrointestinal canal and then causes inflammation.

On the nervous system it probably acts as a stimulant, if given in medicinal doses; in toxic doses it may cause paralysis. The local condition that may be found upon the hands of arsenic workers is as follows: If the epidermis is unbroken an eruption may appear, if the epidermis is broken the arsenic has a caustic and destructive effect; ulceration around the nails and shedding of the nails may also occur.

2. The chemical antidotes to carbolic acid are the soluble sulphates, such as magnesium or sodium sulphate. With the carbolic acid these salts form insoluble sulphocarbolates. Before death carbolic acid poisoning can be diagnosed by the hoarseness of the voice, in addition to all the other signs of corrosion, such as eschars on mucous membrane of mouth, vomiting, purging, abdominal pain, cold, perspiration, pinched and anxious face, collapse, etc.

3. The *symptoms* of chronic lead poisoning are: Wrist drop, severe colic around the umbilicus, constipation, feces clay colored, blue line on the gums at the junction with the teeth.

The treatment is first to remove the cause; then administer a purge of jalap and calomel combined with opium; iodide of potassium should also be given to help in the elimination of the lead.

4. The treatment of phosphorus poisoning is to administer first an emetic, then old French oil of turpentine, or solution of potassium permanganate, and avoid giving any oils or fat with the food.

5. The *symptoms* of nitrate of silver poisoning are: "Almost immediately after the ingestion of a poisonous dose of nitrate of silver violent pain in the belly, with vomiting and purging, comes on. At the same time evidences of widespread gastroenteritis develop. The abdominal walls are knotted and hard, and perhaps scaphoid. The face is anxious and livid and covered with a sweat When the vomiting occurs the ejecta are seen to be brown or blackish, or even white and curdy. The lips are stained white, but they rapidly become brown, then black. In some cases the nervous symptoms are severe and convulsions with delirium may occur. The convulsions are epileptiform. Death ensues either from gastroenteritis or from centric respiratory failure, accompanied by a profuse exudation of liquid mucus into the bronchial tubes.

"The *treatment* consists in the use of common salt, which is the chemical antidote, the employment of opium and oils to allay irritation, and in the ingestion of large draughts of milk and of soap and water for the purpose of diluting the poison and protecting the mucous membranes of the esophagus and stomach from the action of the irritant.

The bodily heat must be maintained." (Hare's *Therapeutics.*)

6. $Zn+H_2SO_4=ZnSO_4+H_2$.

$BaO_2+2HCl=BaCl+H_2O_2$.

7. An *atom* is the smallest portion of an element that can enter into a chemical reaction, or that can enter into the composition of a molecule.

A *molecule* is the smallest quantity of any substance that can exist in a free state.

8. *Isomeric compounds* are compounds which, while differing in properties, possess the same percentage composition.

9. Moisten the substance with HNO_3 and evaporate; then let it cool, and add a little NH_4HO; a brilliant red color is produced.

10. Method for the *quantitative estimation of sugar in urine: "Fehling's method.*—The solution is made as follows:

I. Dissolve cupric sulphate	51.98 gm.
in water to	500.00 c.c.
II. Dissolve Rochelle salt	259.9 gm.

in sodium hydroxide soln. sp. gr. 1.12 to 1,000 c.c. (Piffard).

When required for use, one volume of I. is to be mixed with two volumes of II. The copper contained in 10 c.c. of this mixture is precipitated completely, as cuprous oxid, by 0.05 gm. of glucose.

"To determine the quantity of sugar, place 10 c.c. of the mixed soln. in a flask of about 250 c.c. capacity, dilute with H_2O to about 30 c.c., and heat to boiling. On the other hand, the urine to be tested is diluted and thoroughly mixed with four volumes of H_2O if it be poor in sugar, or with nine volumes of H_2O if highly saccharine, and a burette filled with the mixture. When the Fehling soln. boils, add a few gtt. NH_4HO and then 5 c.c. of the urine from the burette, boil again, and continue the alternate addition of diluted urine and boiling of the mixture until the blue color is quite faint. Now add the diluted urine in quantities of 1 c.c. at a time, boiling after each addition until the blue color just disappears. Have ready a small filter, and, having filtered through it a few gtt. of the hot mixture, acidulate the filtrate with acetic acid, and add to it 1 gtt. soln. of potassium ferrocyanide. If a brownish tinge be produced, add another ½ c.c. of dil. urine to the flask, boil, and test with ferrocyanide as before. Continue this proceeding until no brown tinge is produced. The burette reading, taken at this point, gives the number of c.c. of dilute urine containing 0.05 gm. glucose, and this divided by 5 or 10, according as the urine was diluted with 4 or 9 volumes of H_2O, gives the number of c.c. of urine containing 0.05 gm. sugar. The number of c.c. urine passed in twenty-four hours divided by 20 times the number of c.c. containing 0.05 gm. glucose, gives the elimination of glucose in twenty-four hours in grams.

Example. Urine in 24 hours = 2,436 c.c.
Fehling's soln. used = 10 c.c.
Urine diluted with 4 vols. H_2O.
Burette reading = 18.5 c.c.

$$\frac{18.5}{5} = 3.7 = \text{c.c. urine containing 0.05 gm. glucose.}$$

$$\frac{2,436}{3.7\times 20} = 32.92 = \text{grams glucose eliminated in 24 hours."}$$

(Witthaus' *Urinalysis.*)

ANATOMY AND PHYSIOLOGY.

9. The venous blood current is maintained by (1) the action of the heart, (2) muscular contraction, and (3) aspiration of the thorax.

The pulmonary arteries carry venous blood.

10. The causes producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

11. The *amount* of bile secreted in twenty-four hours varies from about 500 c.c. to 900 c.c.

The *composition* of the bile may be shown in the following table, which presents the averages of three analyses given by Hammarsten, the results are given in parts per thousand.

Water	971.380
Solids	28.620
Mucin and pigments	4.910
Bile salts	12.107
Taurocholate	2.431
Glycocholate	9.766
Fatty acids from soaps	1.200
Cholesterin	1.243
Lecithin and fats	0.970
Soluble salts	7.360
Insoluble salts	0.317

The *functions* of the bile are: (1) to assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis, and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

13. The glands of the small intestine are: (1) Glands of Lieberkuhn, (2) glands of Brunner, (3) Peyer's patches.

The function of these glands is to contribute towards the composition of the succus entericus.

14. *"Mechanism of Accommodation.*—The lens is an elastic structure, and when released from the flattening influence of its suspensory ligament tends to assume a spherical shape. During accommodation the ciliary muscle (especially the circular fibers) contracts, drawing forward the chorioid and relaxing the suspensory ligament; this diminishes the tension of the lens capsule and allows the inherent elasticity of the lens to increase its convexity. The change in curvature affects chiefly the anterior surface of the lens. This is Helmholtz's theory and the one usually accepted. Lately Tscherning has advanced a different theory; he maintains that the ciliary muscle increases the tension of the suspensory ligament during contraction and that this causes peripheral flattening of the lens with bulging anteriorly at its center. The act of accommodation is accompanied by contraction of the pupil, and (in binocular vision) by convergence of the visual lines." (May's *Diseases of the Eye.*)

HISTOLOGY, PATHOLOGY, AND BACTERIOLOGY.

2. The layers of mucous membrane are: (1) Epithelium, (2) basement membrane, (3) fibrous and elastic connective tissue, (4) sometimes involuntary muscular tissue.

Mucous membranes are found lining all passages which connect the interior of the body with the surface. The principal ones are the gastrointestinal tract, the pulmonary tract, and the genitourinary tract.

5. Peptic ulcer of the stomach is usually situated on the posterior wall and lesser curvature, near the pyloric orifice; it is generally small and round or oval; clean punched out, and with sloping edges, giving a funnel shaped appearance with the apex outward; the edges and floor are generally pale and smooth. These ulcers may be single or multiple, and are liable to terminate in hemorrhage and perforation.

6. In *pernicious anemia* the blood would show: (1) A diminution in the number of red corpuscles; (2) a relative increase in the amount of hemoglobin; (3) poikilocytosis; (4) the presence of nucleated red cells; (5) variation in the size of the red cells; (6) the leucocytes *may be* diminished.

7. *Carcinoma* is apt to occur at a later age; is found in structures derived from the epiblast or hypoblast; possesses a fibrous stroma, in which are found both blood-vessels and lymphatics; metastasis is by the lymphatics.

Sarcoma is apt to occur earlier; is found in structures derived from the mesoblast; there is no stroma between the cells; the blood-vessels are in direct contact with the tumor cells; there are no lymphatics; metastasis is by the blood-vessels.

8. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

10. The Widal serum reaction "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called "clumping." Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus

(not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

NERVOUS DISEASES AND DISEASES OF THE EYE AND EAR.

6. *Hordeolum* is an abscess or inflammation in the tissues about the follicle of an eyelash.

Chalazion is a tumor in the eyelids due to obstruction of the duct in a Meibornian gland.

Ectropion is an eversion of the eyelid with exposure of conjunctival surface.

Entropion is an inversion of the margin of the eyelid and eyelashes.

Ptosis is a drooping of the upper eyelid, generally due to paralysis.

Astigmatism is a condition in which owing to a greater curvature of the eye in one meridian than in others, the refractive power of the eye varies.

Myopia is a condition in which the antero-posterior axis of the eye is abnormally long, and parallel rays are focused in front of the retina.

10. (1) Catarrhal conditions of the nose and throat, (2) infection from the external ear, Eustachian tube, or elsewhere, (3) traumatism.

MATERIA MEDICA AND THERAUPETICS.

1. *Narcotics* are agents that produce sleep or stupor and allay pain. Example—opium.

Ancsthetics are agents which destroy sensation for a period of time. Example—chloroform.

Sedatives are agents which allay excitement and functional activity, and sometimes tend to diminish pain. Example—potassium bromide.

2. *Diuretics* are agents which promote the secretion of urine. Examples—water, alcohol, potassium acetate.

Diaphoretics are agents which promote the secretion of sweat and increase the activity of the skin. Examples—alcohol, Dover's powder, Turkish bath.

6. *Three heart stimulants:* (1) Alcohol, dose ʒj to ʒij of spiritus frumenti diluted; (2) ammonia, dose of aqua ammonia ɱxv to xx, well diluted; (3) sparteine sulphate, dose gr. 1/16 to ¼.

7. For *acute bronchitis:*

℞ Vini ipecacuanhæ.....ʒij
Liquoris potassii citratis.....ʒiv
Tincturæ opii camphoratæ
Syrupi acaciæ.....aa ʒj Misce.

Sig:—One tablespoonful three times a day.

For *chronic constipation:*

℞ Aloin.....gr. vj
Atropinæ sulphatis.....gr. ¼
Strychninæ sulphatis.....gr. j. Misce.

Fiat massa in pilulas no. xxx dividenda.

Sig:—One pill two or three times a day.

For *acute cystitis:*

℞ Potassii acetatis
Potassii citratis.....aa ʒij
Aqua destillatæ.....q.s. and ʒvj Misce.

Sig:—One tablespoonful three times a day.

9. *Four hypnotics:*—(1) chloral hydrate; dose, gr. xv to xx. (2) Sulphonal; dose, gr. xv to xxv. (3) Trional; dose, gr. xv to xxv. (4) Paraldehyde; dose, ɱxxx to ʒi.

Four emetics:—(1) Apomorphine hydrochloride; dose, gr. 1/10 hypodermically. (2) Copper sulphate; dose, gr. iv to vj in water. (3) Zinc sulphate; dose, gr. x to xv in water. (4) Turpeth mineral; dose, gr. iij to v.

10. *Alkaloids* are active nitrogenous principles, alkaline in reaction, and capable of uniting with acids to form salts in the same way that ammonia does. Example—strychnine.

"*Serum therapy* proper is the prophylactic and curative treatment of certain infectious diseases by the subcutaneous or intravenous administration of a blood-serum containing an antibody which is specific to the particular disease." (Potter's *Materia Medica.*)

Examples:—(1) Diphtheria antitoxin; dose, 3,000 units; immunizing dose, 500 units; indicated in diphtheria. (2) Antitetanic serum; dose ʒijss to v; indicated in tetanus. (3) Antivenomous serum; dose, ʒijss to viij; indicated in snake bite.

REQUIREMENTS FOR MEDICAL LICENSURE.

In the following table the States requiring of the candidate both a diploma from a recognized college and an examination are printed in roman; those requiring either a diploma or an examination, in italics; those requiring an examination only, in small capitals.

State	Fee	State	Fee
Alabama	$10.00	Nebraska	$25.00
Arizona	10.00	*Nevada*	25.00
Arkansas	10.00	New Hampshire	10.00
California	20.00	New Jersey	25.00
Colorado	25.00	*New Mexico*	25.00
Connecticut	15.00	New York	25.00
Delaware	10.00	North Carolina	10.00
District of Columbia	10.00	North Dakota	20.00
Florida	15.00	Ohio	25.00
Georgia	10.00	Oklahoma	5.00
Idaho	25.00	Oregon	10.00
Illinois	25.00	Pennsylvania	25.00
Indiana	10.00	Rhode Island	10.00
Iowa	25.00	South Carolina	10.00
Kansas	15.00	South Dakota	20.00
Kentucky	10.00	Tennessee	10.00
Louisiana	10.00	Texas	10.00
Maine	10.00	Utah	15.00
Maryland	15.00	Vermont	15.00
Massachusetts	20.00	Virginia	10.00
Michigan	25.00	Washington	25.00
Minnesota	10.00	West Virginia	10.00
Mississippi	10.00	Wisconsin	10.00
Missouri	15.00	Wyoming	25.00
Montana	15.00		

BULLETIN OF APPROACHING EXAMINATIONS.†

State.	Name and address of secretary.	Place and date of next examination.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	August 1–6
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 7
Arkansas*	F. T. Murphy, Brinkley	Little Rock	July 9
California	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	August 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	October 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	July 9
Delaware	J. H. Marion, Dover	Dover	Dec. 10
Dis. of Col. bia	W. C. Woodward, Washington	Washington	July 11
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 20
Georgia	E. R. Anthony, Griffin	Atlanta	October 8
Idaho	J. L. Conant, Jr., Genesee	Boise	October 1
Illinois	J. A. Egan, Springfield	Chicago	July 25
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	October 22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept. —
Kansas	T. E. Raines, Concordia	Topeka	October 8
Kentucky*	J. N. McCormack, Bowling Green	Louisville	October 2
Louisiana	F. A. La Rue, 211 Camp Street, New Orleans	New Orleans	October 15
Maine	Wm. J. Maybury, Saco	Augusta	July 9
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	July 9
Michigan	B. D. Harrison, 205 Witney Building, Detroit	Lansing	October 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	October 1
Mississippi	J. F. Hunter, Jackson	Jackson	October 8
Missouri	J. A. B. Adcock, Warrensb'g.	Mexico	July 9
Montana*	Wm. C. Riddell, Helena	Helena	October 1
Nebraska	Geo. H. Brash, Beatrice	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	August 5
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	July 9
New Jersey	J. W. Bennett, Long Branch	Trenton	October 22
New Mexico	B. D. Black, Las Vegas	Santa Fe	December 2
New York	C. F. Wheelock, Unv. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	June 25
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May, 1908
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	July 2
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 10
Oklahoma*	J. W. Baker, Enid	Guthrie	Sept. 24
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. —
Rhode Island	G. T. Swarts, Providence	Providence	October 3
S. Carolina	W. M. Lester, Columbia	Columbia	June 9, '08
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	July 10
Tennessee*	T. J. Happel, Trenton	Memphis, Nasbville, Knoxville	May, 1908
Texas	T. T. Jackson, San Antonio	Austin	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	
Vermont	W. Scott Nay, Underhill	Burlington	July 9
Virginia	R. S. Martin, Stuart	Staunton	Dec. 10
Washington*	C. W. Sharples, Seattle	Seattle	January 7
W. Virginia	H. A. Barbee, Point Pleasant	Charleston	July 9
Wisconsin	J. V. Stevens, Jefferson	Madison	July
Wyoming	S. B. Miller, Laramie	Cheyenne	

*No Reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Delaware.—Although more than twenty persons had made application for examination at the June session of the Delaware Examining Board, only four presented themselves at the time of examination. Of these three were recommended to the Medical Council for license to practice medicine and surgery in the State. The reason for the failure of so many applicants to present themselves for examination was probably that they had overlooked the change recently made by the Legislature in the preliminary requirements. The applicant who failed had a general average of 62.7 per cent. Those who passed had averages of 81.2, 81.5, and 90.7 per cent.

New Instruments.

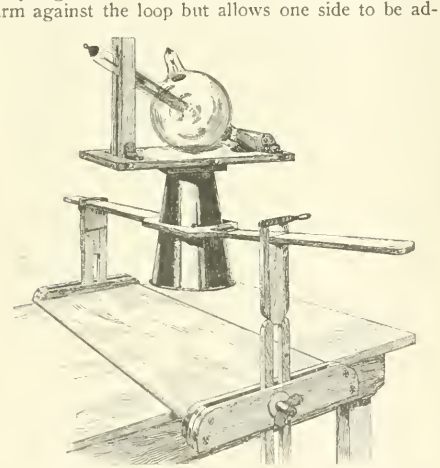
A NEW *X*-RAY COMPRESSION DIAPHRAGM.

By W. I. LE FEVRE, M.D.,

CLEVELAND, O.

THE accompanying pictures illustrate an *x*-ray compression diaphragm that I have designed. It is easily and quickly adjusted to any position and when not in use can be folded into a small space, about the size of a suit case. The apparatus consists of a base board 12 inches wide, 26 inches long, by ½ inch thick. This is grooved on the bottom so that an iron

bolt can pass through from one end to the other, with a thumb nut on one end. When this thumb nut is tightened it locks both upright pieces in any position they are placed. The end upright pieces are slotted so they can be placed at any height or tilted to any angle. The one on the far side has a steel loop that holds the shaft of the paddle with a spring cushion beneath which keeps the paddle firm against the loop but allows one side to be ad-



justed higher than the other if necessary. The other upright has an eccentric lever for locking the handle of the paddle when it is brought down into position. The tube holder is upholstered with leather and lined with sheet lead, so as to cut off all diffused light. The spring bars automatically hold the tube so that the plane of the anode is parallel with the plate. The metal funnel has a rubber cushion around the bottom so that it is more comfortable for the patient and prevents shock if the current should leak to the tube holder. In taking radiographs where it is not desirable to use the funnel, the tube holder and diaphragm can be locked to the paddle and then adjusted to any position. In taking stereoscopic pictures, the uprights can be adjusted to the desired angle on one side of the perpendicular and then to the same angle on the other, without moving the tube or diaphragm on the paddle. This compressor will fit upon any table, can be quickly adjusted, and one thumb nut locks it securely.

708-712 ROSE BUILDING

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious disease reported to the Sanitary Bureau, Health Department, New York City, for the weeks ending June 22 and June 29, 1907:

	Week of June 22		Week of June 29	
	Cases	Deaths	Cases	Deates
Tuberculosis Pulmonalis	380	155	317	142
Diphtheria	396	29	356	41
Measles	661	33	762	34
Scarlet Fever	526	20	401	29
Smallpox	..	..	..	1
Varicella	62	..	154	..
Typhoid Fever	58	13	54	6
Whooping Cough	23	3	31	12
Cerebrospinal Meningitis	12	11	9	16
Malarial Fever	..	..	..	..
Totals	2118	260	2084	281

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended June 28, 1907:

SMALLPOX—UNITED STATES.

			CASES.	DEATHS.
Illinois, Belleville	June	9–15	1	..
Galesburg	June	9–15	1	..
Joliet	May	1–June 15	5	..
Peoria	June	8–15	7	..
Springfield	June	13–20	2	..
Kansas, Kansas City	June	9–15	1	..
Topeka	June	9–15	2	..
Kentucky, Covington	June	15–22	6	..
Louisville	June	13–20	15	..
Louisiana, New Orleans	June	8–15	6	..
Maryland, Baltimore	June	15–22	1	..
Massachusetts, Lawrence	June	18–15	4	..
Missouri, St. Louis	June	9–15	4	..
Ohio, Cincinnati	June	14–21	1	..
Cleveland	June	7–14	1	..
Texas, San Antonio	May	25–June 1	3	..
Utah, General—4 Counties	May	1–31	22	..
Washington, Spokane	June	9–15	9	Imported
Wisconsin, Milwaukee	June	9–15	10	..

SMALLPOX—FOREIGN.

Africa, Algiers	May	1–31	..	8
Argentina, Rosario	May	13–20	12	17
Austria, Trieste	May	18–25	..	1
Brazil, Manaos	May	25–June 1	..	1
Para	June	1–8	6	2
Pernambuco	April	15–30	..	56
Rio de Janeiro	May	16–26	7	1
Canada, Halifax	June	15–22	7	..
China, Amoy	April	24–May 5	..	Present
Hankau	May	11	1	..
Hongkong	April	27–May 11	27	23
Shanghai	April	27–May 11	4 deaths;	Foreign native, 45
Columbia, Santa Marta	June	1	1	..
Egypt, Cairo	May	13–20	2	..
Germany, General	June	1–8	10	..
Bremen	May	4–11	2	..
"	May	18–25	1	..
Great Britain, Southampton	June	1–8	2	..
India, Bombay	May	21–28	..	1
Calcutta	May	11–18	..	34
Madras	May	4–24	..	2
Haiwaii, Honolulu	June	28	1 imp'd from S. S. *Kumeric*	from Madeira
Italy, General	May	31–June 6	32	..
Florence	June	2–9	1	..
Naples—vicinity	June	2	4	1
Mexico, Aguas Calientes	June	9–15	..	9
City of Mexico	May	18–June 1	..	6
Russia, Moscow	May	18–25	7	3
Odessa	May	25–June 1	4	1
Riga	May	25–June 1	11	..
Siberia, Vladivostock	April	27–May 5	2	..
Spain, Valencia	June	2–9	7	2
Straits Settlements, Singapore	April	27–May 4	..	1
Turkey, Bagdad	May	5–11	..	Present
Bassorah	May	11–25	..	Present
Venezuela, La Guaira	May	25–June 8	..	Present

PLAGUE.

Africa, Cape Colony—King William's Town	May	4–11	2	..
Brazil, Para	June	1–8	..	10
Rio de Janeiro	May	12–19	2	..
China, Hongkong	April	27–May 11	19	14
Egypt, Alexandria	May	25–30	..	1
Assiout Province	May	25–30	8	8
Beni-Souef Province	May	25–30	2	1
Girgeh Province	May	25–30	1	1
Kench Province	May	25–30	15	15
Minich Province	May	25–30	8	3
India, General	April	27–May 4	89,777	77,776
Bombay	May	21–28	..	95
Calcutta	May	11–18	..	203
Rangoon	May	11–18	..	34
Japan, Osaka	May	20–27	Present	..
Sascho	May	20–27	1	..
Yokohama	May	28–June 3	3	3
Persia, Bushire	May	25	Present	..
Peru, Lima	May	10	2	1
Tambo	May	10	1	..
Trujillo	May	10	2	1
Straits Settlements, Singapore	May	11–18	..	2

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Original Articles.

INTRACRANIAL TUMOR AND ITS TREATMENT.*

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The subject of intracranial or cerebral tumor has been of increasing interest to neurologists and surgeons during the last fifteen years. Within this period our knowledge of cerebral localization has been materially augmented through clinical observation and the accumulated autopsy records in many cases.

The designation intracranial tumor includes all new growths within the cranial cavity, originating either in the brain substance or its envelopes, or from the bone or periosteum. Cysts must also be included, for their presence produces symptoms indistinguishable from solid tumors. The same may be said of aneurysm of the Sylvian, basilar, or internal carotid artery, which, although very rare, may occur at any age.

The symptoms of intracranial tumor are classified as "general" and "focal" or "localizing." The principal general symptoms are headache, vomiting, vertigo, hebetude or stupor, general convulsions, and optic neuritis or choked disks. Among the focal or localizing symptoms are local spasms or paralysis affecting the face or extremities, hemianopsia, ocular palsies, the various forms of aphasia, and the involvement of the special senses. Such signs must be assiduously sought and, when discovered, subjected to careful analysis and interpretation.

The general symptoms occur regardless of the location or character of the growth. It may be mentioned here that there are three regions of the brain in which a neoplasm would not give rise to focal symptoms. These are the orbital surface of the prefrontal lobe, the right temporal lobe, and the lateral lobe of the cerebellum. As in other organic affections of the nervous system, the symptoms are unmistakable when the disease is well advanced. If any prospect of amelioration or cure is to be entertained in cases of brain tumor, the diagnosis must be made as early as possible.

It behooves the general practitioner to give more careful attention and study to patients complaining of intense and persistent headache, and to consider the possibility of cerebral neoplasm in every case, for headache and vomiting (unrelated to the ingestion of food) are among the initial symptoms of brain tumor. In an article on Headache, in Wood's "Reference Handbook of the Medical Sciences," I have thus described this type of headache: "It is one of the most constant and obtrusive symptoms. In exceptional instances, headache may be absent during the entire course of the disease. But such a condition is very rare, the headache varying in intensity in different cases. Occasionally it may be of a mild character. As a rule, it attains great severity, preventing sleep, and at times becoming so unendurable that the patient has been known to commit suicide. Sometimes the pain is paroxysmal, but more frequently it is almost continuous, with periods of great exacerbation. The headache is usually diffuse, but it may be limited to the forehead, parietal region, or occiput, changing its location from time to time. The seat of the pain in the cranium does not necessarily imply that the growth is subjacent. When the pain is confined to the frontal region it by no means indicates that the frontal lobes are involved, for such pain often occurs in cerebellar tumor. The presence of persistent occipital pain extending to the neck would lead us to assume that the growth is probably situated in the posterior cranial fossa. If the headache is limited to a circumscribed area it most frequently corresponds with the location of the growth which has also involved the underlying meninges. If it be confined to one side of the head, the probability is that the tumor is on the same side. This is not an invariable rule, however. The pain is aggravated by everything that interferes with the cerebral circulation. It is thus made worse by psychical excitement, alcohol, coffee, muscular activity, coughing, straining at stool, sneezing, etc. It is universally assumed that the headache is produced by irritation of the numerous branches of the trigeminus supplying the dura. The dura may also be stretched and irritated as a result of intracranial pressure. If this be true, in the former condition the pain would probably be circumscribed, while in the latter we would expect it to be diffused. Clinical facts, however, cannot always be reconciled with this view."

Transient attacks of blindness or failing vision often lead these patients to consult an ophthalmologist. Choked disks are then discovered and it is through this indirect channel that many cases have come under my observation. Every patient, young or old, who complains of continuous or paroxysmal headache, with or without vertigo or vomiting, should be subjected to an ophthalmoscopic examination as a routine measure. The importance of this procedure is evident. Although optic neuritis does not appear in every case of brain tumor in its early stage, it does occur sooner or later in from 80 to 90 per cent. In rare instances it may be absent throughout the entire course of the disease. It must always be borne in mind, however, that a high degree of optic neuritis is not incompatible with the preservation of normal vision. The danger of optic neuritis is its termination in optic atrophy and complete blindness. Headache is the most frequent, and optic neuritis the most important general symptom of brain tumor.

With a knowledge of the symptomatology and course of the disease, the diagnosis, as a rule, is

*Read before the Harlem Medical Association, March, 1907.

not difficult. It must be admitted, however, that in some instances the diagnosis becomes one of the most perplexing problems in medicine, when we realize that an intracranial growth may be present without pronounced manifestations.

The neurologist very frequently sees these patients, whose disease has remained unrecognized, after various symptomatic remedies have been unsuccessfully employed, and it is quite a commonplace occurrence for them to have undergone prolonged treatment for gastric disorders or "biliousness" before the true nature of the malady is suspected. I recently examined a woman in whom the diagnosis rested between a slowly progressing brain tumor and chronic basal meningitis. She was then delirious, with a pulse of 80 and temperature of 103°, unequal pupils, ocular paralysis, and double optic neuritis. She died a few days later. On account of attacks of persistent vomiting, exploratory laparotomy had been performed several months before for supposed cancer of the stomach. In other cases of cerebellar tumor, gastric lavage had been practised, as the vomiting and vertigo were attributed to disturbance of digestion.

In some instances, headache, vomiting, and optic neuritis terminating in atrophy, may exist for many months before localizing signs begin to appear. Yet it is not always safe to base the diagnosis of brain tumor upon the general symptoms, for the same may be present in cases of chronic basal meningitis without any apparent implication of other cranial nerves. In doubtful cases the diagnosis must be made by exclusion. The presence of optic neuritis is indicative of an intracranial lesion, and at once eliminates the functional type of headache associated with migraine, hysteria, neurasthenia, and hypochondriasis. Indeed, attacks of unilateral headache accompanied by vomiting and simulating migraine may antedate other manifestations. Epileptic convulsions occurring for the first time late in life (in the absence of chronic nephritis) should always lead to examination for evidence of cerebral tumor, for epileptic attacks may precede all other obtrusive symptoms for several years. More attention and consideration should be given to convulsive seizures limited to one side of the face or one extremity without loss of consciousness. Such attacks are too often ascribed to hysteria, but in the majority of instances are either of uremic origin or the result of cerebral disease, possibly tumor.

Furthermore, the symptoms of brain tumor may be simulated by acquired internal hydrocephalus, brain abscess, basal meningitis, cerebral arteriosclerosis, chronic nephritis, cerebral syphilis, encephalitis, and lead encephalopathy.

As the limits of this paper will not permit of a detailed discussion of the differential diagnosis, I will briefly mention only a few important criteria. In the first place, let me call your attention to the necessity of invariably excluding chronic Bright's disease (usually the cirrhotic form) before making the diagnosis of brain tumor. In the former affection uremic symptoms may be present, such as headache, vomiting, vertigo, somnolence, or insomnia, optic neuritis, unilateral convulsions without loss of consciousness, monoplegia, or hemiplegia. An erroneous conclusion may be prevented by a careful analysis of the urine, and the condition of the heart and vascular system. When such symptoms occur in a young person, however, the chances are all in favor of brain tumor.

In *brain abscess* there may be headache, vomiting, hebetude or stupor, vertigo, general convulsions, slow pulse, etc. Optic neuritis frequently occurs, and is often limited to the side on which the abscess is situated. It rarely reaches the degree of choked disk as in tumor cases, and yet the differentiation can usually be made with certainty. Cerebral abscess is either of traumatic origin, *i.e.* from an infected wound of the scalp or cranium, or the infection originates in a focus of suppuration in the middle-ear, or is due to metastasis. By far the largest number of cases of brain abscess are of otitic origin, and affect the temporosphenoidal lobe or the cerebellum. When symptoms of abscess become manifest, the course is usually more rapid than in tumor.

Syphilitic basal meningitis is often attended by severe headache and vomiting, and choked disks with retinal hemorrhages may be present. It is only through the history of the case, the rapid development of the symptoms, and the involvement of the cranial nerves that the diagnosis can be made. The degree and type of optic neuritis is often the same as in cerebral tumor.

It is not expected that the general practitioner without special neurological training should be able to correctly localize a cerebral neoplasm. But, with due care and diligence in observation, he should at least make a provisional diagnosis of organic brain disease.

The experienced neurologist often finds the symptoms of intracranial tumor so perplexing that it may be extremely difficult to decide whether they are due in greater part to complicating internal hydrocephalus, or to the direct effect of the tumor itself. Increase of cerebrospinal fluid is an almost invariable accompaniment of an intracranial growth. A positive differentiation between acquired internal hydrocephalus and cerebral tumor is often impossible. At times it is extremely difficult to reach a definite conclusion as to the location and character of the neoplasm even after the patient has been under hospital observation.

In the case of a boy sixteen years of age (MEDICAL RECORD, April 24, 1889) with severe and persistent headache, vomiting, and choked disks, the diagnosis of brain tumor had been made by several observers. In the course of two years the headache and vomiting subsided, the optic neuritis disappeared, and he made a complete recovery with normal vision. I examined him from time to time during a period of twelve or fourteen years, but there was no recurrence of the symptoms and he continued in perfect health.

Again, cases occasionally occur which simulate the clinical picture of brain tumor involving either the cerebral hemisphere or the cerebellum, which terminate in permanent recovery either spontaneously or under mercurial treatment, leaving atrophy of the optic nerves as the only residual symptom. They have been well described by Nonne (*Deutsche Zeitschrift für Nervenheilkunde*, Bd. 27, p. 169, 1904), and analogous cases have come under my observation.

Mistakes have been made by skilled observers in assuming that the growth was in the posterior fossa, but, at autopsy, being found in the prefrontal region. Such cases are on record, and I have quite recently had a somewhat similar experience. The patient was a girl nineteen years of age who had always been healthy and had never contracted syphilis. She fell downstairs, striking her head in the right occipital region, and was unconscious about five minutes. Severe headache and vomiting soon followed and persisted with acute exacerbations for several months. Later, she had vertigo for three days, and

blindness supervened. Six months after the injury she was admitted to the hospital, where she remained for several months. At the autopsy a glioma was found in the median line in front of the anterior horns of the dilated lateral ventricles. The indications and symptoms which led to the diagnosis of a tumor probably located in the posterior fossa, with pressure upon or involvement of the upper cervical nerves, were the following: occipital trauma; frequent attacks of occipital headache, with rigidity of the neck and retraction of the head; persistent horizontal nystagmus; paresis of both externi; frequent occurrence of spontaneous pain and tenderness on pressure over both suboccipital regions, associated with darting pains and paresthesiæ in both upper extremities; and the absence of permanent involvement of the pyramidal tract or other cranial nerves. The lack of disturbance of equilibration led to the assumption that if the tumor involved a lateral lobe of the cerebellum it did not make pressure upon the vermis. Many of the other symptoms and their fluctuating character were ascribed to associated internal hydrocephalus and indirect pressure.

In an article on "The False Localizing Signs of Intracranial Tumor" (*Brain*, 1904, p. 491), Collier has shown that in many cases of long duration the posterior and inferior parts of the cerebellum have become pushed down and backwards into the foramen magnum, with the medulla forming a cone-shaped plug, tightly filling up the foramen magnum. This explains why indirect pressure resulting from a prefrontal tumor may simulate symptoms of a subtentorial growth.

What can be done for the relief or cure of these patients, whose disease generally terminates fatally after a few years' duration?

When syphilis is suspected or known to exist, the administration of mercury and iodides may prove of value, although they are often not of much use even when a syphilitic gumma is present. It is also to be remembered that other forms of cerebral tumor, especially sarcoma, are benefited by antisyphilitic treatment, and that at times remissions occur spontaneously. For alleviating the headache, some of the coal tar products are available. If their employment is not satisfactory, then ergot or morphine may be administered subcutaneously. At times, free catharsis proves of temporary service in relieving the intracranial pressure. Lumbar puncture and the withdrawal of cerebrospinal fluid often increases the headache. It is usually of no benefit and may endanger life if a large quantity of fluid is withdrawn. These methods often prove the banefulness and unwisdom of procrastination. In many instances our only hope lies in surgical intervention.

Operation should therefore be resorted to as soon as a positive diagnosis is made, and after the condition has proved unamenable to medical treatment. If the tumor has been accurately localized and is accessible, its removal should be undertaken if practicable. *X*-ray examination cannot be relied upon as a means for correct localization of an intracranial neoplasm. In exceptional cases, however, it has proved valuable.

There are at present a small but increasing number of surgeons who are specially qualified to do this kind of surgical work. Special training is essential before such operations are undertaken, and it would add greatly to the advantage of the surgeon and the patient for the former to possess a practical knowledge of brain anatomy and cerebral localization. It has often been asserted that one of the contributing causes of failure in these operations is erroneous neurological diagnosis. This criticism is to a certain extent true, but, when we consider the perplexities often attending the diagnosis of brain tumor, it is not at all surprising that mistakes sometimes occur to the most experienced observers. In obscure or doubtful intraabdominal disease in which exploratory laparotomy is a comparatively harmless procedure, more inexcusable diagnostic errors have been revealed. The relief of intracranial pressure and the prevention of blindness is of paramount importance, and makes it imperative that the so-called decompressive or palliative operation be performed without delay. Increased intracranial pressure is responsible in greater part for the general symptoms and is one of the principal causes of the optic neuritis. It is usually productive of more suffering than the direct pressure of the tumor itself. Under such circumstances, the question whether the tumor can be safely removed or not is a secondary matter. This operation is done by making a large osteoplastic flap, or a large opening in the skull with complete removal of the bone, and opening the dura, and in the hands of an experienced operator is almost without danger. Krause (*Neurologisches Centralblatt*, No. 20, 1906, p. 968) says that such a surgical measure may be undertaken with as much justification as a gastrotomy for cancer of the esophagus. When the operation is performed for the permanent relief of intracranial pressure, and the tumor is either inaccessible or not localized, the point of selection is usually over the right temporal region. For, in this location no harm can result through the formation of a cerebral hernia, as this is a so-called "silent" area, unless it be in a left-handed person. In right-handed people, the region of the first and second temporal convolutions on the left side contains the cortical center for hearing and the auditory memories of spoken language.

Let me impress upon you the very important and well-established fact that, in the majority of cases, if operation is delayed until the vision becomes seriously impaired, optic atrophy and blindness will be the inevitable result. Leslie Paton (Transactions of the Ophthalmological Society of the United Kingdom) has carefully reported thirty cases of brain tumor in which useful vision was saved in twenty-two as a result of operation. In several of my cases herein reported blindness was present when the patient first came under observation. In another case, operation was deferred for several months. In the meantime, vision became hopelessly affected. The operation was successful in exposing and draining a subcortical cyst, but the patient became totally blind although she recovered from the hemiplegia and other symptoms.

In doubtful cases, particularly when a cerebellar growth is suspected and when vision is not at all impaired, we should not be too hasty in recommending surgical intervention. Besides, we must always bear in mind that it is often quite difficult and at times impossible to differentiate between acquired internal hydrocephalus and cerebellar tumor.

We must admit that, notwithstanding the remarkable advances in neurology and surgical technique, the greater number of brain tumors are inaccessible to operation, and, although occasional brilliant results are achieved, the surgical treatment of brain tumors is still a difficult problem. Moreover, quite a large number of brain tumors cannot be localized. The successful removal of tumors from the frontal, temporal, parietal, and occipital regions, as well as from the cerebellum, the cerebello-pontile angle, and the ablation of the Gasserian ganglion, has invali-

dated the former dictum of Von Bergmann that "brain surgery is the surgery of the central convolutions."

From a statistical study of 424 cases with autopsy records collected from various sources, Walton and Paul (*Journal of Mental and Nervous Diseases,* August, 1905) have shown that "out of 424 cases 30, or 7 per cent., were operable; 338, or 80 per cent. were inoperable, and 56, or 13 per cent., were placed in the doubtful class. The combination of operable and possibly operable therefore reached 20 per cent." By a process of further elimination, the number of operable cases was reduced to approximately 3.3 per cent. Nevertheless, the brilliant work of many of our confrères both at home and abroad within the last decade has greatly increased our confidence in surgical operation in suitable cases. Successful achievements in the extirpation of brain tumors has added additional laurels to American surgery.

Spiller and Frazier (*Journal of the American Medical Association,* Sept. 1, 1906) have reviewed the literature and reported the histories of fourteen cases of brain tumor that have been relieved by the palliative operation for "cerebral compression," and have reached the following conclusions: "Palliative operations should be performed early in every case in which symptoms of brain tumor are pronounced, and before optic neuritis has advanced far, especially when syphilis is improbable or antisyphilitic treatment has been employed." This is a sound doctrine, and represents the consensus of opinion of all experienced neurologists.

In a recent elaborate report of fourteen cases of brain tumor submitted to operation within the last three years, Oppenheim (Beitrag z. Diag. u. Therap. d. Geschwulste des Centr. Nerv. Syst., Berlin, 1907) has shown what brilliant results may sometimes be achieved by a careful selection of cases, accuracy in diagnosis, and operation by an experienced surgeon.

For the purpose of illustration I have selected for this paper a brief report of several cases of intracranial tumor that have been under my observation, and I would ask your close attention as they possess some exceedingly interesting features in exemplification of the foregoing remarks.

Case I.*—A merchant, 56 years of age, of Utica, N. Y., a patient of Dr. James H. Glass, was examined in May, 1899 (eight years ago). Clonic spasm in the muscles of the left leg occurring at brief intervals, and followed by transient weakness in the limb, began two years before. This was soon followed by similar attacks involving the left hand and forearm. After these attacks ceased, left hemiparesis gradually developed. He never suffered from headache, vomiting, or vertigo. No history of syphilis, head injury, or alcoholism. Examination revealed double optic neuritis with preservation of normal central vision and slightly contracted fields; left hemiparesis without involvement of the face, and exaggeration of the left knee-jerk.

Diagnosis, intracranial tumor of slow growth involving the arm and leg centers in the right cerebral cortex. He was then operated upon by Dr. Glass, and an endothelioma three-quarters of an inch in diameter successfully removed from the region indicated. Several months later, the patient began attending to business, and for the past seven years has been following his daily occupation, the present condition of partial hemiplegia being the result of the destruction of brain tissue prior to removal of the growth. A noteworthy feature in this case was the absence of headache and vomiting during the entire course of the disease. Had the diagnosis been made about two years earlier, when the symptoms clearly indicated involvement of the cortical leg center, and the tumor removed at that time, the patient would have been saved from the incapacity associated with a permanent hemiplegia.

Case II.*—C. P., 19 years of age, stenographer, was admitted to the hospital January, 1903. For nine months there had been frontal and occipital headache with vomiting and frequent attacks of vertigo. She had been totally blind for two months as the result of an intense bilateral optic neuritis. There was no history of traumatism or luetic infection. Slight left hemiparesis, including the lower facial distribution, and astereognosis affecting the left hand without disturbance of general sensibility were present. The left knee-jerk was more pronounced than the right.

Four months later her condition had become much worse. There occurred frequent attacks of unconsciousness, and also attacks of tonic and clonic spasm of the left face, arm, and leg, lasting several minutes without loss of consciousness, and followed by transient left hemiplegia and rotary nystagmus. There were fullness of the veins over the forehead indicating venous stasis, and horizontal nystagmus with paralysis of the left externus; condition of blindness and eyegrounds unchanged; the left knee-jerk was exaggerated and accompanied by ankle-clonus and Babinski plantar reflex, but the muscular power was intact in all extremities. Diagnosis, tumor in right hemisphere.

She was operated upon by Dr. McCosh, a large osteoplastic flap being made over the right Rolandic area and the dura opened. There were no indications of tumor formation. The ventricle was punctured and several ounces of cerebrospinal fluid withdrawn. The shock of the operation was comparatively slight. The drainage of the cerebrospinal fluid was very free. It was estimated that up to the time of her death about two pints escaped daily. The intracranial pressure was nevertheless so great as to force the bone flap upward, where it remained, thus causing a permanent projection of the scalp in the form of a cone with an elevation of several inches. The operation resulted in complete cessation of the headache, vomiting, and convulsive attacks. The other symptoms remained unchanged. She died four weeks later of lobar pneumonia, seventeen months after the onset of the symptoms of brain disease. At the autopsy a sarcoma about the size of a hen's egg was found in the right lateral ventricle. At the first examination there was no doubt as to the existence of a brain tumor involving the right hemisphere. The subsequent development of facial spasm, which was for a long time limited to the left side, later the left arm becoming similarly involved, and ultimately the left leg, the attacks of unilateral convulsion without loss of consciousness being followed by transient hemiplegia, presented a characteristic picture of irritative disease affecting the right Rolandic area, originating in the facial center. On account of the predominantly tonic character of the spasm the lesion was thought to be subcortical. In this connection it is worthy of note that local convulsive seizures, when they occur for the first time long after the general symptoms of intracranial tumor, should be disregarded as localizing signs, for they are generally the result of secondary hydrocephalus.

Case III.†—M. W., 28 years of age, single, pho-

*Medical Record, Sept. 28, 1901

*Medical Record, January 30, 1904.

†*New York Medical Journal,* February 3, 1906.

tographer, admitted to the hospital October 28, 1903, with the following history: For the last nine months he has had frequent attacks of severe general headache with vomiting. Vision began to fail two months ago, and blindness soon supervened. He now complains of headache, vertigo, and general weakness, with sensation of falling toward the right side. No history of syphilis, alcoholism, or trauma. He was obliged to remain abed, being unable to stand or walk without assistance. The pupils were dilated and rigid, and there was optic neuritis of six diopters with numerous retinal hemorrhages, and slight left hemiparesis including the face. He was delirious at times. He gradually became worse, all of the symptoms mentioned increasing in degree, with the addition of paralysis of the right external rectus, and left astereognosis with ataxia. Diagnosis, tumor involving the right hemisphere. Operation was refused. He was kept in bed, and received iodide of potassium in increasing doses. Two months later all of the symptoms had completely disappeared, the retinal hemorrhages had become absorbed, and his general health was much improved. The house staff and others were inclined to question the correctness of the diagnosis. He was discharged from the hospital at the end of several months, and, excepting the blindness, he was apparently in perfect health.

In the course of a few months the headache, vomiting, and vertigo gradually returned, and toward the end of a year he had frequent paroxysms of delirium, with general convulsions and coma, and died May 25, 1905, two and a half years after the symptoms began. At the autopsy a tumor (sarcoma) the size of a hen's egg was found attached to the internal surface of the right lateral ventricle.

This is the second case of brain tumor occupying the lateral ventricle that has come under my observation. Such cases are extremely rare. Both presented the following analogous features: The patients were intelligent young adults; both had frequent attacks of intense headache, vomiting, delirium, and convulsions; a high degree of optic neuritis, accompanied by total and permanent blindness; astereognosis, without any disturbance of general sensibility; absence of paralysis involving the extremities, but only a slight transient hemiparesis. The diagnosis of brain tumor involving the right hemisphere was made, but the exact location of the neoplasm could not be determined *intra vitam*. In both a sarcoma was found in the right lateral ventricle.

Had a palliative operation been performed in these patients in the early period of the disease, life would have been prolonged and made more endurable and blindness prevented.

Case IV.—Ethel A., school girl, 12 years of age, was brought to me by Dr. Francis Todd of Paterson, N. J., April 24, 1905, with the statement that she was born normally at full term, and has been in good health up to the time of present illness. No history of cranial injury. Seven months ago she often stumbled while walking and had occasional jerking of the left hand. Soon after she complained of general headache, and noticed twitchng of the left facial muscles and of the fingers of the left hand. These attacks occurred twice or thrice daily, usually lasting a few moments, and were followed by complete paralysis of the hand for about five minutes. Later, the left arm became weak, and then the left leg, and the twitching attacks ceased. One month later the headache became more intense and was accompanied by vomiting, vertigo, and mental confusion. She is in constant fear of falling.

Examination showed a bright little girl with a hemiplegic gait. Pupils equal, reaction normal. Vision, right = 20/40 + left = 20/40 —; bilateral optic neuritis with numerous retinal hemorrhages; left facial paralysis, lower branches; complete flaccid paralysis of the entire left upper extremity (the arm dangling like a flail); loss of muscular sense and complete astereognosis with normal general sensibility; flaccid paralysis of the left lower extremity with exaggerated knee-jerk.

The diagnosis was made of a cerebral tumor in the subcortical Rolandic area on the right side and operation advised. Her condition gradually got worse, and three months later she was blind. Operation was then performed by Dr. McCoy of Paterson, and a large subcortical cyst was found as localized. The cyst was evacuated and drained. She has since recovered from the hemiplegia, but is totally blind from optic atrophy.

Had the operation been done when first advised, her vision might have been saved.

Case V.—S. S., 25 years of age, admitted to the hospital January 4, 1906, with the following history: Two years ago he received a fist blow over the right temple. The blow did not seem to affect him very much, and was not followed by any immediate symptoms. During the following six months he complained of severe pain over the left side of the head and face, and paroxysmal attacks of headache and vomiting lasting a few hours. The pain increased, the vision began to fail, and two months ago he became blind. No history of alcoholism or syphilis.

Well-nourished man weighing 160 pounds; pupils equally dilated and rigid; motility of eyeballs normal; vision equals perception of light; bilateral choked disks of five diopters without retinal hemorrhages; slight left facial paresis of lower branches; tenderness on percussion over the right parietal region; muscular power and resistance well preserved in all extremities with all reflexes intact and of normal type; no objective sensory disturbances.

During his brief stay in the hospital he had frequent paroxysms of severe pain in the distribution of the right trigeminus and over the right side of the head, often screaming during the attack. The withdrawal by lumbar puncture of 25 c.c. of cerebrospinal fluid at once intensified the headache.

Diagnosis, intracranial tumor involving the right hemisphere, probably located in the temporal lobe, and an exploratory operation was under consideration. Two weeks after admission he suddenly became comatose and died within two hours from respiratory failure, the heart beating strongly for several minutes after respiration ceased. The autopsy was limited to the cranial contents. No marks of external violence. When the brain was removed, a spiculum of bone was found projecting from the inner table of the skull through the dura, about two inches above and two inches posterior to the right external auditory meatus. A large solid tumor (endothelioma) 8 × 10 ctm. (3¼ × 4 inches) originated at this point, being adherent to the dura and spiculum of bone, lying in the middle fossa and partly in the posterior fossa, compressing the right temporosphenoidal lobe but nonadherent to the brain. One of the interesting features of this case was that direct traumatism was the cause of the growth, although the injury to the head was not considered of much consequence at the time it was inflicted. The time elapsing between the injury and death was two years. The site for operation was to have been in the location preferably selected for cerebral decompression when the position of the

growth is uncertain, *i.e.* over the right temporal region. Had the operation been undertaken as intended, the tumor would have been at once exposed and easily removed.

In conclusion, permit me to state that I have attempted to present only a brief general outline of our present knowledge of the diagnosis and treatment of patients with intracranial tumor.

In suitable cases the palliative operation should be performed as soon as practicable, for it relieves the headache, vertigo, and vomiting, prevents blindness, and prolongs life indefinitely, conditions which, as a rule, cannot be accomplished by any plan of medication.

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THE IMPORTANCE, IN SURGICAL CASES, OF CORRECTING DEFECTIVE UNSTRIPED FIBER, AND SUGGESTION OF METHODS.*

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The tremendous strides of the last quarter of a century in surgical technique, and in the prevention or control of bacterial infection, are the marvels of this marvelous era of medical practice.

Surgery is both an art and a science. The art appears to-day well-nigh perfected. The science, as related to the infinitesimal germ which so often, even in the recent past, dominated the surgeon, is now almost as perfect. I think I am not unfairly stating the present generally accepted view when I say that these two elements are regarded as the essentials in the practice of this specialty. For many years, however, I have been impressed, both from logical deduction and practical observation, that there is a third essential to the completest attainment of the object sought by the earnest and conscientious surgeon, the greatest possible limitation of mortality.

I recently discovered a reference to this element in a long forgotten manuscript which I wrote more than nineteen years ago. The impressions of that period as to the importance, in surgical cases, of correcting defective unstriped fiber have since been intensified and confirmed by my later observations, and by many recent experiences of more competent observers, who have had larger opportunities for determining the truth or falsity of my theory. My earnest desire to have each member of this society put this theory to the test of practical experimentation is my apology for presenting the subject to you to-night in greater detail than I have previously attempted.

The unstriped muscle fiber is essentially the vital muscle fiber of the body. Its widest distribution is to the walls of the blood-vessels and lymphatics, the remainder, for the most part, constituting the muscular coat of the digestive tract and of the tracts of the secretory organs, the uterus, and the vagina.

Of these systems of unstriped fiber distribution, the circulatory is by far the most important in relation to my subject. The proper circulation of the blood throughout every region of the body is absolutely requisite to the normal activities of each region and the perfect health of the whole organism.

The heart is a quadruple, automatic pump, connected with the beginnings and terminals of the two great vascular circuits, and its perfect working depends upon a perfect state of all the vessels comprising those circuits. These two great circuits have each a threefold purpose, the distribution of nutriment, the collection of waste, and collection and distribution of useful materials absorbed by or secreted from the various special organs through which the blood currents pass.

The science of physiology is by no means perfect. Organs which in my student days were looked upon as useless appendages are to-day recognized as having important functions, and it is not rational to assume that the most profound investigators have even now attained a perfect knowledge of the functions of each individual part of the wondrous and complex mechanism which we term the body. It has, however, become irrational to assume that what we do not now know is of no importance, and the deduction which I make from what we do know is that it is safe to assume that the most equable distribution of the blood to all the parts of the body is a requisite to the highest welfare of each part and of the whole. In the term "equable distribution of the blood" I include those varying proportions of supply which are physiological and belong with special functional action.

As a matter of fact, however, the individual in whom this perfection of equable distribution of blood exists is a *rara avis;* and the explanation of this rarity of perfection is to be found in the fact that somewhere in one or the other or in both of the great vascular circuits there exists an area or areas of defective unstriped fiber; in other words, there are vessels whose muscular fibers are weak and therefore yield more to the general blood pressure than do the vessels whose muscular fibers have better or normal tone, the result of which is, necessarily, that the weak-fibered vessels become surcharged with blood. Corollary to this must be a less than equable supply to some other part or parts, the sequence of it all being that neither the part or parts redundantly supplied, nor the part or parts deficiently supplied, can perfectly perform their respective functions. Moreover, because of the intricate interdependence of the various parts, other parts, which may be normally supplied as to quantity, may suffer because of the altered quality of the blood, due to the regional redundancies and deficiencies. Assume, for illustration, that the relaxed vascular area is in the lungs. This implies a less than normal loading of the oxygen carriers of the venous blood which passes through the defective area, since, where a mesh of vessels is dilated, the embraced mesh of air cells cannot be properly filled with air. If the blood deficiency, corresponding to the pulmonary excess, is in the digestive tract, its important function will be impaired. Then, too, the waste material from the congested area will not be properly carried away and the heart's action will be impeded in proportion to the degree of the circulatory disturbance. We therefore see at once at least four abnormal states resulting from the unstriped fiber relaxation in the lungs. Vascular relaxation elsewhere, as in the kidneys, may be vastly more complex and disastrous in its results.

In considering the relation of defective vascular unstriped fiber to surgical cases, I will begin with one of the most serious, as well as one of the most frequent, conditions which the surgeon encounters, namely, shock. I am well aware that what I shall say to you on this subject does not accord with the accepted views, but, since it is what I most thor-

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oughly believe, I shall doubtless be pardoned the expression of my convictions.

The element which seems to be regarded as the most important in shock, and to which efforts at correction are most strenuously made, is the lowering of blood pressure. The existence of this state I do not pretend to deny, but the making it the prime object of treatment I regard the most serious mistake of surgical practice. The very great lowering of blood pressure in shock is an *effect* of the really essential condition of shock, which is neither the prostration of the heart centers nor that of the so-called vasomotor centers, but is rather the tremendous disturbance of the normal distribution of the blood; the proportion of that fluid which should occupy the peripheral vessels being crowded into the central vessels, particularly those of the abdomen, and this because the unstriped fiber of those central vessels was not able to withstand the sudden increase of pressure due to the closure of the peripheral vessels, and, as overstretched muscular fiber quickly loses its power to contract, the distended vessels continue engorged.

Owing to this extreme inequality of the blood distribution, the peripheral vessels not containing sufficient blood to supply the heart, and the central vessels being unable to contract and send their contents to it, oxygenation being at the same time very deficient, the heart is not supplied with its proper stimulus and therefore contracts but feebly. Because of this and of the small quantity of blood in the arteries, the blood pressure is low. The feeble action of the heart and the low blood pressure suggests the use of the most powerful heart stimulants and the infusing of saline solutions to increase the quantity of fluid in the arteries. I regard such treatment as irrational because it is applied to effects and not to the cause which is the engorged state of the abdominal vessels. The more vigorous action of the heart and the increase of blood pressure which such treatment may effect might even be detrimental, because of their tendency to increase the abdominal engorgement. On the other hand, if the therapeutic effort is directed toward contracting the overdistended vessels of the abdomen, thus sending their excess of blood to the heart and through it to the peripheral vessels, an approximate equalization of the circulation is secured, the heart begins to act easily because well supplied, the blood becomes oxygenated because it circulates through the lungs, and the state of shock has disappeared.

There are three forms of shock with which the surgeon has to deal: the shock of traumatism, the shock of anesthesia, and the shock of operation.

I class anesthesia as a form of shock because, in subjects not previously shocked by traumatism, its effect is essentially that of a traumatism, namely, a great disturbance of the equable distribution of the blood and serious interference with the function of oxygenation. There is always, then, in operation at least a double shock, and, in cases in which operation promptly follows a traumatism, there is a threefold shock, which presents a trying complication for the surgeon and a grave prognosis for the subject. Hence, the surgeon must be profoundly interested in any therapeutic measure that gives assurance or even proximate hope of correcting the state which underlies shock.

There is often a question as to the feasibility of producing sufficient anesthesia to permit operating, the state of the heart, kidneys, or lungs causing apprehension of serious sequel. Analysis of these unfavorable states will show that, for the most part, the basis of the condition is defective unstriped fiber. Many heart symptoms will disappear as soon as an approximate equalization of the circulation is secured. I have observed, and have had reported to me, prompt and striking restoration of the function of the kidneys from a few hypodermics of ergot, which effect must have resulted from correcting a relaxed circulation in those organs. I have many times, also, similarly secured immediate relief from extreme vascular relaxation in the lungs of such extent that the heart distress and sense of suffocation were agonizing.

In view of such experiences as well as of rational theory, I commend the preparation of cases unfavorable for anesthesia by the toning of such unstriped fiber as is deficient in tone, and I believe that the cases are rare which, after such preparation, will not bear necessary anesthesia, if carefully secured.

Retching and vomiting, during or following anesthesia, inconveniences the surgeon in his work, or disturbs the results of his work, and sometimes endangers the life of the patient. Surgeons and anesthetists appear to relate these states to the stomach or its abnormal contents; but, while this may be true in some instances, I am convinced that usually the chief cause is an abnormal relaxation of the vessels of the lower brain, and that previous preparation by toning the relaxed unstriped fiber and the application of such treatment during and following anesthesia will, in most cases, obviate those sequels and, in the extremer cases, will so modify them as to prevent serious results. It is certainly true that in the cases which I have so prepared and treated during anesthesia, some of which have been exceptionally unfavorable, there has been neither retching nor vomiting during the operation, and seldom any vomiting afterward. It seems therefore but a rational conclusion that the toning of the unstriped fiber secured the exceptional results and, if this be true, it must also be true that those disturbances largely depend upon atonic unstriped fiber.

Another of the sequels of operation, which it is desirable, if possible, to avoid, is pain. The word pain at once suggests sensory nerves and the idea of an opiate to dull sensory irritation naturally follows. Although the opiate usually dulls sensory irritation, it also does several other things that are undesirable. First, the general tendency of an opiate is to congest areas of vascular relaxation; secondly, the general tendency of an opiate is to limit or lessen functional activity of secretory glands; thirdly, the opiate tends to lessen peristalsis and therefore to lessen activity of the bowels. There are other objectionable effects of opiates, but these are enough to demonstrate that, in general, if pain can be relieved by means that do not accomplish such effects, it is well to avoid the opiate, and this is especially true of surgical cases, in which each and all of these results may cause much harm.

If pain depended wholly upon a condition of sensory nerve tissue, the opiate might be requisite in spite of its objectionable effects. If pain were "the cry of a nerve for food," then nutritive elements appropriate to such tissue would be the rational indication. The only deduction, however, which I can make from my therapeutic dealing with pain is that, in the mass of instances, it is the sensory interpretation or sign of a vascular plethora about the nerve which gives such signal, and the degree of pain is usually proportionate to the restraint in the tissues themselves, or in their surroundings,

against such vascular plethora. In other words, there is usually involved, in pain, the element of pressure, and that pressure is due to such deficient tone of the unstriped fiber of a vascular area as permits it to become engorged with blood.

It is easy to see the relation of all this to post-operative pain, since shock involves great disturbances of equable blood distribution, and because of the tendency to congestion of tissues which have been injured by traumatism or operation. Practically, I have relieved more pain by correcting defective unstriped fiber than I ever relieved with opiates, and without any of the many undesirable sequels which follow the latter.

The tendency (to which I have just referred) of the vessels, in the region of a traumatism or an operation to undergo relaxation of their muscular coat, and therefore of congestion, forms the basis of one of the greatest obstacles to the success of the surgeon in his work, namely, inflammation.

The surgeon regards the presence of bacteria as the direct cause of inflammation and therefore takes the greatest pains to prevent the infection of wounds, and the application of this principle has certainly marvelously modified mortality. I have long believed, however, that the irritative development of bacteria in relation to local inflammations is chiefly the result of the relaxed state of the blood-vessels of those localities and that if a degree of tone of the unstriped fiber of blood-vessels is secured which will prevent their dilatation to the extent of congestion, such irritative development of bacteria will not occur; also, that, even when such congestion and irritative development of bacteria have occurred to the extent of typical inflammation, a prompt and proper effort to develop tone in those dilated blood-vessels will often abort, or at least distinctly limit the extent of, the inflammation.

Some of my own experiences which I have reported, and recent experiences of many others, demonstrate the correctness of this belief, since typical inflammations have been aborted and extreme inflammations have been modified by means which were not antiseptic in character, but which merely tended to correct abnormal blood distribution and that chiefly, sometimes wholly, by toning relaxed unstriped fiber.

The experiments of Dr. Zwalenburg of California confirm this theory, for when he injected bacteria into the appendix he did not produce appendicitis, but when he mechanically obstructed the circulation in the walls of the appendix, producing congestion of the blood-vessels, he at once developed typical appendicitis from the bacteria ordinarily present. The rational deduction from this is that it is in congested tissues that bacteria irritatively develop, or in which there is developed some irritative element in connection with bacterial multiplication, which determines active inflammation.

It is quite certain that inflammation cannot develop or continue unless there is a congested circulation; also, that congestion implies abnormally relaxed unstriped fiber of vascular walls; also, that such relaxed state of unstriped fiber can be prevented, corrected, or modified, and I therefore hold it to be entirely rational to make use of means that have been demonstrated to be effective for such purpose.

The subject that I have just considered and the one which I shall next consider, namely, repair of tissue, or the process of healing, comprise my earliest thoughts in relating the correcting of deficient unstriped fiber to the field of surgery.

My work at that time, some twenty years ago, was chiefly with disordered states of the brain, and I had become convinced that the most valuable aid which my therapy gave toward restoration to health was in correcting the circulation in that organ by toning the unstriped fiber of those vessels which were relaxed and consequently contained too much blood, and that, when I had accomplished this end, I had given to the activities that determine tissue change and function the best opportunity to perform their important work.

About the time I had reached this conclusion an injury to one of my patients demanded the services of a surgeon, and I employed my friend, the late Dr. Richard J. Levis of Philadelphia. The patient presented the most intense state of suicidal mania that I have ever seen, and the injury, fracture of the skull and extreme concussion of the brain, was accomplished by her suddenly darting from the immediate and close presence of her three special nurses and throwing herself from a height. Her condition was desperate and the doctor's prognosis was grave, indeed he believed she would die. As her death would have been a serious disaster, I considered profoundly what I could do to avert it. It was then that it occurred to me that the same measures which I used in treating an inflammation ought to be preventive of it, and ought also to aid in restoring the shaken-up brain and in healing the fracture and operative wound. I applied those measures vigorously and there was not a moment of the succeeding three weeks in which she was not literally in the hands of two nurses constantly employed in carrying out my orders. At the end of that time she emerged from the unconscious state, not only recovered from the effects of the injury, but entirely recovered also from the insanity, and she has remained well to this day.

Not long after this incident I had another demand, of a different character, for my friend's services, this time for the removal of a diseased mammary gland. I recognized that the subject was quite unfit for the ordeal of operation, being much run down, extremely nervous, despondent, and apprehensive as to the operation and its sequels. I advised a month's delay and at once instituted a preparatory treatment with ergot, with the result that the subject composed herself as calmly for anesthesia and operation as if she were merely lying down for a night's sleep. There was neither retching nor vomiting during the operation nor afterwards; she took nourishment two hours after the operation and at two-hour intervals. She slept three-quarters of an hour after each feeding and the entire succeeding night. There was no postoperative pain, and the extensive wound healed by first intention, and when the stitches were removed the case was concluded.

I am as certain as I can be of anything not mathematically demonstrable that the toning of the unstriped fiber in these cases determined the rapid repair undisturbed by inflammation. The rational character of the theory that the toning of defective fiber assures, and promotes the rapidity of, repair will appear when one considers the elements of the process of healing.

The blood-vessels must bring to the tissues which are to be repaired the nutritive elements which are to be applied, and this can be well accomplished only by vessels through which the blood flows freely, which is not true of congested or engorged vessels. The application of the nutritive elements is more directly made from the perivascular or lymph spaces which are also the channels for carrying away the

waste elements, an equally important and necessary function, and when the blood-vessels are engorged with blood those perivascular spaces are more or less obliterated, which manifestly must interfere with both the application of the new elements and the removal of the waste.

The one deduction from this argument is that the toning of defective unstriped fiber is essential to the best performance of the function of repair.

Before leaving the subject of the circulatory system I will discuss another indication for the toning of its unstriped fiber which the surgeon will frequently recognize. I refer to those states of the heart which cause him to be apprehensive of its utter failure. The surgeon is not credited with an uncontrollable impulse to the use of medication, but I assume that in this matter it is his habit, as well as the general practitioner's, to treat directly and vigorously the failing heart. To this method I do not hesitate to say that I take emphatic exception for these reasons. The greatest obstacle to easy and free action of the heart is unequal distribution of the blood. Such inequality of distribution deprives the heart of a portion of the blood which should be passing through it, equal to the excess which is occupying the overdistended vessels. Such inequality of distribution also creates a resistance in the area of overdistended vessels against the easiest emptying of the heart, which resistance is one of the causes of its fatigue. The two essentials to the best action of a mechanical pump are abundant supply and free exit, and precisely the same principles apply to the heart-pump, which differs from the former chiefly in being compound and automatic, and in the character of the reservoirs of supply and outflow; the right auricle and left ventricle being the terminals of one loop of closed tubes, these two single pumps being valvularly connected respectively with the right ventricle and left auricle, which are the terminals of the other loop of closed tubes. In view of the simple physical principles just stated, it will readily appear that the proper working of the compound pump depends chiefly upon the state of the great complex loops of closed tubes.

These two loops of closed tubes are exceedingly complex in their branching and sub-branching, and their ultimate ramifications are microscopical and multitudinous, and they all have a quality, not imitable in a mere mechanism, of overdilation, and when so overdilated they have not power in themselves to return to their proper caliber. When a group of the microscopical tubes are overdilated they so press upon each other and the mesh of tissue among them that they practically form a dam through which the flow of blood is sluggish or arrested. Such a condition, or any abnormal condition, of any part of the two great circuits that interferes with the normal flow of the blood must in some degree affect the action of the heart, and the greater the degree or extent of the abnormal condition the greater must be the disturbance of the heart; also, the longer the continuance of the abnormal conditions of the vessels the more serious will be the impairment or fatigue of the heart. Is it not, then, manifestly irrational to ignore the cause of such impairment or fatigue and treat only the heart?

The true restoration of a proper supply to the heart pumps is not by infusing a saline solution (which only temporarily determines a greater volume in the peripheral vessels, which is soon lost by exosmosis and is not nutritious while it does last), but rather by the emptying of the overfilled vessels of their excess. This is not accomplished by the increased force of the heart's action from powerful stimulants, but it is accomplished by giving tone to the weak and relaxed fibers of the muscular coat of those overfilled vessels. As soon as this is accomplished, the heart, which had appeared almost paralyzed, no longer appears so and the fuller supply to the peripheral vessels gives the pulse a fair volume. Equalization of blood distribution should therefore be the prime object in treating the exhausted heart.

I think it is worth your while to consider for a moment another class of unstriped fiber whose defective states not infrequently determine fatality, namely, that of the muscular coat of the bowel. The mere suggestion of intestinal paresis will doubtless bring to your minds some unhappy experience. Even when there is not a complete paresis, an apathetic state of the bowel may give trouble enough, as when there is not time thoroughly to clean the bowels before a laparotomy, or when the directed and supposed preparation, by such clearing, has not been properly made.

I think it quite possible, from my experience with bowels, that the presence of old fecal matter may have more to do with unsuccessful or unsatisfactory surgery than is always appreciated. In a case to which I gave exceptional study daily for months, I demonstrated that the subject was literally packed with old fecal matter, notwithstanding his assurance that his bowels were "all right" and that they moved every day. Although I secured from two to eight movements daily, and also gave three or four enemas each day, it was three weeks before I succeeded in emptying the ascending colon, and it was only after ten weeks of daily heroic treatment that we ceased to see, in some of the stools, old fecal matter.

In another case similar treatment finally brought away quantities of impacted bran, the subject having formerly used bran bread as a laxative, but at the time she came under my care it had been two years since she had eaten bran bread. Two days before she came to me she had had a curettage of the womb, and within an hour after the operation acute mania developed, which was the most extreme in all my experience and subsided only after three years of the most energetic treatment that I ever gave in any case.

I once saw a famous surgeon, doubtless personally known to every one of you, operate for a supposed intussusception, but which he found when he opened the abdomen was simply fecal impaction, and the subject died a few days later.

Such conditions could have resulted only from deficient tone of the unstriped fiber of some portion of the bowel, not alone of the colon, but also of the small intestine. It is easy to see how such states, even of markedly less degree than those related, may entail grave consequences when associated with abdominal, pelvic or head operations.

There are many other things associated with general or special surgery of which I would like to speak, but I have already imposed upon your patience. I will, therefore, as briefly as I may, refer to some methods of correcting defective unstriped fiber. Of these there are several, most of them, however, applicable only to special and limited areas.

1. *Massage.*—When general physical exercise (which, in health, is the best promotor of good circulation) is prohibited by the state of the subject, massage is the most potent substitute that may be applied and, even in surgical cases, it has many appropriate applications.

2. *Dry Cupping.*—In all my armamentarium there

is no other mechanism for which I have more profound respect than for my improved dry cups, exhausted with an air pump and closed with a stopcock. I find frequent use for them to relieve internal congestions and to modify internal inflammations by withdrawing to the surface considerable quantities of blood which relieves temporarily the distended vessels and further, by the partial emptying of them and the reduction of the internal pressure against them, their weak muscular fibers are permitted to contract, which they could not do against the former pressure. After such contraction they have a power to hold against subsequent pressure, which they did not have in their more greatly stretched state. In addition to this, there is the very great damage to the vessels of the skin, when the cups have been well exhausted, the repair of which damage detracts to some extent from the abnormal internal circulatory activities. For this measure, also, the surgeon will find many uses to aid in correcting the defective unstriped fiber of internal vessels.

3. *Cold.*—When the congested or inflamed area is near enough to the surface to be directly influenced by it, continuous application of cold will contract the dilated vessels. This and ergot were the two special elements of treatment used in the case of fracture of skull and concussion above related. When continuous cold is not appropriate, the momentary application of heat to the spine, followed immediately by cold (ice or cold water) is a most excellent tonic to the relaxed unstriped fiber, probably through its direct influence upon the unstriped fiber of the vessels of the vasomotor centers.

4. *Electricity.*—What I say on this subject refers especially to galvanism or the direct dynamic currents, which are essentially the same in their action. They differ materially from the interrupted forms, especially in their ability to store force in the subject, precisely as they do in the storage cell. I demonstrated this important truth in 1890, when the meter registered a current of fifteen milliamperes, flowing from the subject, reversely to the direction in which it had flowed into him, just as occurs with the storage cell. When you consider in connection with this that the force so stored is like the vital force, and that, when applied to any special part, it accomplishes what the vital force, if sufficient, would accomplish, you can see that it may sometimes serve you well. But it is especially as to its stimulation of the unstriped fiber that I would now speak, and the most important application for such purpose which the surgeon is likely to have is to the muscular coat of the bowel. I do not know of anything else that will act as surely or as promptly upon that class of unstriped fiber, the positive electrode being placed under the spine and the negative electrode over the abdomen. Do not assume that you have done all that is possible to develop activity of the bowels in intestinal paresis or apathy until you have made thorough applications of the constant current.

5. *Ergot.*—The only medicament of which I know that has a tonic effect upon defective unstriped fiber, wherever situated, is ergot. As a stimulant to the muscular coat of the bowel I have found rhamnus frangula very effective, but I am not aware that it especially influences other unstriped fiber. What I say of ergot refers only to the hypodermic use of the drug and to its action upon pathologically weak or defective unstriped fiber. Of its action upon physiological unstriped fiber, I know no more than is obtainable from the books, and the subject is not important in this connection. The action of ergot upon pathological unstriped fiber is quite another thing and is of vast import, because of the multitude of its effective applications. I seriously question whether the therapeutic value of any special preparation of ergot may be satisfactorily determined by physiological experimentation, and I would determine such value only from clinical experience. The therapeutic value of ergot lies in its influence, which is probably chiefly direct upon the defective unstriped fiber with which it comes in contact or in proximity as it circulates through the ultimate vessels. Exactly what constitutes the change that is effected by it in such tissue I leave to those patient investigators who untiringly seek for the reasons of things.

I am assured by such an investigator that the state of exhausted or paralyzed unstriped fiber is very different from the state of the normal, and in the extreme abnormal conditions approaches the indefinite tissue state termed gelatinous. That there is an alteration of tissue would appear from the fact that recently exhausted unstriped fiber is quickly restored by ergot, while such tissue that has long been useless or deficient in function is restored only after protracted treatment.

While I have referred to a variety of abnormal states, I have endeavored to show that one single element is the essential basis of them all, namely, defective unstriped fiber. It follows therefore that a specific stimulant to such disordered tissue is applicable to each and all of the varied conditions mentioned. This specific is ergot; and I may add that the term "specific" is not here misapplied, as it so often is to other medication, because, however varied the final effects may be, they all occur in consequence of one, single, direct effect of the drug upon one, single species of muscular fiber, hence the action is truly specific. The application, in a given case of this or other therapy suggested, I must leave to you, referring you to my other papers* upon the subject, as the limit of this paper will not permit of further detail; but I would like, in closing, to make a few general suggestions.

1. At the very beginning of your use of ergot on the lines I have suggested bury, beyond resurrection, that hugbear that has followed you since you first heard the warning, "Beware of ergotism!"

2. Whenever possible to do so, *prepare* your cases with ergot, and thus avoid conditions that are annoying or serious rather than wait until such conditions have developed and then use the drug to correct them.

3. Use the drug freely enough to get the desired effects, yet be judicious and never reckless. While I have not seen ill-effects from my use of ergot, I can see no reason why overdosage might not do

*The Broad, Therapeutic Application of Ergot, *New York State Journal of Medicine*, September, 1902; Some New and Unusual Therapeutic Applications of Ergot, *Journal of the American Medical Association*, March 21, 1903; Ergot in Pneumonia, *New York State Journal of Medicine*, May, 1903; Uses of Ergot, *Brooklyn Medical Journal*, August, 1903; Ergot in Alcoholism, Morphinism, and the General Class of Drug Habit Cases, *New York State Journal of Medicine*, January, 1904, also *Medical News*, New York, March 5, 1904; Ergot in Typhoid Fever, *New York Medical Journal*, April 16, 1904; Ergot in Surgery, *New York State Journal of Medicine*, June, 1904; The Vital Relation of Unstriated Muscular Fiber to Pneumonia, Typhoid Fever, and Influenza, and Suggestion of Means to Correct Its Defects, *Medical Council*, Philadelphia, June, 1904; Ergot in General Practice, *Journal of the American Medical Association*, August 27, 1904.

harm, or at least thwart the object for which it is given.

4. Use ergot only *to correct defective unstriped fiber* and you will not be as disappointed as if you used it to "tone" unstriped fiber.

5. Always use ergot hypodermically.

6. Be sure that solution, syringe, and skin are sterile.

7. *Take care of the defective unstriped fiber,* and you may feel assured of the greatest safety in anesthesia, of relief from shock, of freedom from pain, or its modification, of avoidance of inflammation and of repair of the injured tissues, and your patients may also be assured that many, if not all, things else will be added which make for comfort and general well being.

LARGE TUMOR OF THE LARYNGOPHARYNX REMOVED BY SUBHYOID PHARYNGOTOMY.*

By WALTER F. CHAPPELL, M.D., M.R.S.C. Eng.,

NEW YORK.

A BRIEF history will be given of the patient on whom the operation of pharyngotomy was performed. Johanna, Austrian, aged 51. Mother died at 82 of asthma. Father still living at 91. When 18 Johanna developed a short, dry cough which persisted for some years, and was accompanied by considerable expectoration. At 36 she had a severe attack of grippe lasting three months and leaving her voice hoarse. A year later her last child was born, and this was followed by a temporary improvement in her hoarseness.

At 45 her breathing became slightly labored during the day, but at night when she was asleep it was much worse and soon became so bad that people living in the same house thought she was in danger of suffocation. These symptoms gradually increased, and the patient and friends thought she had asthma. A physician saw her once, but she did not visit him again, owing to the belief that she had incurable asthma.

Two years ago she began to choke on particles of food, and occasionally vomited a meal. Her breathing became more embarrassed, and she slept only at intervals at night; as a result she began to feel weak and would fall asleep during the day and even during a conversation. During the last few months she was awakened every morning with a severe headache and dizziness, which passed away after she was up. I saw Johanna on November 29 for the first time.

A laryngoscopic examination revealed a large mass of grayish-blue color completely filling the laryngopharynx. It pressed the epiglottis forward against the root of the tongue, laterally it touched the pharyngeal wall, and posteriorly the postpharyngeal wall extending downward some distance. In fact, it was difficult to understand how the patient could breathe or take nourishment. The surface was covered with large, tortuous vessels, which seemed to spring from a common origin on the left side near the posterior part of the ary-epiglottic fold and spread out like the ribs of an open fan over the surface of the tumor, as shown in figure 1. No part of the larynx was visible, and there was no external evidence of the large intralaryngeal growth.

The respiration was so much impeded at all times that it was considered unsafe to allow the patient to remain in a condition which might prove fatal at any moment. She was admitted to the Manhattan Eye, Ear, and Throat Hospital, and a low tracheotomy was performed under local anesthesia on November 20. The difficult breathing was immediately relieved on the introduction of a tracheal tube, and more nourishment could be taken with much less effort and discomfort. No bronchitis or other unsatisfactory symptoms followed the tracheotomy, and within a week the patient was well.

On December 28 the throat and tumor were thoroughly cocainized and an effort made to engage the growth in the loop of a cold wire snare. It was then discovered that, while the pedicle was not over an inch in width and diameter, several adhesions, such as shown in figure 2, kept the tumor somewhat firmly in place. It was also found that the posterior end of the tumor extended down the esophagus for some distance. It was suggested by some who were present at the

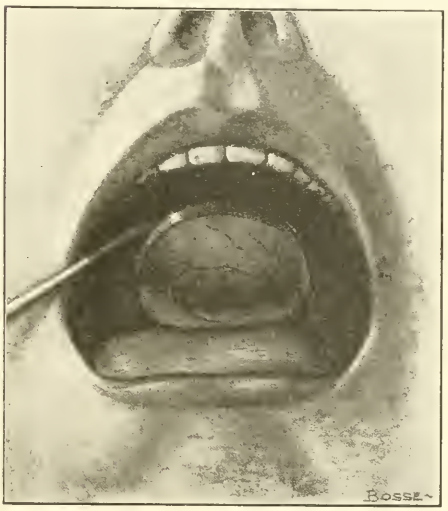

PLATE I.

examination, that the tumor was a cyst, but the introduction of a curved knife proved it to be solid and very vascular. An external operation was then advised.

On January 4, assisted by Dr. Harmon Smith and Dr. John E. MacKenty, I performed a subhyoid pharyngotomy. The steps of the operation need hardly be repeated in detail before this audience.

On opening the thyrohyoid membrane and pulling the epiglottis forward the tumor came into view. Its position and appearance is remarkably well shown in figure 3, which was drawn by Mr. K. K. Bosse from sketches and notes taken at the time of operation. The pedicle was found close to the left ary-epiglottic fold, and from appearances seemed to consist mostly of large vessels. A black silk ligature was used in tying the pedicle, as it was feared anything else might not hold during vomiting or swallowing. Later these silk ligatures had to be removed through the mouth, and I believe chromicized gut would have answered every purpose.

*Read before the American Laryngological Association at Washington, May 9, 1907.

It was found that the tumor was covered with a thick, vascular capsule, which was incised at the right end, and the growth removed. The capsule was cut off at the pedicle and bled very little. The larynx and esophagus were examined and found to be in their normal condition. The thyro-

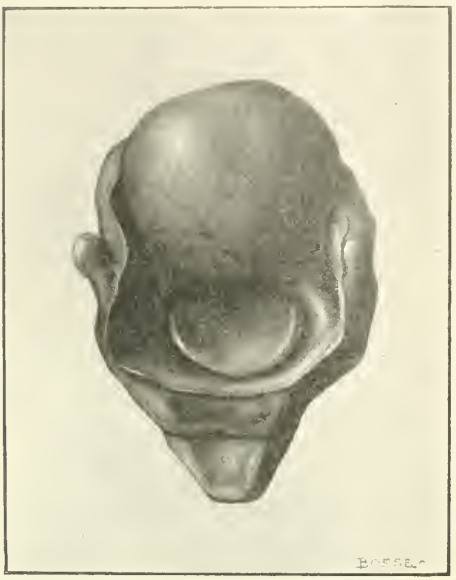

Plate II.

hyoid membrane, muscular and cutaneous tissues were stitched together separately, and the patient returned to bed.

The tumor was smooth, irregular in shape, weight 20 grams after it had been in formalin, circumference 4½ inches. The tumor on microscopic examination was found to consist of fibrous tissue, very moderately supplied with nuclei and round cells.

Absolute rest of the organs of deglutition was ordered and nutritive and saline enemata were given. Considerable blood was coughed out of the tracheal tube for twenty-four hours, but then ceased. On January 10 as much sterile water was ordered as the patient wanted, and was swallowed fairly well, although some came through the tracheal tube. On January 14 four ounces of peptonized milk was given by mouth, but not retained. A few days later broths and milk were given by the mouth, but a great deal ran out through the tracheal tube and caused a good deal of coughing. The patient began to look badly; a small fistula formed in the right angle of the wound and soon another formed in the left angle. All fluids by the mouth were discontinued and the fistulæ closed at once.

Nasal feeding through a tube was ordered January 25, and all rectal nourishment discontinued. A decided improvement set in; but some joint pains and slight redness of the gums showed that the feeding had not been all that was required and that the patient had a mild attack of scorbutus. Plenty of orange juice, through the nasal tube, soon relieved the scorbutic condition.

On February 15 the tracheal tube was taken out, and on the 27th the nasal feeding was discontinued. Liquids were swallowed well, and some solid food was given on March 1. Although some coughing followed each meal, the diet was not again changed.

The patient was shown at the Academy of Medicine about this time and caught a cold which was followed by some bronchitis, keeping her in bed over two weeks. On March 30 the patient left the hospital.

Remarks.—Laryngeal symptoms developed in girlhood, but no evidence of a growth was apparent until many years later. The growth of the tumor was slow, and implicated first, respiration, and later deglutition. It seems remarkable that so large a growth could exist for so many years without causing any great distress. The patient's health was remarkably good at all times, and she seems to have suffered very little.

The tracheotomy and major operation were well borne. The temperature for ten days after the operation for pharyngotomy never rose above 100° F., in fact beyond a slight cough the patient had no bad symptoms until she began to take milk and broth by the mouth; about one-half of these fluids passed down the esophagus and the balance entered the larynx, most of it passing out through the tracheal tube, but some trickled down the trachea and large bronchi. Quite a sharp attack of tracheitis and bronchitis followed, but soon ceased when nasal feeding was instituted. Rectal and nasal feeding for at least six weeks following the operation would have prevented some of our troubles.

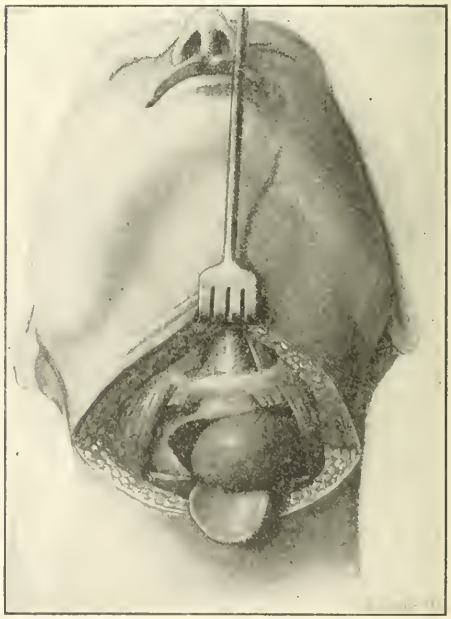

Plate III

After the tracheal tube was removed solid food had to be taken slowly, as there was some difficulty in swallowing, due to considerable swelling of the left arytenoid. This swelling was caused by the irritation of one of the silk ligatures already spoken of. The removal of the ligature was fol-

lowed by a marked improvement in swallowing. For some weeks later deglutition was somewhat difficult, but it constantly improved, and at the present time swallowing is perfect, and the patient restored to all her normal functions and a good state of health.

It was a mistake to have overlooked the possibility of the occurrence of scorbutus, and when artificial feeding is continued for so long a period the fruit acids should certainly be administered.

The patient was kept in a large single room in the hospital, but she was so depressed that we removed her to a ward with other patients, and she immediately became more cheerful and her condition generally improved.

In looking over the literature on this subject some eleven tumors of a similar nature have been reported.

One took its origin from the epiglottis, another from the ary-epiglottic fold, another from the anterior part of the commissure a little left of the median line, another from the anterior part of the larynx below the vocal cords, another attached by a broad base to the anterior commissure and the anterior third of the right vocal cord, another occupied the whole left half of the larynx, the left ventricular band, and the left ventricle, and nothing could be found of the left vocal cord, the growth extended out of the larynx into the left side of the neck and was partly intralaryngeal and partly extralaryngeal.

One tumor was removed by a subhyoid pharyngotomy, but the patient died seven days after, the operation with metastatic abscesses in both lungs. A lateral external operation was successfully performed in two cases. One case died by suffocation without an operation being attempted. In the other cases the tumors were removed by intralaryngeal operations.

The size and adhesions of the tumor I have presented demonstrate that it could only have been removed by a subhyoid pharyngotomy, and I believe a great part of our success was insured by the tracheotomy preceding the major operation.

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7 East Fifty-fifth Street.

Massage of the Heart in Suspended Animation.—Ricketts says that sub-diaphragmatic transperitoneal cardiac massage is supposed to have been first done by Starling and Land in 1902. The heart is grasped with the hand, with the diaphragm intervening. Eighteen cases have been treated in this way, in eight of which the abdomen was deliberately opened for the purpose and in ten the abdomen had already been opened for other purposes; in three chloroform was used; ten not stated. In three the diaphragm was deliberately opened from below to massage the heart. Ten permanently recovered; eight died, but in five of which the pulsations were restored for a short time. —*Illinois Medical Bulletin.*

A CASE OF TYPHOID PERFORATION OF THE APPENDIX; OPERATION AND RECOVERY.*

[By HENRY MOFFATT, M.D.,

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The case I propose to present to you to-day seems to me sufficiently interesting to serve as a text for some remarks upon a subject which, I think, has not thus far received due consideration by either surgeons or general practitioners. Briefly, the history of the case is as follows:

Miss L——, age seventeen, single, an epileptic, was treated by Dr. Madden of Ossining, N. Y., from March 20 to April 20, 1904, through a well-defined attack of typhoid fever, with typical temperature curve, diarrhea, meteorism, and a plentiful display of rose spots over the abdomen and chest. Her convalescence was rapid and good—though upon careful questioning later, she stated that there was at all times some pain over the right iliac region, to such an extent that it was uncomfortable to lace her clothing. Two weeks after her convalescence had set in she was suddenly attacked with symptoms of acute appendicitis—severe pain and tenderness over the region of the appendix, fever, rapid pulse, vomiting, etc.

When Dr. Madden called me to see the case, which was within twelve hours of the onset of the symptoms, there was a well-marked tumor in the right iliac region, in addition to the symptoms given above. I urged immediate operation—had the patient removed to the Ossining Hospital and operated upon her there at the earliest possible moment. Drs. Madden, Minor, Byington, and Irvine were present.

There was a large abscess firmly walled off by protective adhesions, containing a large amount of fetid pus. The appendix was readily exposed and a perforation was found at the proximal end an eighth of an inch from the cecum. The whole appendix showed signs of inflammatory changes. The muscular walls were swollen and indurated and the mucous lining was thickened. The perforation presented the appearance of a typical typhoid character, oval in shape, with overhanging edges. The appendix was removed and the abscess cavity thoroughly drained. The patient made a good recovery, though her convalescence was somewhat long and retarded by some further pocketing of pus.

Though this complication of typhoid fever has been recognized for many years, it is remarkable how little attention has been given to it till within a very recent date. The first reference to a perforation of the appendix occurring during typhoid fever, as far as I can find, is made by an Italian, Carlo de Vecchi, in 1848, who relates a case of such a perforation found at the autopsy in a man dying on the seventh day of typhoid fever. Heschl, in 1853, reported fifty-six cases of typhoid perforation, with eight in the appendix. Buhl, in 1854, gives an account of three such cases, and three years later Sands also presented to the New York Pathological Society a case in which the perforation was found at the autopsy, and he described the condition at length in an article in the *American Medical Monthly*, 1857. In 1867 Morin reported sixty-four

*Presented at a meeting of the Westchester County Medical Society, January 15, 1907.

cases, with twelve in the appendix. Notwithstanding these well-authenticated cases, none of the text books make any reference to such a complication in typhoid fever.

James H. Hutchinson, in his exhaustive article on typhoid fever, in Pepper's System of Medicine, 1885, makes no mention of this. Osler in his edition of 1893 makes no mention of it; but in his late edition quotes a series of cases, reported by Hector McKenzie in the *Lancet* of 1903, where out of 264 cases of perforation 232 occurred in the ileum, 22 in the jejunum, and 9 in the appendix.

The only allusion to the possibility of this condition that I can find in Strümpel, 1891, is as follows: "Perforation generally takes place in a coil of the lower part of the small intestines, with marked relative frequency in the right side of the pelvis, seldom in the vermiform appendix or in the colon."

As the appendix, with all its powers of evil, began to attract the attention of both surgeons and pathologists, this condition has gradually gained consideration. Fitz, in the *Boston Medical and Surgical Journal*, 1891, published 167 cases of perforations, with 5 in the appendix. Hawkins, in the *Lancet*, July, 1893, gave the analysis of the seat of perforation in 72 post mortems in typhoid—61 ileum, 5 in the colon, 3 in the cecum, and 3 in the appendix.

Dr. Bontecon of Troy, in the *Journal of the American Medical Association*, October 17, 1887, reports an operation for perforation of typhoid ulcers in which he found a perforation of the appendix as well as one of the ileum, ten inches from the colon. Schell, in the *New York Medical Journal*, April 20, 1895, said: "Next to the ileum, the cecum and the vermiform appendix are the most frequently altered by ulceration and gangrene in typhoid fever."

But among all the writings on appendicitis little or no systematic treatment of this subject can be found till 1905, when Howard Kelly brought out his beautiful and exhaustive work. Here this whole subject is most thoroughly handled and given that prominence which the gravity of the condition demands.

When we consider the character of the mucous lining of the appendix, supplied abundantly with solitary and agminated glands, crypts of Lieberkuhn and lymph nodes, and when we know that the most frequent seat of typhoid inflammation is at the lowest portion of the ileum and near the ileocecal valve, we would readily be led to infer that an involvement of the appendix in this infection would not be an infrequent occurrence. Numerous observers have shown this to be a fact. O. Hoppenhaussen in the *Revue de la Suisse Romande*, 1899, gives a report of thirty autopsies in typhoid fever, and finds that in every instance the appendix was affected to a greater or less extent, varying from a mere hyperemia of the mucosa to an extensive ulceration.

Kelly has collected thirty cases in which the condition of the appendix during typhoid fever was demonstrated by operation or autopsy, in most of which, he states, there had been symptoms of appendicitis during the course of the typhoid. "In five cases the microscope gave evidence of typhoid ulcers within the appendix; in one there was ulceration without perforation; in ten, perforation; in one, appendicitis with abscess; in four a simple congestion, with a perforation situated in the ileum; in the remaining cases adhesions, flexions, or obliterative changes." H. Christian in 119 autopsies on typhoid patients at the Johns Hopkins and the Boston City Hospitals found nineteen showing distinct inflammatory changes in the appendix.

These cases seem to prove conclusively the existence of true typhoid appendicitis. There is also a possibility of a simple appendicitis occurring during the course of a typhoid fever. Kelly, however, says of this form of disease, "I fail to find any satisfactory instance of simple acute appendicitis occurring during the course of typhoid fever." He admits that a latent or chronic appendicitis may be roused into activity during typhoid fever in several different ways.

Dr. L. W. Hotchkiss of New York related to me only a few days ago a case in which he had removed a perforated appendix during typhoid fever, in which the cultures carefully made failed to show anything more than acute appendicitis. Where there has been a previous attack of appendicitis and the appendix is acutely flexed and bound down by adhesions, we can well imagine there would arise serious complications if this organ should become the seat of typhoid inflammation. Even if it was not involved, the distention of the intestines in the immediate neighborhood would be likely to cause intense discomfort and even lead to injury to the parts affected.

There is still another condition to be considered, namely, post-typhoidal appendicitis, and it is in this class that I must place the case I have reported. In these cases the question arises: Is the subsequent appendicitis due to the necrotic remains of the typhoid inflammation retained in the appendix and waiting an opportunity to set up an acute attack, or have the healing ulcerations of typhoid so contracted the caliber of the appendix as to produce a retention of the discharges and favor a subsequent acute attack? Is it not possible that a case may be due to a combination of these conditions? Again, could it not be due to a small perforation occurring during the typhoid, rapidly and firmly walled off by protective adhesions which at a later date rupture and produce a larger abscess or even a diffuse suppurative peritonitis?

I am inclined to consider the possibility of my case being in this class, from the large size of the abscess and the fact that the pain and tenderness persisted in the region of the appendix during her convalescence up to the date of her sudden attack.

We see such cases frequently in other forms of appendicitis, and I am inclined to believe that this is a reasonable explanation of the symptoms in this case. In this class Kelly reports only two cases, but refers again to the figures of O. Hoppenhausen, who shows that out of 748 cases thirty-six cases of appendicitis showed previous history of typhoid fever, varying from six months to forty-eight years.

Bull, in the *American Medical Recorder* of March, 1893, reports that in twelve cases of relapsing appendicitis, three gave history of previous typhoid fever, one eighteen years previously, one four years previously, and one three years previously. The case referred to by Walker Schell in 1895 was one in which he operated successfully upon a case of appendicitis four weeks after apparent recovery from typhoid fever, and he concludes with the remark that "the relation of typhoid fever to anatomical changes in the appendix has not been sufficiently emphasized."

Whether the previous attack of typhoid had any causal relation in all of these cases, it is impossible to say. But when we consider the possibility of the crippling of this organ by ulceration and contractions due to the typhoid inflammation, it would seem likely; and I agree with Kelly that it would lead to more definite knowledge if all our hospital records of cases of appendicitis should include a note as to any previous attack of typhoid fever.

If, as it has been shown, the occurrence of appendicitis during typhoid fever is not so common, it is certainly of the greatest importance to differentiate the two conditions. This is by no means easy. The pain, tenderness, and distention of the abdomen so often marked in typhoid fever in the region of the ileocecal valve might easily mislead us. But when, in addition to the symptoms given above, there is suddenly added muscular rigidity over that region, together with vomiting and a sudden increase of fever, we must suspect an involvement of the appendix. But often the question of diagnosis between these two diseases is imperative from the outset. This may be especially difficult when there may have been previous appendicitis and the earlier symptoms of the typhoid may be attributed to the old condition, especially when the distended bowel sets up pain in that region by dragging on old adhesions.

Bearing upon this point, Richardson, in the *Boston Medical and Surgical Journal*, January, 1902, says: "The surgeon must always be on his guard lest he fail to recognize typhoid, not only in its ordinary forms, but in its unusual and atypical forms, and subject his patient to an operation which, even if apparently made necessary by the clinical evidence, is entirely unjustified by the pathological findings." Also: "In acute abdominal lesions, considered from a surgical standpoint, four symptoms have especial weight, viz., pain, tenderness, muscular rigidity, and fever. No lesion of the appendix sufficiently extensive to affect the peritoneum can possibly exist without pain, tenderness, muscular rigidity, and fever. Let any one of these symptoms be absent and doubt as to the existence of acute appendicitis arises." In such cases, we must examine by every means in our power, for the presence of typhoid. As, for instance, whether there is any history of a typhoid epidemic in the neighborhood, or whether there were any prodromal symptoms. A careful blood count is of importance. The leucocytosis in typhoid is always low. This is a more reliable sign than the Widal test, as the latter test often fails to develop before seven to ten days, or even later. It should, however, be tried, for when it gives a positive reaction the question of diagnosis is settled.

The symptoms of perforation of the appendix in typhoid are similar in great measure to perforation in other portions of the intestines. When this accident happens, there is apt to be sudden acute pain, accompanied by a fall in temperature. This latter symptom occurs in case of hemorrhage, but without the pain. It is to be noted, however, that hemorrhage often precedes the perforation. Later the patient sinks rapidly into a condition of collapse, followed by symptoms of acute peritonitis.

The question of operation in these cases is a grave one, especially as we know that all operations in the later stages of typhoid fever have a high mortality. In true typhoid appendicitis experience thus far seems to point to a conservative treatment of such cases as are not of the gravest character, and do not show distinct symptoms of perforation. Kelly advises that, "in the absence of exceedingly urgent symptoms, the best general rule is not to operate. The clinical history of the collected cases seems to show that with the rarest exceptions there is no more reason for operating upon a true typhoid appendix than there is for cutting down upon the ileum and excising the affected Peyer's patches."

J. B. Murphy concurs in this opinion and says that typhoid appendicitis should not be operated upon unless there is a perforation. All will agree that a perforation demands an immediate operation, whether of the appendix or of any other portion of the intestinal tract. Post-typhoid cases should be treated as any other case of acute or relapsing appendicitis. Here operations should have no higher mortality than in appendicitis from other causes. When the operation is decided upon, it should be done rapidly, thoroughly, and with the strictest aseptic precautions, the surgeon remembering to inspect other portions of the intestines in the region of the cecum with the possibility of discovering other perforations.

The perforation of the appendix is treated as any other perforation of this organ, namely, by excision of the affected appendix. Perforations of the cecum or of the ileum in the region of the cecum should be rapidly closed by Czerny-Lambert sutures if possible. In case of rapidly approaching collapse, with a large perforation, it may be necessary to attach the affected portion of the bowel to the abdominal wall, making an artificial anus, which can be closed at a later date if the patient survives.

139 Park Avenue.

PARAPLEGIA CAUSED BY AN ANEURYSM OF THE ARCH OF THE AORTA.*

By BOND STOW, A.M., M.D.,

BLACKWELL'S ISLAND, NEW YORK.

PATHOLOGIST TO THE METROPOLITAN HOSPITAL.

Thomas V., colored, 39 years, laborer and painter. Admitted to Metropolitan Hospital, New York City, December 12, 1905.

Family history negative. Immoderate tobacco chewer and drinks beer and whisky to excess. Measles and chickenpox in childhood. At 17 had gonorrhea, followed by gonorrheal arthritis of the left knee and ankle. At 18 had hard chancre, followed by secondary lesions of syphilis.

Present illness began about two years ago, since when his chief complaint has been repeated paroxysmal attacks of coughing, accompanied by an excessive amount of a thin serous, watery, foamy expectoration. Repeated paroxysmal attacks of intense pain in the left upper thorax posteriorly between scapula and dorsal vertebræ. Always more or less dull pain over the upper dorsal vertebræ between the scapulæ. Occasionally complains of severe pain over the precordial region. Has paroxysmal attacks of dyspnea accompanied by an alarming cyanosis; dysphonia, the voice being rough and rasping in character; at times complete aphonia; dysphagia occasionally present, although the patient never complained of pain upon swallowing; at times there was severe nausea, generally after the taking of food. Obstinate coprostasis. Pulse was irregular and weak, ranging between 72 and 96. Temperature ranged between 97° and 98° F. Respiration varied

*Read before the Section on Medicine of the New York Academy of Medicine, May 21, 1907.

between 20 and 44 per minute. Complete loss of motion in lower extremities. Sensory disturbances negative. Likewise trophic conditions. No incontinence of urine nor feces. Reflexes exaggerated. Slight atrophy from disuse of lower extremities. Apex beat in fifth interspace reaching the midclavicular line. Remaining heart boundaries not enlarged. There were no abnormal cardiac murmurs. The right radial pulse was felt sooner than the left. There was also a retardation of the crural pulses.

There was a retraction of the chest wall at the left apex and marked dullness on percussion in the upper half of the left thorax, both anteriorly and posteriorly. Auscultation posteriorly between the scapulæ gave a harsh, rough, rasping, systolic murmur. Coarse mucous râles were heard at the bases of both lungs.

Laryngeal examination showed a paralysis of the left vocal cord.

FIG. 1.—Aneurysm of the descending arch of the aorta. A. Spinal cord in depth of aneurysmal sac exposed to view. B. Organized blood clot 31 cm. in diameter removed from the walls of the aneurysmal sac. C. Thoracic aorta immediately below the aneurysm, showing a therosclerotic patches. D. Bodies of third, fourth, and fifth dorsal vertebræ destroyed by pressure atrophy from aneurysm. E. Lowest depth of aneurysmal sac. F. Opening from surface of arch of aorta into a small secondary aneurysm that connected with the primary aneurysm. H. Esophagus, showing the outer wall firmly adherent above to the aneurysm. I. Posterior wall of the right thoracic cavity near vertebræ. J. Posterior wall of the left thoracic cavity.

Uranalysis was negative.

Sputum analysis showed no tubercle bacilli.

Diagnosis of an aneurysm of the arch of the aorta with probable erosion of the upper dorsal vertebræ and compression of the spinal cord.

The man died December 7, 1906. The autopsy was performed 20 hours after death. Post-mortem rigor present. Hypostatic congestion of the dependent portions of the body. Pupils both equally dilated 4 mm. Muscular and subcutaneous tissues well developed. No edema present. No external marks on the body. Peritoneum smooth, glistening, and transparent. Mesentery and mesenteric glands normal. Peritoneal cavity contained a small amount of a pale, clear, amber-colored transudate. The abdominal organs were in normal situs. Diaphragm on the right side was at the level of the sixth interspace; on the left side at that of the fifth interspace.

Both pleural cavities contained about 500 c.c. of a pale, clear, amber-colored transudate. The pleura covering the upper half of the left lung was firmly adherent anteriorly and posteriorly to a large aneurysm of the arch of the aorta, as well as the thoracic walls, showing evidence of an old pre-existing pleuritis. The upper lobe of the left lung was atrophic in consequence of compression from the aneurysm. The lower lobe showed extensive congestion and edema. The right lung appeared about normal in size and consistency, and in its lower lobe showed extensive congestion and edema. There was nowhere in either lung any evidence of tuberculosis or of a previously existing pneumonia. The pericardium was smooth, glistening, and transparent. The pericardial sac contained about 200 c.c. of a pale, clear, amber-colored transudate. The left ventricle was firmly contracted. The right ventricle was collapsed. The coronary arteries showed arteriosclerosis. The blood-vessels on the surface of the heart were partially emptied. The left ventricle measured at its apex 1 cm. and at its base 1½ cm. The ventricle was not dilated. The left auricle measured 2½ mm. The right ventricle measured 3 mm., and the right auricle 1 to 2 mm. The endocardium was smooth, glistening, and transparent. All valves appeared normal. At the beginning of the arch of the aorta there was present endarteritis chronica nodosa syphilitica. At the transverse portion and descending arch of the aorta, also in the thoracic and abdominal aorta, were numerous calcareous deposits. At the descending arch of the aorta there was a large aneurysm which extended downward a distance of about 10 cm., and which filled up the entire upper half of the left thorax. The aneurysm was firmly adherent to the posterior thoracic wall and the bodies of the upper dorsal vertebræ. The bodies of the second, third, fourth, and fifth dorsal vertebræ were partially or entirely destroyed by erosion laterally, so as to expose the spinal cord for a distance of about 5 cm. The aneurysmal sac was filled with a large well organized firm clot that measured 31 cm. in circumference (see illustration).

The aneurysm protruded into the right pleural cavity, compressing both the esophagus and trachea, and pressing them to the right.

Examination of the remaining organs of the body proved negative.

Gross section of the cord above and below the point of compression showed nothing abnormal.

Microscopical sections of the cord above and below the aneurysm also showed nothing abnormal. The multipolar cells were well developed and their nuclei stained normally. There was no evidence of any changes in any of the main tracts of the cord.

The diagnosis was: Aneurysm of the descending portion of the arch of the aorta, with erosion of the bodies of the second, third, fourth, and fifth dorsal vertebræ.

Concentric hypertrophy of the left ventricle. Chronic endarteritis nodosa syphilitica, with calcareous degeneration of the aorta. Passive congestion and edema of the lower lobes of the lungs.

Pressure atrophy of the upper lobe of the left lung. Old pleuritis of the left lung. Immediate cause of death, hemorrhage from rupture of the above mentioned aneurysm.

Remarks.—Aneurysms of the arch of the aorta naturally follow the line of least resistance, and thus usually cause destruction of the sternum and anterior thoracic wall. In the present case the previous pleuritis had caused a fixation of the aneurysm to the dorsal vertebræ and posterior thoracic walls, with consequent destruction by pressure atrophy of these parts.

VAGINAL IMPLANTATION OF ADENOCARCINOMA OF THE UTERUS—BLOOD METASTASIS IN RECURRENT CARCINOMA.

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In his book upon Cancer of the Uterus (p. 414), Cullen speaks of having seen only one case of adenocarcinoma of the vagina, secondary to adenocarcinoma of the body of the uterus; and says that such metastases have rarely been reported, and that the extension of the growth to the vagina is an unexpected complication, inasmuch as the lymphatics from the uterus do not pass toward the vagina. He further remarks that there are two ways in which this secondary involvement may occur: the first by implantation, the carcinoma cells from the body finding their way down through the cervix, clinging to the vagina, and there developing; the second through a backward flow of the lymph (*rückläufige metastase*). Fischer, reporting a case, inclined to the implantation view, but Cullen thinks it much more probable that in the cases cited the extension had taken place along the lymphatics, as there was no evidence of injury to the vagina which would have given the cancer cells a satisfactory location for development; furthermore, it is the degenerate and necrotic cells that are cast off, and not the living, active ones. Later in his book (p. 663) he refers to two cases of implantation during vaginal hysterectomy. Here there was recurrence in the scars where the vaginal walls had been incised to get more room during the operation; there was no recurrence at the original site. In these cases Cullen feels that metastases cannot be absolutely excluded.

Roberts ("Gynecological Pathology," p. 245) says that metastatic deposits are rare in cancer of the uterus. If they occur at all, the liver, lungs, and kidneys are mostly affected. Winter found in 202 cases of recurrence only nine real examples of metastasis. The lymphatic vessels of the vulva and the lower third of the vagina go to the inguinal glands; those from the middle third of the vagina and cervix to the iliac glands at the bifurcation of the common iliac arteries; those of the body and fundus pass along the broad ligaments with the ovarian vessels to the lumbar glands below the kidney.

Gebhard ("Pathologische Anatomie der weiblichen Sexualorgane," p. 546) differentiates implantation from "continuation," the former being in those cases where there is a separation by sound tissue between the cancer of the body and that of the vagina. He thinks we are forced to the conclusion that cells from the primary growth in the body of the uterus flow with the secretion and settle upon the eroded vaginal surface. Therefore if there is found in the vagina a malignant adenoma or adenomacarcinoma, then the interest of the patient demands a search for the primary condition in the corpus uteri.

In connection with the above I wish to report two cases of vaginal implantation of adenocarcinoma and one case of blood metastasis in recurrent pelvic carcinoma.

Case I.—I saw an unmarried lady of about sixty years in February, 1897, when I removed a polypoid fibroid of the uterus which had been forced through the cervical canal and was held by a pedicle. The fibroid was about the size of a lemon, and there was no apparent laceration of the cervical tissue. I saw her later, in February, 1903. She had been having a slight show. Examination showed the cervix irregular in outline, with a fungoid growth the size of a quarter dollar on the posterior vaginal wall opposite the external os. The abdomen was opened, but the uterus was found with the growth already largely invading the wall of the bladder. This condition, together with that in the vagina, made any attempt at a radical operation inadvisable. The growth in the vagina was extirpated and sent to the Free Hospital for Women laboratory for examination by Dr. Graves. The disease progressed slowly, the patient living for two years and three months. There was no breaking down of tissue through the vagina, nor was there any recurrence at the site of the extirpation of vaginal tissue.

Following is the pathological report: "February 12, 1903. Piece of tissue 1 1-2 cm. long by 1 cm. wide, rather soft. Microscopical examination shows the muscular wall of the vagina infiltrated by glandular masses growing in an atypical form. In places the gland arrangement is lost and the type approaches more the squamous variety. There is erosion of the surface with considerable inflammatory infiltration in places. The squamous epithelium is thickened and very vascular. Blood-vessels have greatly thickened walls. Many of the cells have large mucoid vacuoles. Diagnosis: Adenocarcinoma of the vagina (secondary)." There was no autopsy in this case.

Case II.—This patient was seen in February, 1903. An unmarried lady, fifty-two years of age, reported flowing for twelve years. At the age of thirty she had a similar spell of flowing lasting for two and a half years. The examination showed a large uterus the size of two fists, with a growth about the size of a quarter dollar on the right lateral vaginal wall close to the cervix. The fungoid growth had much the same feel and appearance as that in the first case. The patient had mitral insuf-

ficiency, and had a severe hemorrhage when making her arrangements at the hospital for a bed. The operation was delayed for more than a month, but the flowing could never be stopped entirely, and a hysterectomy was done as a last resort. The heart could not stand the strain and she died. Dr. Graves' record is: "Very large uterus (three times normal); soft, thickened muscular wall. Section shows endometrium to be occupied by necrotic mass of fungoid tissue, having fine, delicate, finger-like processes. The growth seems most prominent in a circular portion of the posterior (?) surface of canal, about the diameter of a silver dollar. The process does not seem to have invaded the muscular wall to any considerable extent. Microscopic examination shows the masses of necrotic tissue to be made up of rapidly growing epithelial cells, which occasionally show a definite glandular tendency. Diagnosis: Adenocarcinoma of the body of the uterus."

These two cases, one supplementing the other, point to "implantation" in the vagina as the reasonable conclusion. Neither a backward flow of lymph nor the blood current would be likely to present the lesion in two cases in so nearly the same location; whereas a discharge from the uterus through the cervical canal would impinge on the posterior vaginal wall opposite the os externum just where these vaginal growths were found.

Case III.—The case of blood metastasis rests upon the post-mortem examination. The patient, about forty years of age, had a hysterectomy for cancer of the cervix. This was in the spring of 1905. In August, 1906, she developed a cough. A few months later she had signs of a pelvic recurrence, resulting in pronounced edema of the left leg and then of the right leg. The report of the post-mortem examination made by Dr. Leary of Tufts' College Medical School is as follows: "Body of a woman of about forty years, well developed, fairly nourished. Both legs markedly swollen, reddened, and edematous. In median line of abdomen midway between the umbilicus and symphysis is a ragged linear scar 9 cm. long. Abdomen distended. Subcutaneous fat small in amount. Costal cartilages generally calcified in central portions. Pericardium normal. Heart of normal size; valves and cavities normal; muscle pale and flabby. Pleural adhesions, rather easily separated, are found attaching lung to chest wall over lower parts of both backs. The left chest contains about 300 c.c. of a bloody serous fluid. The lungs over region of adhesions, *i.e.* lower backs, show flattened, grayish-white, opaque masses of tissue varying from 0.3 to 1 cm. in diameter, occurring singly or in conglomerate masses, and limited in good part to the portion of lung just beneath the pleura. The lower lobe of right lung contains, in addition to masses along pleural surface, many large, solid nodules occupying most of the lower portions of the lobe. The largest nodule, 3 cm. in diameter, projects onto the pleural surface over the diaphragm. Lungs are otherwise normal. On diaphragmatic pleura, over left upper margin of right lobe of liver, and opposite large nodule in right lung, are three flattened papillary nodules, 0.5, 1x1.5, 1x1 cm., respectively, in surface area, and 0.5 cm. deep. Over parietal pleura on both sides, in region of adhesions, are a few scattered, small, flattened masses of new growth. Bronchial nodes enlarged; largest 3x2.5x 2 cm. On section, tissue of nodes is seen to be replaced by a grayish-white new growth, which is opaque in places, elsewhere translucent, and soft. Mediastinal nodes above bifurcation of bronchi are similarly enlarged.

"Abdomen. Intestines distended by gas. Omentum adherent to abdominal wall along region of scar. Firm adhesions also bind the ileum 30 cm. from valve in a U-shaped fold, not tightly constricted, however, to the tissues over sacrum below pelvic brim to the right. The sigmoid is bound in a similar fashion for 15 cm. of its length beneath the pelvic brim to the left. The hand in the pelvis meets a bridge-like, dense band of tissue crossing pelvis from side to side, firmly adherent to bladder in front, and leaving a wide space behind into which rectum can be followed. Pelvic contents removed with difficulty on account of a mass of tissue of pork-like density on left side of pelvis, and general retroperitoneal inflammatory thickening. The bridge of tissue described is dense, is thickest above vault of vagina, and shows a small abscess cavity in connection with the vault of the vagina on the left side, by an opening 0.4 cm. in diameter. The tissues along the pelvic wall to the left are dense and on section disclose several veins, including the internal iliac, which are filled with almost completely organized thrombi. The left external iliac vein is imbedded in dense inflammatory tissue, and is filled with an almost completely organized clot up to 4 cm. below the union with the right common iliac. Right external iliac is distended with currant-jelly clots almost to junction with left. On laying open inferior cava, the intima is seen covered by a ragged clot, opaque, rather dry, adherent to wall, leaving a small central lumen, and extending up to just below the entrance of the renal vein. The lower retroperitoneal nodes are swollen, gray, and soft. The upper retroperitoneal nodes, including the gastrohepatic nodes and the lower mediastinal nodes, are not enlarged.

"Liver not remarkable except for some slight opacity and increase in density in right lobe, to right of suspensory ligament on anterior edge. Organ generally soft, pale, showing markedly deeper color in center than peripheries of lobules. Gastrohepatic nodes not palpable. Spleen small, not remarkable. Kidneys large, soft, moist, some post-mortem changes in right. Marking normal. Capsule peels smoothly.

"Bladder distended with urine. Walls of normal thickness, except where adherent to band posteriorly; here the thickening is limited to the perivesical connective tissue; the muscle and mucous coat being normal. There is marked injection, with petechial hemorrhage of mucosa, about sphincter vesicæ. The orifice of right ureter is somewhat dilated, as is the ureter above orifice; but mucosa is smooth and normal to inspection. Intestines normal, except for adhesions noted. Aorta not remarkable.

"Diagnosis: Total extirpation of uterus. Recurrent carcinoma of pelvic connective tissue; of iliac, retroperitoneal, and mediastinal lymph nodes; of lungs and pleura. Obliterative endophlebitis of common, external, and internal iliac veins and pelvic branches. Thrombosis of inferior vena cava. Hemorrhagic cystitis. The absence of a continuous chain of glands in the retroperitoneal region and in the mediastinum leads to a belief that the lung processes originated through blood metastasis. Microscopical examination of the pelvic tissues shows invasion of the walls of the vein and arteries, although no penetration through the intima was discovered."

I will say in conclusion that methylene blue was

advised as soon as the recurrence was recognized, but was persistently declined by the patient; trypsin was injected later. The autopsy shows that the case was wholly unsuitable for any such treatment.

419 Boylston Street.

HEART DISEASE AND BLOOD PRESSURE.

PHYSIOLOGICAL REEDUCATION IN THE CURE OF CARDIOVASCULAR DISEASE RESULTING FROM HIGH TENSION.

By LOUIS FAUGÈRES BISHOP, M.D.,
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The recognition of the functional element in cardiovascular disease marks perhaps the greatest single advance in the appreciation of the therapeutic needs of patients suffering from disorders of the heart and circulation. If we believe that the therapeutic modification of function is of advantage only so long as the effect of our remedies lasts then must we indeed be therapeutic nihilists, for truly enough we cannot continue indefinitely to use vasodilators, cardiac stimulants, and alteratives. We have faith in the cure of cardiovascular disease because the persistent and patient modification of function by diet, drugs, suitable exercise, and a carefully selected environment finally educates the person's physiological activities so that they act normally after the withdrawal of active measures. This education or reeducation by which functional derangements are removed, holds out hope of a permanent cure of hypertonia vasorum and the removal of damaging high blood pressure. It is, of course, most useful before tissue damage has been wrought by the pressure violence to the nutritive vessels of the heart, brain, or kidneys.

In an early case of high arterial tension of nervous origin the important element in physiological reeducation consists in training the victim to eliminate worry and a tendency to too great concentration of interest in whatever pursuit is occupying him. Worry is in a measure a habit, and can be eliminated by a person of strong intellect, who definitely decides to let events in a measure take their own course, and the too great concentration of attention on one's occupation is a self-indulgence that often ignores the importance of other things and the legitimate claim of the lighter things of life upon the attention.

The business man should be contented with a reasonable financial success, and the professional man with a reasonable degree of distinction. The patient should deliberately eliminate under the advice of his physician all unnecessary burdens of responsibility. If the man or woman has occupied a position of trust, and has given that devotion to his work that has led to hypertonia in his circulation, he is certainly entitled to pass the burden on to some one else. Often enough when unnecessary burdens are thrown off it is perfectly possible to take care of what are left. The world is not going to be reformed in one generation, and no one was ever meant to carry the burdens of the universe.

Next to worry and undue concentration of mental effort comes the question of nutrition and diet. Many persons consider themselves undernourished, when in fact the opposite is the case.

A critical examination of the blood and urine often shows distinct evidence of an excess of food in persons, who are seeking to be built up by physical rest and a diet selected for its nutritious qualities. When this is the case, the food should be restricted in quantity—sweets eliminated, and meat greatly reduced in quantity. The popular prescription of withholding from these patients all food that has contained blood may be extreme, but it is in the right direction. Third, but not least in importance, is the matter of physical exercise. Here we come upon the relationship, which I have often traced, between the tone maintaining function of the brain over the voluntary muscles, and a possible similar function with regard to the involuntary muscles. Exercise should be carried on systematically, whether the patient feels like it or not. A distaste for physical exercise often goes with this condition, and must be overcome by emphatic instructions of those responsible for the welfare of the patient. There is undoubtedly some advantage in the resistance movements, though massage does not seem suited to many patients with high blood pressure. It has seemed to me that the resistance movements were valuable in removing overtone through some connection with the tonus of the voluntary muscle. While the patient is under treatment or reeducation the circulation must be regulated as far as possible by drugs that improve the muscular tone of the heart, and those that overcome an excess of tone in the blood-vessels. These must be given under skilled direction of some one who has the knowledge and authority to regulate the time, quantity, and nature of the medication, almost from hour to hour, to meet the manifestations of the pathological physiology of the disordered circulatory system. In some instances a few weeks will counteract the commencing high tension and the individual may go on for years without its developing again. In more severe cases several months are necessary. In those that have lasted a long time a year is necessary for the physiological reeducation. The intelligent cooperation of the patient and the friends of the patient are absolutely necessary. In difficult cases the work is most discouraging at first, though often enough after a few weeks the beneficial results become rather suddenly apparent to every one. Where there are distinct evidences of broken compensation, treatment must, of course, be commenced by keeping the patient in bed, but these very patients can often least afford the debilitating effect of bed treatment, and the sooner outdoor treatment can be instituted the better. An attack of apoplexy does not preclude the possibility of good results from physiological education in high pressure cases, but, of course, makes the problem more difficult. Particularly is this true when, as is often the case, there is a distinct tendency to depression of spirits, approaching melancholia; for the mental tension that goes with this state makes the high tension hard to control. Physiological reeducation should begin early, but unfortunately this newly recognized condition of idiopathic vascular overtone is not generally enough recognized for the necessity of such active treatment to be appreciated as often as it should.

In its early stages it is a disease without symptoms because the heart first brings into play its reserve force, and then painlessly becomes enlarged, and the severer accidents of the development of Bright's disease, of apoplexy, or heart failure only have to do with the fully developed condition. It behooves every one, particularly if over fifty, to have vital organs inspected at regular intervals, so that overtone may be early recognized and prevented.

In a paper read before the New York State Medical Society this winter in Albany the former president, Dr. H. L. Elsner of Syracuse, pointed out that physicians themselves should be on their guard lest they suffer from the evils of high tension in their own circulation.

54 West Fifty-fifth Street

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

PUBLISHERS

WM. WOOD & CO., 51 FIFTH AVENUE.

New York, July 13, 1907.

HYGIENIC REQUIREMENTS IN BOOKS AND JOURNALS.

ONE would suppose that medical men, who preach hygiene at every convenient opportunity and who accept unhesitatingly, in theory, the principle that prevention is better than cure, would be themselves the first to apply the hygiene they advocate, even if they cannot force it as yet upon the world at large. Yet it is a curious fact that, in the aggregate, physicians are as little given to hygienic living as laymen of the same social grade. A little reflection, and perhaps a little introspection, will convince any one that there is no exaggeration in this statement. In view of this one finds no occasion for surprise that many of the books and some of the journals printed for the use of medical men offend against all the rules of ocular hygiene. The human eye was developed under conditions very different from those which now prevail in civilized life, and that its prevailing employment in reading, writing, and other near work is not that for which it was constructed, but strains it to and beyond the point of fatigue, is undeniable. The headaches and other ocular reflexes consequent upon the use of the uncorrected, and the abuse of even the corrected, eye carry conviction of the truth of this statement. It is too late, it is impossible, to return to Nature; civilized man's eye work is near work. In the course of ages, perhaps, the human eye will be able to read the finest print with ease, while the limits of distant vision will be drawn closer. Whether man's sum of happiness will be thereby increased or lessened depends upon the point of view. In the meantime it is the duty of printers and publishers to supply him with reading matter of such an exterior as will put the least possible additional strain upon his already much abused eyes.

In the *Popular Science Monthly* for June, 1907, Professor Edmund B. Huey discusses the hygienic requirements in the printing of books and papers. Just what form of type, spacing, and size of page are least offensive to the eye are matters which have not yet been definitely settled, but of some requirements, he says, we can now be certain, and these should be vigorously enforced in the printing of school books and government publications, and we may add of those intended for use by medical men. The optimum type is of the size called eleven point, and fatigue of the eye and brain increases rapidly as the size of type decreases. As a compromise between the printer and the reader ten point type—the type of this page—is satisfactory, but any below eight point—the smaller type of the Society Reports in the MEDICAL RECORD—is inadmissible. The space between the letters should be from 0.3 to 0.5 millimeter, and wide spacing, such as is used instead of italic in German publications and in a few unwise imitators among medical journals in this country, is confusing and trying to the eyes. The legibility of the smaller type is increased somewhat by leading, or the spacing between the lines, but it is questionable whether Javal is not right in holding that the space for such interlignage could more advantageously be used for larger type, with less leading. The length of line, Huey says, is very important. A long line necessitates considerable lateral movement of the eyes, and it also calls for more or less assymmetrical accommodation, since, except at the middle point, the reading matter is always further from one eye than the other. In reading a short line the excursions of the eye are about nil, since the beginning and end of each line are read in indirect vision. There is less fatigue therefore in reading a page divided into columns of the width of those in this journal than in reading lines of page width, such as are found in some of the medical journals of magazine form.

As regards books, those of smaller size, which can be held in the hand, are preferable to those of large size and great weight, since "the larger books usually have to lie on a support, which exposes the letters at an angle, greatly lessening their legibility and producing the equivalent of a material decrease in the size of type." Another important requirement, to which Mr. Huey refers, and one upon which we have repeatedly commented, is that the paper should be without gloss, which is especially trying to the eyes. Medical publishers are often great offenders in this respect. In order to bring out the halftone illustrations well they use highly sized paper, with the result that the eyes of the reader are dazzled and fatigued by the reflection of light from the polished surface. This is a great evil, and it is one found in some medical journals as well as books. However much the illustrations may add to the value of an article or a treatise, they should be subordinate to the text. The paper of the reading page should be white in color and dull in finish, and the already sufficiently strained eyes of the reader should not be made to suffer still more for the sake of a halftone or an *x*-ray picture.

Mr. Huey, in concluding his interesting article, quotes Shaw, who says in his "School Hygiene": "Principals, teachers, and school superintendents should possess a millimeter measure and a magnifying glass and should subject every book presented for their examination to a test to determine whether the size of the letters and the width of the leading are of such dimensions as will not prove injurious to the eyes of children. If every book, no matter what its merits, were rejected if its type were too small, the makers of such books would very quickly bring out new editions with a proper size of type." This recommendation applies with equal force to books and journals offered to the medical reading public, and it is worthy of consideration by the publishers of such works.

THE RUSSELL SAGE INSTITUTE OF PATHOLOGY.

In giving the sum of $300,000 for the purpose of endowing an institute for pathological research to be connected with the City Hospital and City Home on Blackwell's Island, Mrs. Sage has indicated a new field for benefaction by public-spirited citizens of wealth. The city's institutions on the Island have always suffered through lack of adequate facilities in this direction, and though of late years, thanks to the more enlightened spirit in which the office of Commissioner of Charities has been administered by its recent incumbents, conditions have greatly improved in many other ways, little or no provision has been made for the proper support of the pathological work. By the establishment of this fund the control of the laboratory is definitely removed from the sphere of political interference which would inevitably come into action were the attempt made to improve the existing conditions by placing the scientific workers on the pay rolls of the city. Through the cooperation in this way of private beneficence and municipal support, the extremely valuable material of the city's institutions can be satisfactorily studied by salaried investigators, special research work can be provided for, the necessary equipment and library facilities can be supplied, and the results obtained can be published in suitable form. The practicability of such a combination has already been demonstrated by the success of the Senkenburg Pathological Institute of the City Hospital of Frankfort, Germany, and on a somewhat smaller scale in Boston, where the City Hospital has at its disposition a number of private endowments. Under the administration of the wisely selected board to which Mrs. Sage has entrusted the management of the Institute, its value to the city and to medical science is assured, and New York is to be congratulated on a noteworthy addition to its list of scientific institutions.

The importance of this gift is far from being merely local, however. It has often been pointed out that though the average expectation of life has been lengthened during the last decades, it is only the younger individuals who profit by this practical result of the advances in medical knowledge enjoyed by the present generation. This is not strictly true, since it has been shown that length of life is increasing even for those past the half century mark; nevertheless it is mainly in dealing with the infectious diseases—which have their greatest mortality among the young and middle-aged—that preventive medicine asserts its triumphs, while the maladies and tissue changes of middle age and senescence have undergone no commensurate study. Leaving aside the question of cancer research, the study of the diseases of advanced age bulks small in the annals of modern investigation, and though many valid reasons can be urged in support of this discrimination, the time seems ripe for an extension of the field of effort. Mrs. Sage, and those whose counsel shaped her benefaction, have pointed a way which it is to be hoped many others will follow. In every large city there are public institutions rich in material demanding elaborate clinical and laboratory study at present out of the question through lack of financial support. By the establishment of funds similar to the Blackwell's Island foundation not only would the immediate lot of the inmates of such hospitals and homes be alleviated through the increased interest in their care, but results of the greatest possible importance to the race at large would be achieved in no small measure.

PARETIC DEMENTIA.

The diagnosis of paretic dementia is not always easy, as its symptomatology may be closely simulated by that of other forms of disease of the nervous system. Dependence should not be placed on any one symptom or even on a small group of symptoms, but careful consideration should be given to the aggregate of physical symptoms and signs. The disease has been defined as a parenchymatous degeneration due to a loss of durability of the nerve-cells and a premature decay of tissue in which inherited and acquired conditions take part, with the result that progressive death of the last and most highly developed nervous structures ensues as soon as their initial energy is unable to cope with the antagonistic influence of environment.

In a paper dealing with the clinical aspects of paretic dementia, Dr Irwin H. Neff (*American Journal of Insanity*, April, 1907) expresses the opinion that the disease has an organic basis, on which mental symptoms are superimposed. He holds that the clinical inconsistencies by which frequently the affection is marked and the association of analogous symptoms with other forms of organic disease render it improbable that paretic dementia represents a definite and exclusive mental entity. In other words the syndrome of paretic dementia may be brought about by various causes. Heredity of indirect character is probably a not infrequent predisposing factor. In view of the facts, the clinical differentiation is at times impossible. The late appearance of so-called characteristic mental and physical signs may prevent accurate diagnosis. The differentiation from arteriosclerosis of the nervous system, cerebral syphilis, chronic alcoholic insanity with organic changes in the brain, cerebral tumor, and sclerosis of the brain may be impossible, especially at an early or incipient stage. If paretic dementia be considered an organic disease of the brain, with secondary mental changes, its vagaries can be readily recognized and appreciated. A comparison of the mental symptoms with those of other forms of organic disease of the brain establishes clearly the absence of a well-defined clinical picture and the presence of multiform mental and physical signs.

Decapsulation of the Kidney.

Renal eclampsia and chronic Bright's disease have within the last few years been brought more or less within the domain of surgery. Felix Piéri of Marseilles has resorted to decapsulation several times in severe cases of eclampsia, and discusses in the *Annales de Gynécologie et d'Obstetrique*, May, 1907, the pathology, manner, value, technique, and indications of this operation, reporting several cases. He likens the kidney in eclampsia to the eye in glaucoma; increase in size, reddish-brown color, hypertrophy of the cortex, congestion, a diapedesis

of leucocytes, and alterations in Bowman's capsule are among the more common pathological findings. The operation consists of an incision the whole length of the external border of the kidney through the capsule, but not deep enough to destroy the parenchyma; then with the finger the capsule is torn down to the hilum both anteriorly and posteriorly. This is followed by a profuse hemorrhage, which relieves the congestion, frees the gland from its prison, and allows the exudates and toxin-laden blood to escape through the wound. The kidney is replaced and thorough drainage is established. The decapsulation is usually bilateral, especially if the toxemia is severe and rapid in onset. The hypertension being relieved, the secretory and circulatory functions of the kidney are immediately restored. The size is reduced, pressure on the glomeruli is lessened, and the mechanical, as well as the chemical, disturbances are removed. Eclamptic seizures cease, the amount of urine increases, and albumin rapidly diminishes. The author is not in accord with those who prefer conservative medical treatment at first, and favor a resort to surgery only after failure of the former, for in view of the pathology, he holds, surgical treatment is indicated as soon as the diagnosis is made. Its action is threefold; it arrests the process of nephritis, restores secretory functions, and stops the intoxication. Phocas and Bensis of Athens discuss the subject of decapsulation in the treatment of chronic Bright's disease in the issue of the *Archives Provinciales de Chirurgie* for April, 1907. Their operations were unilateral except in very severe cases, and even then there was an interval of nine or ten days between the interventions. Their operation differs but slightly from that of Piére in that a small incision only is made in the capsule before stripping by the finger. The results of the operation, the writers claim, are prompt and satisfactory. Dyspnea disappears, edema and ascites are rapidly diminished, and the lesser symptoms, such as headache, indigestion, vomiting, and diarrhea cease. There is a diminution in the quantity of the urine and a temporary increase of albumin. The latter, however, lasts but a day or two and then the amount gradually diminishes until at the end of a month or six weeks not even a trace is present.

Primary Typhlitis without Appendicitis.

It was formerly believed that all inflammatory diseases in the right iliac fossa originated in the cecum and were the results of a catarrhal process due to stagnating fecal masses (typhlitis stercoralis). The prevalent opinion now is that most of these conditions are in reality appendicitis. Deaver, Ochsner, König, Sonnenberg, and others deny the existence of a primary localized inflammation of the cecum without appendicitis. In the *Annals of Surgery* for June, 1907, C. A. McWilliams, treating of the subject of typhlitis without appendicitis, quotes many authorities both *pro* and *con*, and reviews the recorded cases of the past seven years. He admits that primary typhlitis is rare in comparison with appendicitis, but feels justified from the evidence which he has collected in holding that primary acute and chronic typhlitis may occur independently of appendicitis, dysentery, tuberculosis, actinomycosis, or cancer, and that it may be either idiopathic in origin or due to coprostasis. Numerous autopsy reports and findings at operation have confirmed him in this opinion. The disease in the cecum may go on to ulceration and perforation with the formation of a perityphlitic abscess or general peritonitis, while the appendix remains normal. Howard Kelly alone has reported fourteen cases presenting primary lesions in the cecum, the appendix being normal. The symptoms of typhlitis are similar to, and usually undistinguishable from those of appendicitis, and the indications for operation are also similar in the two conditions. It is well to bear in mind, however, that there is such a disease as primary typhlitis, especially when dealing with patients who have been operated upon for chronic appendicitis and who suffer from a recurrence of symptoms. This recurrence may be due to an attack of typhlitis, the treatment of which consists in the regulation of the diet, in the use of oil enemata, etc. Haberer reports that of ninety-six interval operations for appendicitis, in only fifty were the symptoms entirely relieved by the operation; forty patients continued to have more or less marked symptoms, such as obstinate constipation and severe pain, from which they had suffered prior to operation.

A Diagnostic Sign in Appendicitis.

While the study of the symptomatology of appendicitis has been developed to a very satisfactory degree, instances still occur in which the methods in common use do not meet all the requirements. Blumberg (*Münchener medizinische Wochenschrift*, June 11, 1907) describes a sign pointing to peritoneal irritation or inflammation which he considers will be found of assistance in the diagnosis of all peritoneal conditions, and especially of appendicitis. It consists in the fact that in palpating the abdomen in the neighborhood of an area of inflamed peritoneum, not only is the downward pressure painful, but if the examining hand is suddenly removed the abrupt recoil of the abdominal wall also gives rise to pain. The author has found that during an acute attack of appendicitis with peritoneal involvement patients invariably state that the pain caused by the sudden removal of the hand is greater than that caused by the pressure, while if the inflammatory process is subsiding the two painful sensations first become equal in intensity, and finally the pressure pain is greater than the other. The author believes that the sign is especially valuable in determining whether or not operation is indicated in early cases since its presence indicates that the peritoneum has already begun to take part in the inflammation. Its sudden appearance is therefore a danger signal, while its gradual diminution in intensity points to a subsidence of the peritoneal reaction. The advantage of the method is that it does not require an absolute estimation of the degree of pain caused by the palpation, which is often difficult to obtain, but demands simply a comparison of the intensity of the two painful stimuli which most patients are able to determine accurately.

Brass-Founders' Ague.

As in many occupations concerned with the smelting of metals, brass workers also suffer from various symptoms, which in this special instance are referable to the zinc used in making brass. These symptoms are tightness and oppression of the chest with indefinite nervous sensations, followed by shivering and profuse sweating. From a recent issue of the *Lancet* we learn that the English authorities have advised that certain regulations be put in force in connection with brass founding. Thus it is proposed that the pouring of brass should be prohibited unless there be (*a*) an efficient exhaust draught for the removal of the fumes at, or as near as possible to, the

point of origin, (*b*) efficient arrangements to prevent the fumes from entering any room or factory in which work is carried on, and (*c*) free openings to the outside air in the upper part of the room. Provisions are also laid down for the maintenance of a lavatory supplied with warm water, soap, nail brushes, etc. Women and girls are not allowed to work in any process whatever in which the pouring of brass is carried on. The most important of these regulations is the requirement of efficient means to remove the fumes which are the chief source of injury to the health of those engaged in the casting shops.

A Successful Campaign Against Criminal Abortion.

At the recent annual meeting of the Chicago Medical Society, Dr. Rudolph W. Holmes, Chairman of the committee, reported that the work had been principally in the direction of securing the removal of advertisements of abortionists from the daily press. In this the committee has been remarkably successful, having brought about a condition which never obtained before. It has removed all criminal medical advertising from the Chicago newspapers. Three of the leading newspapers consented to this line of action after a presentation of the facts by the committee. The others complied only after being notified by the postal authorities that they must comply or have their papers excluded from the mail, the committee having furnished the government with proof that the advertisers were willing to perform abortions. The committee also rendered valuable service in the prosecution of criminal operators, with the result that at least two have been sent to the Joliet penitentiary, others have left the city, some are being prosecuted, and the others and the newspapers are being watched. The work of this committee shows what can be accomplished by fearless, conscientious men, who are working for the good of the people.

News of the Week.

XIVth International Congress of Hygiene and Demography.—The detailed program of this congress, which is to be held in Berlin, September 23 to 29, 1907, has been issued and provides for an extensive series of discussions to be held under eight sections. The German steamship lines offer reduced rates to members attending the congress, and accommodations in Berlin may be secured through the Reise-bureau der Hamburg-Amerika Linie, Berlin W. 64, Unter den Linden 8. Tickets of membership may be obtained from the General Secretary, Dr. Nietner, Berlin 9, W. Eichhornstrasse 9. Full membership costs $5, and passive membership, which does not entitle the holder to take part in the discussions or to receive the printed report of the congress, costs $2.50.

Deaths Caused by the Fourth of July Celebration.—Reports received by the *Chicago Tribune* before midnight July 5 showed that the number of those dying as the direct result of the Fourth of July celebration was at least forty-five and the number of injured over 2,500. Since that time the figure has been greatly increased by later reports, and the number of deaths also will no doubt prove to be much greater. The statistics show a very considerable increase in the number of casualties and the amount of fire loss as compared with last year. In New York City three were killed by pistols and 126 were more or less seriously wounded by the same weapons. The number of those injured in this city by firecrackers and other explosives was over two hundred.

A New Street Cleaning Commissioner.—Mr. Macdonough Craven, Commissioner of Street Cleaning of New York City, has resigned, and the Mayor has appointed Dr. Walter Bensel in his place. Dr. Bensel is a graduate of the College of Physicians and Surgeons in the class of 1890, and has for fifteen years been connected with the Sanitary Bureau of the Department of Health, where he has done efficient service.

An Application for Additional Milk Inspectors.—Mr. Charles S. Hervey, Supervising Statistician and Examiner of the Department of Finance, has presented to Comptroller Metz a report on the application of Health Commissioner Darlington for $175,000, to be appropriated by the Board of Estimate for the purpose of hiring 100 additional inspectors to aid in the examination of the milk farms that supply the city. In his report Mr. Hervey quotes at length from the reports made in connection with the recent Aldermanic investigation of the pure milk question, and also from the report of the Mayor's special commission. He also relates the efforts of the Health Department, with its comparatively few inspectors, to accomplish results worthy of mention, and presents an exhaustive compilation of the analysis of samples of milk, together with figures showing that 119,163 inspections were made in 1906, 41,395 quarts of bad milk were destroyed, 660 arrests were made, and $12,880 was collected in fines. In conclusion, the examiner raises the question whether or not, with the additional force of 100 inspectors, the 30,000 or 40,000 farms, dairies, and creameries in the six States which supply milk to this city could be so effectively inspected as to insure the milk supply being pure.

Rockefeller Institute Appointments.—The Rockefeller Institute for Medical Research has adopted the following series of titles for its staff: Member, Associate Member, Associate, Assistant, Fellow, and Scholar of the Rockefeller Institute, and has made the following list of appointments: Members: Simon Flexner, Director of the Laboratories, pathology; S. J. Meltzer, physiology and pharmacology; E. L. Opie, pathology; P. A. Levene, biological chemistry. The following have been appointed as Assistants: Hideyo Noguchi, John Auer, Alexis Carrel, J. W. Jobling, Nellie E. Goldthwaite. The following are Fellows: C. M. A. Stine, Donald Van Slyke, Martha Wollstein, Maud L. Menten, Mabel P. Fitzgerald, Don R. Joseph, Benjamin T. Terry, Thomas W. Clarke. Scholar, Bertha I. Barker. Grants to aid special researches have been made to twenty non-resident workers.

St. John's Guild Floating Hospital.—The hospital steamship of St. John's Guild began its regular trips on Monday. The landings are West Fiftieth, West Thirty-fifth, and West Tenth streets on Mondays and Wednesdays, East Twenty-fourth, East Third, and Market streets on Thursdays and Saturdays, Metropolitan, Hudson, and Hamilton avenues, Brooklyn, on Tuesdays and Fridays. The vessel runs down to New Dorp, S. I., and return. The Seaside Hospital of the Guild is at New Dorp. Tickets of admission have been issued to the Department of Health, hospitals, and dispensaries, and any practising physician may obtain them on application at 501 Fifth avenue.

Jewish Maternity Hospital.—Plans have been filed for enlarging and remodeling the two four-

story and basement buildings at 270 and 272 East Broadway for the newly established Jewish Maternity Hospital. The remodeled edifice is to have a roof garden, and the necessary improvements are to cost $15,000.

Coroner's Records for June.—The Coroner's office during June received reports of 498 deaths. Of this number 236 were due to violence or accident, the remaining 262 being sudden deaths due to natural causes. Of the deaths by violence or accident, 52 were homicides, 29 were suicides, 39 bodies were found floating in the river; 80 persons were killed by fractures received from falls, 7 were killed by the collapse of a building, 14 died of gas poisoning, drug poisoning killed 7, two were shot, 4 were burned to death, and 2 resulted from caisson disease. Sixteen persons were killed by vehicles, 15 by the street railways, 9 by assault, 3 by malpractice, 3 by automobiles, and 3 by shooting. Of the suicides, 7 persons drowned themselves, 6 died by shooting, 4 by jumping, 6 by gas, 4 by throat cutting, and 2 by poison.

The New York Polyclinic for Diseases of the Stomach opened Saturday, July 6, at 521 East 120th street, the site of the old Harlem Hospital, under the direction of Dr. Mark I. Knapp. Part of the building will be reserved for original research, and as soon as practicable courses of instruction will be given in diseases of the gastrointestinal canal.

Illinois Branch of the Public Health Defence League.—This league is beginning an active campaign in Illinois. It is hoped that by October a State branch of the League, with headquarters in Chicago, will be thoroughly organized and equipped to carry on this vitally important work of assisting the constituted authorities in conserving the public health. The objects of this League are (1) to combat all forms of quackery and charlatanism; (2) to prevent food adulteration and drug substitutions; (3) to prevent the sale of narcotics and alcohol, disguised as patent medicines; (4) to prevent the circulation of indecent medical advertisements; (5) to advocate the establishment of a national department of health; (6) to carry on an educational campaign for the spreading of active knowledge concerning the public health and the inculcating of higher ideals; (7) to protect the public health by assisting its constituted authorities in the enforcement of existing laws, and by urging the enactment of uniform legislation in all the States on matters relating thereto; (8) to cooperate with other societies interested in any public health problem, and ultimately to effect a plan of union or cooperation of all organizations interested in the public health.

Hydrophobia in Chicago.—The bacteriological laboratory of the Chicago Health Department has improved its technique in the examination of material from animals suspected of rabies, so that the diagnosis can now be made within about an hour. The value of the method is attested by the satisfactory results that have attended its use in the New York Board of Health Laboratories since its introduction some time ago.

Dr. Walter F. Parker, Professor of Ophthalmology in the University of Michigan, has resigned and will devote himself to private practice in Detroit. His successor has not yet been selected. The chair is a full professorship, including ophthalmology only.

Dr. Abr. L. Wolbarst has been elected Professor of Genitourinary Diseases in the New York School of Clinical Medicine.

Typhoid Fever in Pittsburg.—The epidemic of typhoid fever in Pittsburg is increasing rather than diminishing in severity, and 498 new cases were reported during the month of June.

Probability of Death from Cancer.—Sir William Church, ex-president of the Royal College of Physicians, in addressing the Committee of Imperial Cancer Research Fund on July 1, said that the probability of dying from cancer was now one in twelve for all men above thirty-five years, and one in eight for all women above that age, as contrasted with one in twenty-one and one in twelve twenty years ago.

An Epidemic of Ptomain Poisoning.—About fifty persons living in Stamford, Conn., were made seriously ill on July 4 as the result of eating ice cream supposed to have been made from improper materials.

An Alleged Inexpensive Radioactive Substance.—The newspapers have been printing numerous cable despatches describing a new radioactive substance possessing many of the properties of radium bromide, and capable of being produced very cheaply. This was said to have been discovered by a young medical student, but unfortunately later reports state that the new body has little or no practical value as a source of radioactivity.

Boys Arrested for Selling Cocaine.—Four boys between the ages of fourteen and seventeen years were arrested last week in Newark for selling cocaine to schoolboys and were held for action by the Grand Jury. The youngest of the four was already under probation on a similar charge.

Japanese Immigrants Turned Back from Mexico.—A shipload of Japanese laborers who were brought direct from Japan to the port of Salina Cruz, Mexico, under contract to work in the mines, are being held in quarantine on account of the presence of disease among them, and will probably be turned back by the health authorities.

New Jersey State Medical Society.—At the meeting of this society held in Long Branch on June 26 officers were elected as follows: *President,* Dr. Edward J. Ill of Newark; *Vice-Presidents,* Dr. David St. John of Hackensack, Dr. B. A. Waddington of Salem, and Dr. W. J. McKenzie of Trenton; *Recording Secretary,* Dr. W. J. Chandler of South Orange; *Corresponding Secretary,* Dr. Daniel Strock of Camden; *Treasurer,* Dr. Archibald Mercer of Newark. The next meeting will be held in Cape May.

An English School for Mothers.—What is known as the St. Pancras School for Mothers has been opened in London. About fifty mothers are said to be already attending the school, which gives instruction in the care of children and provides a dinner for each pupil.

Obituary Notes.—Dr. Alfred W. Ford of Brooklyn died on July 2 of apoplexy. He was born in Augusta, Me., in 1853, and after graduating from the University of Virginia he received his medical degree from the New York University Medical School in 1872. He began practice in Brooklyn, and was made a member of the Board of Police Surgeons in 1886. He had long been a surgeon of the Sixty-ninth Regiment.

Dr. Richard H. Derby of this city died in Litchfield, Conn., on July 4. Dr. Derby was born in Boston in 1844, and was graduated from Harvard at the age of twenty years. Three years later he received his medical degree from the Harvard Medical School, and in 1870 he began practice in this city.

He early specialized in ophthalmology, and became connected with the New York Eye and Ear Infirmary in 1874. At the time of his death he was surgeon to this hospital, a member of the State Charities Aid Association, and a trustee for the New York Institution for the Blind.

Dr. JOHN MONSELL PEACOCKE of Brooklyn died suddenly on July 3, at the age of fifty-nine years. He was born in Limerick, Ireland, and was a druggist in Glasgow before coming to this country. He was graduated from the College of Physicians and Surgeons of this city in 1883, and had practised for many years in Brooklyn.

Dr. ALBERT E. CARRIER of Detroit died suddenly of heart disease on July 4 at the age of sixty-six years. He was well known as a specialist and as a dermatologist.

Dr. WILLIAM H. NELSON of Taberg, N. Y., died last week at the age of seventy-seven years. He had practised for nearly fifty years in Taberg, and was well known throughout the central and northern parts of the State.

Dr. DAVID GRANT of Los Angeles, Cal., died in Inverness, Scotland, on June 3, at the age of fifty-six years. He had spent many years in China as a medical missionary, and in Los Angeles, as an ophthalmologist, had made a specialty of diseases of the eye.

Dr. S. J. M. COX of Johnston, S. C., died on June 26, at the age of sixty-one years, after a long illness. He was born in Burke County, Ga., and had practised in Johnston for twenty-eight years.

Dr. CHARLES MUNGER of Knoxboro, N. Y., died on June 19 of cerebral hemorrhage. He was born in 1841, and was graduated from Bellevue College in 1871, having received part of his medical training at Ann Arbor. He practised in Knoxboro from 1871 to the time of his death.

Dr. EDWARD J. HADFIELD died at Phenixville, Pa., on July 6, at the age of thirty-nine years. He was graduated from Jefferson Medical College in the class of 1890.

Dr. R. E. WORLEY, a medical missionary to China, died at Swatow on July 7. He was a graduate of Rush Medical College, Chicago.

Dr. CHARLES W. CUNNION of Brooklyn died on July 7, in his thirty-fourth year. He was a graduate of the Manhattan College and the Long Island College Hospital.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

AMALGAMATION COMPLETED—ROYAL SOCIETY OF MEDICINE—COLITIS—FOOD EXPERIMENTS ON FOWLS—INTERNATIONAL CONFERENCE ON SLEEPING SICKNESS—PLAGUE—NOTIFICATION OF MENINGITIS—MEDICAL BILLS IN PARLIAMENT—OBITUARY.

LONDON, June 21, 1907.

THE amalgamation of our societies is now complete and in future we have the Royal Society of Medicine, with sections which embrace the societies which are thus replaced. A sort of continuity will thus be retained in the union of the several organizations. The first president of the new Royal is Sir William Church, and a strong council has been appointed, as well as honorary officials.

At the special meeting of the Medico-Chirurgical on the 14th the supplemental charter was "dutifully accepted" and adopted and thus the title Royal conferred on the new organization. The by-laws submitted by the committee of representatives of the several uniting societies were adopted as those of the Royal Society of Medicine. The president stated that much detail had yet to be accomplished and the new society would not be in full working order until the autumn.

At the concluding ordinary meeting of the Medico-Chirurgical before absorbing its sister societies Mr. Lockhart Mummery read a paper on colitis based on thirty-six cases. The sigmoidoscope had proved of great value in the study of the disease by bringing to light definite lesions in the lower bowel, mostly of a chronic nature. Ulceration was demonstrated in seven of the cases. The ulcers were irregular in outline and size, shallow, involving only the superficial layer of the membrane. In six cases Mr. Mummery found a new growth which had not been indicated by the symptoms. Among causes he mentioned pericolitis, abscess, chronic appendicitis, adhesions binding down and constricting the colon. The separation of these adhesions mostly sufficed to cure such cases. A much rarer cause was multiple adenomata of the colon. Abdominal aneurysm had seemed to be one cause. In only six of the cases had he failed to discover an adequate local lesion and he held that such a cause should always be searched for and must almost always be found.

Dr. Hale White said membranous colitis was a definite disease. The cases submitted in the paper were a small group which he distinguished as mucomembranous, in which the value of the sigmoidoscope could not be exaggerated. But there were other cases, especially in women, where no local lesion could be detected, and in these the whole colon might be affected.

Sir Dyce Duckworth said cases associated with nerve ailments were probably due to catarrh and many got well under treatment. There were all degrees of intensity and in some cases surgical aid might be needed.

Dr. Weber commented on the minor cases, which he, too, called catarrhal. Many might be due to chronic biliousness and were at first benefited by a dose of calomel. In other cases there were influenzal symptoms.

Dr. Cammidge found blood in the stools in five cases of cancer of the colon which he had examined, and regarded its constant presence as strongly suggestive. In forty cases of colitis he found the stools alkaline. The saponified fat was much in excess.

Dr. Phillips objected to attributing ulceration to constipation, which he thought was rather an effect than the cause. Some cases were syphilitic.

Dr. H. A. Coley considered some of the alleged causes were more likely consequences. Adhesions were probably the effect of pericolitis and appendicitis was more often the sequel of colitis than its cause.

A further paper was communicated by Dr. Forsyth, based on the results of feeding fowls on an exclusively meat diet and with a sufficient supply of lime. The experiment led to the conclusion that bone changes reported by previous observers were not caused by excess of proteids, but by insufficiency of lime. So with regard to the thyroid, the weight of one lobe alone had misled some, as the two were often unequal. Moreover, birds sometimes suffered from goiter.

On sleeping sickness an international conference is being held this week in London. To the invitation of this Government those which have colonies and protectorates in the infected regions have responded by sending delegates. The conference was formally opened by the president, Lord Fitzmaurice, in a speech enumerating the results of investigations already made, pointing out that cooperation would prevent overlapping of expert research and saying it is in the hope of organizing the forces of administration to the best advantage against the common enemy that His Majesty's Government has invited the powers concerned to send representatives. By way of initiating discussion he submitted for the consideration of the delegates the following, not as complete or excluding others, but to serve as a scheme for their deliberations: The question of holding annual or biennial conferences and of establishing a central bureau to circulate new literature on the subject. Further, as to the question of assigning definite points for investigation to particular countries or individuals, such as for example:

(a) Whether *Glossina palpalis* is the direct or indirect conveyer of the trypanosome. (b) Whether this undergoes developmental changes in the glossina. (c) If so, whether it is conveyed by the original glossina or by its larva when it reaches the virago stage. (d) How long an infected glossina continues infective. (e) Whether other species convey the trypanosome. (f) The distribution of the infecting species and their habits. (g) The rôle which vertebrate fauna other than man may play in spreading the infection. (h) The best methods for exterminating the glossina. (i) The best methods of preventing the introduction of the infection into virgin country, and (j) of controlling the spread of the disease in an infected district, including segregation of the infected and removal of those not yet infected. (k) The experimental study on animals of drugs which destroy the trypanosome. (l) The therapeutical application of these drugs to man.

The Croonian lectures at the College of Physicians this

year are being given by Dr. W. J. R. Simpson, who has taken for his subject "Plague." His opening lecture on Tuesday he devoted mainly to a description of the bacillus and its culture and an account of salient facts as to the history of the disease. This history is divided into two periods by the discovery of the bacillus in 1894—the first period extending over thousands of years, the second, so far, over only thirteen. The discovery gave certainty of diagnosis and led to the further discovery of Haffkine's prophylactic. The lecturer said that great epidemics not only destroyed large numbers, but left evil effects on the living, of whom many became overwrought, hysterical, fearful and selfish, so that the most sordid passions were displayed by the unbalanced portion of the population. As an instance he mentioned the massacre of the Jews in the great plague of the fourteenth century on account of rumors that they had poisoned the wells. A recrudescence of such suspicions had been seen in the Punjaub, where the British residents were regarded with suspicion. Various suggestions had been advanced as to the causes of the retrocession of the plague from Western Europe. One of them he certainly believed had considerable influence, viz., the change from overland to sea travel, with its consequent freedom from contact with trade caravans from the endemic centers in Messopotamia and Arabia. The lecturer then dealt with the dissemination by dogs, rats, and other animals. The association between rats and plague, he remarked, was a very old observation. On old coins Apollo and Æsculapius were each represented with rats at their feet.

Since the notification of "cerebrospinal fever" was made compulsory (March 12) fifty-six cases have been notified and the question has been raised whether the term includes posterior basal meningitis. The health committee of the County Council consulted the president of the Royal College of Physicians, who referred it to a committee, which has reported that there are cases in which differentiation is impracticable and added that so far as has been ascertained both diseases tend to occur during the earlier months of the year, and that although the occurrence of the disease in both instances is epidemic, in neither has it the characteristics of a spreading malady. It is therefore recommended that as the season of prevalence will not recur for seven to nine months the order for notification should he extended for two years, so as to cover two possible epidemic periods.

The Apothecaries' Bill has passed both houses of Parliament and only awaits the royal assent. It gives power to restore (with the consent of the General Medical Council) the name of a licentiate which has been removed, and it grants the desire of the licentiates to alter their title from L. S. A. to licentiate in medicine and surgery. Much good may it do them.

The bill for incorporating the King Edward VII. Hospital Fund is being delayed by a motion which has been introduced with a view to establish a council representative of medical and vested interests.

The bill for providing medical inspection of school children has passed the third stage and, unless the government push forward the larger measure, is likely to reach the statute book.

Dr. Julius Dreschfeld, Professor of Medicine in the Manchester University, died on the 13th inst., aged sixty-one. He was elected on the staff of the Royal Infirmary in 1873 and the next year to the Professorship of Pathology, Owens College. About a year ago he had to give up much of his work from ill health, and finally he succumbed rather suddenly. He was a physician of great attainments and had enjoyed a large consulting practice. He was elected a Fellow of the Royal College of Physicians in 1883, delivered the Bradshaw lecture in 1886 on "Diabetic Coma," and was to have given the Lumleian lectures next year. He was examiner from 1896 to 1898. He also served as examiner at the University of Cambridge and was an ex-president of the Therapeutical Society. His contributions to the medical sciences were numerous. As a teacher he was greatly esteemed.

The death is announced of Brigade Surgeon Benjamin Lane, who was born in 1827, entered the army as assistant surgeon in 1852, and retired in 1882. He was in the Burmese war, 1852-3, including the attack on Tomboo, received the medal and clasp, was mentioned in general orders by the Commander-in-Chief in India for his assiduous attention to the sick on the occasion when the whole detachment at Tomboo was suffering from fever. He was also mentioned in dispatches during the Indian mutiny and was on the banks of the Jumna in the action March 5, 1858, for which he was also awarded a medal. He leaves a son, who is one of the surgeons to Guy's Hospital, and three daughters.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

GONGOSA—THE CENSUS OF MANILA—LOW DEATH RATE AND IMPROVING HEALTH CONDITIONS.

MANILA, P. I., June 1, 1907.

THE regular monthly meeting of the Manila Medical Society was held at the St. Paul's Hospital at 8:30 P.M., May 6. Doctors Musgrave and Marshall of the Bureau of Science gave some further informal notes upon the case of gongosa which recently died at the St. Paul's Hospital, and mention of which has already been made. After reviewing the anatomical findings, Dr. Marshall expressed the opinion that no positive diagnosis could be made, but that it seemed to him that the lesions had many points in common with tuberculosis. A number of others who took part in the discussion pointed out, however, that if gongosa was a tuberculous manifestation it would seem remarkable that cases should be encountered only on the island of Guam and a few other Pacific islands, while tuberculosis is widespread throughout the world.

The census which the Bureau of Health took of the city of Manila during the month of January has finally been completed and will be used in compiling the vital statistics hereafter. It shows that the population of the city has grown from 219,941, the official figures of the United States census of 1903, to 223,542, which is an increase of 3,601, or 16.37 per 1,000.

The nationalities in which there was an increase are as follows:

American	810, or 18%
Filipinos	5,510, or 2%
Spaniards	375, or 14%
All other nationalities	248, or 27%

There is a considerable decrease in the Chinese population, the number having dropped from 21,230 to 18,028, or 15 per cent. The Bureau of Health accounts for the decrease in the Chinese population by: (1) The large emigration to the provinces which has taken place among the people of that nationality, as the peace conditions in the outlying districts have become more and more secure. (2) The operation of the Chinese exclusion law, which prevents the immigration of Chinese to the Philippines, thus preventing the replacing of the losses due to the mortality. (3) Few Chinamen have wives in the Philippines, consequently the birth rate is not sufficient to replace the number of deaths. (4) The return of many to China to spend the remainder of their lives. (5) The census being taken at a time when many Chinamen were visiting their country in order to celebrate the Chinese New Year.

The population of Manila by nationalities is now as follows:

Americans	5,199
Filipinos	195,202
Spaniards	2,903
Other Europeans	977
Chinese	18,028
All others	1,143
Total	223,542

The increase among the Americans probably caused more surprise than any other feature of the census, because it was the general impression that the American colony was steadily declining. The figures given above do not include the military.

Based on the above new figures, the death rate for the city of Manila for the first quarter of 1907 is 28.48 per 1,000, which is particularly low for a tropical country. This rate is apparently reached by many other tropical cities, but it is questionable whether the statistics are kept in accordance with the strict rules that are followed in Manila. Here all deaths due to violence and many cases that are usually classed as premature births are included. There are also hundreds of deaths occurring annually in the city among persons who come in from the provinces in order that they may die among their friends or to seek medical aid, or in order to be buried in some of Manila's attractive cemeteries. It is believed that if the statistics in other tronical cities were recorded on the same basis as those of Manila that this city would make a better showing than any other city of its size in the tropics.

During the month of April the weekly average of deaths for the city of Manila was 76.1, which is the lowest showing for any week since the American occupation. The next lowest showing was for the month of April, 1905, which was 78.9. This indicates that the health work which has been carried on systematically since the American occupation is gradually producing permanent results, and

the time is confidently looked forward to when the Philippines will be made as healthy as more temperate countries.

THE SCIENTIFIC TEMPERANCE FEDERATION.

To the Editor of the Medical Record:

Sir:—Within a very brief period the literature concerning the alcoholic problem has grown to enormous extent, and every year books, papers, studies of every kind and description are appearing until it is simply impossible for any student to follow everything written on this subject. To meet this want a society was organized last September in Boston, Mass., and incorporated by the laws of the State, called the Scientific Temperance Federation. Its object is to bring together all the facts and literature on this subject and make them available to every person who would like to know what is being said and done. This society is practically a bureau where every pamphlet, paper, and book containing information on any phase of the alcohol question can be gathered and put on file and made available for the student or specialist. The following quotation from its prospectus indicates the field that it will occupy: "Its aim is to bring together the facts developed by scientific research and experience, making them accessible to all persons interested in the great questions which grow out of this subject. . . ." It will enable the specialist, the student, and writer to place his conclusions on file where they can be sought for and examined and by this means all possible information on every phase of the subject concerning alcohol and narcotics can be brought together and made available. All books, pamphlets, papers, and statistical studies are classified and filed in such a way that the secretary can furnish an abstract on everything that is written, and in this way all writers of every description who wish to know the printed facts and studies of others can have them at their command. This society begins with a nucleus of over 2,000 pamphlets, books, and clippings gathered by the late Mrs. M. H. Hunt of Boston, Mass. This Federation will not conflict in any way with any other organization, but will endeavor to unify and supplement them by concentrating their work and making it available. For this purpose it is legally incorporated and expects to receive endowments and become a bureau of the greatest value for the dissemination of facts that are now lost for the want of such an agency. The subjects of alcohol and narcotics are closely related to insanity, crime, race degeneration, and the great problems of poverty, so that of necessity facts along these lines will be gathered and filed for study. For this purpose the bureau solicits papers, books, pamphlets, and data of every kind and description which can be classified and put in some available form for practical use. The Federation is a society with a small entrance fee, which entitles every member to an abstract or summary of all the facts on the literature of any particular subject along these lines. To others, not members, a small fee will be charged for a synopsis of any particular subject. A trained secretary will give her entire time and attention to the gathering and dissemination of facts bearing on these subjects. As chairman of the board of directors of this association I urge all writers and teachers who have anything new on these subjects to send them to this bureau, where they can be put on file and made available. The secretary, Miss C. F. Stoddard of 23 Trull street, Boston, Mass., will answer all inquiries for information.

T. D. Crothers, M.D.

Hartford, Conn.

Progress of Medical Science.

New York Medical Journal, June 29, 1907.

The Radical Mastoid Operation.—W. S. Bryant discusses in particular the indications for and results from the employment of the radical mastoid operation. His general conclusions are thus summarized: (1) The radical mastoid operation assures cessation of the purulent otitis. (2) It is an operation for the immediate relief of this condition. (3) It may be the operation of final recourse. (4) The hearing is much improved after the operation, since in a number of cases the auditory function of the middle ear can be almost completely restored. A very small number of cases derive no improvement in their hearing from the operation. (5) The cosmetic results are very satisfactory. (6) Paralysis of the facial nerve is a very rare and unexpected accident in skilful hands. (7) The results are uniformly satisfactory when the best technique is employed.

Diagnosis and Treatment of Gastric Neuroses.—J. D. Dunham directs attention to some of the more common gastric neuroses. (1) Nervous anorexia or a complete absence of the sensation of hunger associated with loss of appetite usually follows some great mental depression. The patient must be appealed to for aid and shown that his co operation and will power are necessary to a cure. Food should be given frequently and varied. A bitter tonic should precede. The worst cases call for sanatorium treatment. (2) Nervous vomiting. Cause is often difficult to determine; may concern only certain articles of diet. The majority of cases show normal acidity and normal fermenting power. Mental depression is sometimes present. (3) Nervous dyspepsia presents no demonstrable change in the stomach. It may follow debilitating diseases. Sexual excess or abdominal genitourinary disease is more common in the male sex. The patient afflicted with this malady experiences discomfort after food, a sensation of fulness, slight burning, belching, drowsiness, fulness in the forehead. These symptoms often continue through the period of digestion, and are followed by sensations of dizziness or weakness. In many cases the patient will be uncomfortable at all times, whether the stomach is empty or full. The intestines are not free from apparent disturbance. The patient says he feels that his abdomen is filled with gas and he is usually constipated. The ideal method of treatment includes sanatorium care, cold baths, forced feeding, tonics, etc. The intragastric use of electricity seems to be of some service in allaying the hypersensitiveness of the gastric nerves, though this may be only suggestive. Too much attention should not be concentrated on the stomach in such cases, but the general neurasthenic condition treated in its entirety.

Gastrointestinal Disturbances in Influenza.—In the experience of J. Kaufmann the gastrointestinal tract is but slightly affected in grippe. We may have anorexia alone, constipation, or initial vomiting. Occasionally the alimentary disturbance dominates the clinical picture. Such cases often present lower temperatures than the respiratory grippe cases and are apt to be more protracted. We may find here nearly all the manifold symptoms of acute diseases of the gastrointestinal canal, including hemorrhages from the gums, pharynx, or rectum. The symptom complex of appendicitis is occasionally present. Influenza bacilli have been removed from the diseased appendix. Peritonitis may occur, serofibrinous, or purulent. But few cases of jaundice from grippe are on record. In addition to these inflammatory disturbances we have the group of symptoms referable to the toxins of the disease. Their paralyzing effect on the glands and nervous system of the tract often cause a very slow recovery. In some cases a loss of taste is a very annoying symptom. Sometimes the emaciation is so great and efforts to combat it seem so futile that a suspicion of malignancy is aroused.

Acute Edematous Eversion of the Ventricle of Morgagni.—A general description of the condition is given by T. J. Reardon, who reports one case—that of a woman singer, aged forty years, who presented at first the usual symptoms of a lacunar tonsillitis. In a few days she recovered, but after singing noted a huskiness of the voice. After a sudden exertion there quickly came on dyspnea cyanosis and marked stridulous breathing. Edema of the larynx was suspected. The author was then called in and the right ventricle of the larynx was found so edematous as to shut off a view of the cords. The mass was as large as a pigeon's egg. Right arytenoid was practically immobile on phonation and inspiration. Posteriorly there was a small triangular space for the passage of air. Intubation gave immediate relief and the next day the larynx was practically normal. The peculiar localization of the edema is due to the close attachments of the ventricular connective tissue to the thyroid cartilage and the internal and external thyroideus muscle.

Journal of the American Medical Association, July 6, 1907.

The Return to Transparency of Incipient Cataract.—L. Connor reports six cases of striated incipient cataract, in which five lenses became quite transparent, one lense lost seven striæ, one lens lost two striæ, one lens retained a trace of striæ, in two lenses the striæ had diminished two-thirds, one lens became lightly opaque, and one more opaque. In one diabetic case both lenses became transparent and remained so until the death of the patient. In all, the lens opacity was in its beginning stage and therefore more hopeful, but these results were unusual, and Connor therefore sent out letters of inquiry as to this point to a number of ophthalmologists, attention being directed to the presence of striæ in the opacity. To this were received fifty-five negative answers; fifty-seven negative with comments, and thirty-four affirmative replies. In all, including his own cases here reported, and the cases he could find reported in the literature, fifty-one observers report about 147 cases in which the opacity of incipient

cataract has regained transparency in whole or in part. After eliminating all indefinite answers enough remains to show that "opaque striæ, with or without adjacent lens opacity, have been seen to fade into clear lens substance." All agree that it is rare and that it is most frequent at the earliest stage of development. The question remains: How was it done? and a closer study of the early development of cataract is suggested.

The Role of the Wood-Tick in Rocky Mountain Spotted Fever.—Experiments which, in his opinion, unmistakably connect the wood-tick (*Dermacentor occidentalis*) with the occurrence of spotted or tick fever of man in the Bitter Root Valley, Mont., are reported by H. T. Ricketts. Guinea-pigs were the animals used and the technique is described. The experiments seem to show that the transmission is not a mechanical one, but that the insect is itself infected. One tick carried its infectivity for fifty-four days, whereas, outside the living body, the viability of the virus under the most favorable conditions is less than half this period. Drying the virus usually destroys it in two days or less, and under ordinary atmospheric conditions it lasts only a week, and it is difficult to suppose its life could be extended in the tick's mouth for fifty-four days. The infected dose of the blood of animals suffering from spotted fever has never been found by Ricketts to be less than 0.05 c.c., and usually the minimal pathogenic dose is nearer 0.1 c.c. Yet one small tick infected three guinea-pigs at successive intervals, which, allowing the blood to possess the highest virulence, would require, if the transmission was simply mechanical, a considerably greater volume than the bulk of the tick itself. Hence, it seems necessary to conclude that the virus proliferates in the tick. The experiments also indicate that the adult tick which infects man in the spring does not of necessity acquire its own infection in the spring, but may have acquired it from some possible source during the winter or autumn while in the nymphal stage. The possibilities of larval infection and of hereditary transmission are now being investigated and the results will be reported at some future time. That the local effects of the tick bite (erythema, edema, etc.) have no relation to spotted fever is clear, since they follow the bite of the uninfected tick, but that the virus of spotted fever is introduced with the saliva is the most plausible assumption, though the possibility of infection by regurgitation from the alimentary tract remains to be considered. The proof that the tick winters as a parasite on animals is conclusive, though exceptionally it may be found in other situations. Examples of exceptional development are occasionally seen and may account for the occasional cases of tick fever observed as late as August or as early as February, instead of in spring, the usual time. The distribution and dissemination of the ticks is discussed, as well as the susceptibility of other animals than man, which is being investigated. It is certain that the ticks have increased greatly in numbers since the Bitter Root Valley has been well settled and the quantity of stock has increased. The indigenous gopher or ground squirrel is susceptible to the infection, but less so than the guinea-pig, and one infection causes future immunity. Ricketts does not now maintain that this animal is exclusively responsible for the maintenance of the disease, though this is possible.

Blood Pressure Variations in Diabetes.—A. R. Elliott publishes the results of blood pressure observations in 25 cases of diabetes, 13 males and 12 females, 13 of them under 50 and 12 of them over that age. The average blood pressure of the former was 107 mm., and of the latter 150 mm. Their average weight was 138 for those under 50 years and 175 for those over that age. Age and weight are thus apparently of importance in determining the degree of blood pressure. Acid intoxication (diceturia) was observed in 9 of the 13 cases under 50, and in only one of the others. The degree of glycosuria had no apparent effect on the blood pressure; in 15 of the 20 there was a maximum glycosuria of over three per cent., and the average blood pressure in these was 121 mm. In the other 10 cases it averaged 135 mm. So far as a conclusion can be drawn from these cases, it is that an inverse ratio exists between the degree of glycosuria and the blood pressure. This might be looked for, as the milder cases of diabetes are apt to be in elderly persons with some arteriosclerosis and consequent high pressure. As regards acid intoxication, it would seem, from Elliott's 10 cases, to be attended with hypotension, and he is inclined to credit this to the generally more asthenic conditions in these patients rather than to acid toxins acting directly. In no case was the excessive hypertension declared by Potain and Teissier to be characteristic of diabetes observed. All the evidence points to the fact that it is to the complications, especially arteriosclerosis and chronic nephritis, that we must look for the cause of the cardiovascular secondary conditions. The cardiac hypertrophy noticed by pathologists is due to these causes and not to the diabetes. The observations confirm Janeway's statement that the disease of itself is without influence on arterial tension.

Latent Diphtheria.—M. Solis-Cohen criticises modern methods of handling diphtheria infection, which by the disinfection of comparatively harmless fomites, etc., create a false sense of security, while paying little or no attention to the virulent bacilli often carried about by those who have been in contact with the patients or by the convalescent patients themselves. He uses the term "latent diphtheria" for those cases without pseudomembrane, but due to the specific diphtheria organisms. Twenty-seven cases are reported briefly, in nearly all of which presumed diphtheria germs were demonstrated, mostly by culture method. Mild atypical cases, he claims, are exceedingly common, frequently giving only the clinical picture of slight tonsillitis or pharyngitis, and even without any constitutional disturbance whatever. These latent cases are largely responsible for outbreaks and epidemics of diphtheria; they are just as contagious as the acute membranous type and call for the same precautions. Tonsillitis and pharyngitis should be included, therefore, in the notifiable diseases, and at least two negative throat cultures be obtained before any patient in whose throat virulent bacilli have been found shall be allowed to go at large. While there is a disagreement of authorities as to the distinction between the diphtheria and pseudodiphtheria bacilli, the error, if any, should be on the safe side. Nevertheless, Solis-Cohen thinks that the health authorities may properly disregard the presence of diphtheria-like bacilli in the throats of healthy persons who have not been in direct or indirect contact with a case of diphtheria, membranous, or latent, and who have not themselves suffered from sore throat. Otherwise they should, in his opinion, be subjected to the same restrictions as infected contacts residing in the same house with a diphtheria patient, *i.e.* be excluded from school or work and not permitted to frequent public places till two successive cultures have proved negative. Every one who has been in contact with the patient, whether at home, at school, or at work, should be examined bacteriologically. Disinfection of fomites and terminal disinfection of rooms and their contents is insufficient and reliance thereon treacherous. Animate carriers of infection are much more dangerous than the inanimate. He would not dispense with terminal disinfection, but would postpone it until after all the members of the household have been examined bacteriologically and found free from germs.

The Lancet, June 22, 1907.

A Dangerous Dry Shampoo.—H. C. Colman cautions against the use of tetrachloride of carbon, which is now having quite an extensive use by hairdressers in some of the English cities. On one occasion it was used on a woman who felt a severe scalp irritation, but was reassured by the operator, who said she would soon feel all right. Her next recollection was that of finding herself propped up on the floor, a wet towel round her head, the window wide open, and a very frightened hairdresser fanning her vigorously with a towel. She was informed that she had been unconscious for five minutes and had been a very nasty color. Assistance was obtained and she was put to bed, where the author saw her shortly after. She had vomited severely before his arrival and she told him she felt just as she did after taking chloroform and her appearance tallied exactly with her description of her feelings. Her color was bad and her pulse was somewhat accelerated; she had a severe headache and complained greatly of nausea. During the night she vomited once more, but in a day or two she was all right again and in her usual good health. Colman then makes some observations on the chemistry and toxic properties of the hair wash in question. Some forty years ago it was introduced into medicine for headache, chorea, neuralgia, etc., but it produced ill-effects and was abandoned. Its action was found to resemble that of chloroform, the differences being explicable to a large extent by differences in physical characters (vapor pressure, solubility in water, etc.). It is important to note that all observers have found carbon tetrachloride to be more toxic than chloroform. It is more irritant to mucous membranes and is much more depressant to the circulatory and respiratory systems. During its inhalation cardiac weakness and irregularity and cyanosis have been described and after the return of consciousness cardiac weakness, headache, and mental and bodily exhaustion have been noted. Anesthesia is less easily produced and is slower in appearing than that by chloroform owing to the lower vapor pressure of carbon tetrachloride (boiling point of chloroform from 60° to 62° C., of carbon tetrachloride 76.5° C.), but it also disappears less quickly. It is probably owing to this relatively low vapor pressure that no fatalities have hitherto been described.

British Medical Journal, June 22, 1907.

Infection in Measles Transmitted by Letter.—H. R. Davies refers to the case of a man complaining only of debility, but in the eruptive stage of measles. Next day the patient, unknown to the doctor, wrote a letter to a brother who, in the usual time, came down with the disease, although he had been in contact with no one who had had the malady. It was believed that the letter had transmitted the disease from the first patient to the second, as it had been written when all the symptoms of coryza were evident and during the height of the rash.

Rumination in Man.—A. C. La Frenais records the history of a clergyman of forty years who twenty years before, while still a student, noted that after eating breakfast and hurrying a meal he frequently regurgitated food half an hour to an hour and a half after eating. No sour taste was observed; in fact, the function seemed quite natural and rather pleasant. He thought it was a form of indigestion, but there was no discomfort of any kind, and finally he came to view it as a corrective process and even to depend upon the return of hastily-chewed food. For the most part, fairly large pieces of meat only were returned. He noticed that pork of all kinds, and mutton chops especially, provoked regurgitation, and that steak, grilled or fried, frequently returned. He still experiences the same thing, but only very occasionally. Fluid at times returns to the mouth, especially after a very full meal when much liquid has been taken; it is never sour or unpleasant. So far as he has observed, the action in regurgitation is a simple reversal of the process of swallowing. There is no eructation or spasmodic feeling, and to some extent the process is under control, though mostly quite involuntary. When a portion of partially chewed beef makes its presence felt in the stomach he can, by a slight contraction of the abdominal muscles, force it into the esophagus, which automatically completes the process. He has lately observed roast pork return after two hours, still quite sweet. The only stomach trouble he remembers is some slight "heart burn" in early youth.

Referred Pain and Its Diagnostic Value.—By referred pain D. Forsyth means that variety of pain which is located to one healthy part of the body as a result of disease in another. It may be the only pain produced by the disease or it may coexist with a greater or less degree of local pain set up in the affected viscus. Referred pain can arise, however, without remote disease. Numerous illustrations of this fact are mentioned by the author. We must remember that consciousness is constantly being interrupted by stimuli coming from the skin and rarely by any from the viscera. We are therefore inclined to ascribe all our sensations to the skin and overlook the fact that occasionally the stimulus may arise from some viscus. Not only is pain referred to spinal segments of the trunk, but areas on the head and face supplied by cranial nerves may betray a similar sympathy with visceral disease. For example, soreness of the vertex of the scalp will be associated with disease of the stomach and occipital tenderness will go with ovarian disorder. Head believes that the whole body, within and without, is innervated by a system subservient to the more lowly sensations of pain and of the extremes of heat and cold. This system he calls the protopathic system. In addition, there is another system, the epicritic—distributed only to the skin and concerned in cutaneous localization, discrimination of distances between stimulated points, and the finer grades of temperature called warm and cool. Now it is interesting to note that with referred pain the skin is in a condition of hyperalgesia, but never of hyperesthesia proper—that is to say, a disturbance of the visceral protopathic sense leads to a disturbed somatic protopathic sense, but never to a disturbed epicritic sense. The author then takes up various clinical conditions illustrative of his main thesis, as, for instance, the simulation of appendicitis by the pain of an early pneumonia, etc. Very often the matter may be elucidated by a careful study of the spinal segment corresponding to the area involved. Referred pain and its superficial tenderness is limited by boundaries set in the central nervous system.

Berliner klinische Wochenschrift, June 17, 1907.

Heat Formation in Fever.—Aronsohn reviews the various theories that have been suggested in regard to the source of the surplus heat occurring in fever and the manner in which it is liberated, and details the results of experiments he has carried out since he and Sachs, twenty-two years ago, discovered the heat center in the corpus striatum. He does not agree with those who believe that the liver, brain, blood, or pancreas are sources of the excessive heat, but is of the opinion that the muscles are the site of its liberation. The theory that the muscles through increased contraction of their fibrils generate the heat of fever is also discredited, and the author describes experiments which bear out his contention that the abnormal heat formation in fever is the result of the action of proteolytic ferments on the cells of the muscle bundles. His theory of heat generation in fever is as follows: Impulses originating in the heat center are transferred through caloric or trophic nerves to the muscles; the muscle plasma sets free proteolytic ferments in abnormal amounts and these transform the vital force of the cell contents into heat.

Constitutional Forms of Lipomatosis.—Kisch says that general adiposity may be divided into two types, the alimentary and constitutional. The first of these depends largely on the amount and nature of the diet, together with the bodily exercise taken. Certain cases do not come under this heading, however, and must be regarded as the result of constitutional perversions of metabolism resulting from hereditary conditions or general disease. In some of these there may be a congenital peculiarity in cellular activity through which fat is preserved from oxidation and is deposited in the body; in others there may be a morbid alteration in the cellular decomposition processes, particularly regarding the breaking down of non-nitrogenous bodies. The treatment of the alimentary type of lipomatosis involves rigid dieting, and the daily calories may without danger be reduced to 1,100. The use of baths, mineral waters, and exercise contribute to the result. The treatment of constitutional adiposity is much more difficult and involves an improvement in the function of the blood forming organs, so that the cellular processes may be favorably modified. For this purpose resort to the iron baths and alkaline and acidulous waters, together with hydrotherapeutic measures, is of advantage, but the prognosis is never very favorable.

Münchener medizinische Wochenschrift, June 4 and 11, 1907.

Abdominal Arteriosclerosis.—Perutz says in regard to this subject that arteriosclerosis may cause severe paroxysmal abdominal pain, which may be colicky in nature or may in some cases exhibit a direct transition into attacks of angina pectoris. These attacks are usually produced as the result of spasm of the small intestinal vessels and the ensuing rise in blood pressure. The pain probably originates in the sympathetic system. In addition to the anatomical changes in the vascular system functional disturbances such as those caused by nicotine and other poisons are also capable of producing spasmodic crises of this nature. The condition is often difficult to recognize and protracted observation may be necessary to establish the diagnosis. The recognition of the condition may be facilitated by studying the effects of the administration of drugs acting on the vascular system.

Gastric Erosions.—Berger says that erosions of the gastric mucous membrane as distinguished from the ulcus rotundum may be divided into two groups. The first of these comprises the cases of erosion due to circulatory disorders and those resulting from the action of bacterial or toxic agents. In these cases the gastric symptoms do not usually occupy a very prominent place in the picture of the disease owing to the fundamental general condition. In the second group are the conditions known as Einhorn's disease, and simple gastric erosion. The characteristic symptoms of Einhorn's disease are gastric pain, weakness, and emaciation. The pain is apt to be a burning sensation, appearing shortly after the ingestion of food and lasting one or two hours. The emaciation may be extreme, as the patients refrain from food owing to dread of the pain, though they do not present the appearance of cachexia. The feeling of weakness is most pronounced after eating and goes hand in hand with the emaciation. Other symptoms, such as vomiting, anorexia, constipation, or diarrhea are not constant. The single objective symptom of the condition is the appearance of small shreds of mucous membrane in the wash water obtained from the fasting stomach. The differential diagnosis from gastric neuroses or ulcer is often difficult and the fasting stomach should always be examined in doubtful cases, particularly if the test meal shows a normal or subnormal acidity. The course of the disease is protracted and relapses are frequent. The local treatment consists of large doses of bismuth and lavage with nitrate of silver solution. The author reports two cases of the very rare condition of simple gastric ulceration (exulceratio ventriculi simplex) in which persons who had never complained of gastric disorder suddenly suffered from profuse and frequently repeated hemorrhages. Both of these cases ended fatally.

A Method for Facilitating the Expulsion of Ureteral Calculi.—Jahr describes a case in which a patient on whom a nephrectomy had previously been done was suffering from an impacted ureteral calculus on the other side.

The fact that only a single kidney was present made it highly desirable to extricate the stone through the bladder, and this was successfully done by a method which the author recommends for use in all cases of ureteral colic lasting more than twenty-four hours without passage of the stone. A special form of ureteral catheter was used, provided at its extremity with a delicate envelope of rubber, which could be distended with fluid through a separate channel in the body of the instrument. This catheter is pushed up the ureter until it touches the impacted stone; the rubber balloon is then distended with fluid and the ureter in front of the calculus is thus dilated to a degree sufficient to enable the *vis a tergo* of the urine to push it onward. If success does not follow this measure a little sterile oil or encaine solution may be injected through the lumen of the catheter in order to lubricate the ureter or to bring about relaxation of the spasmodic contraction usually present in these cases.

Reflex Laughter from Optic Stimulation.—Neustätter describes a peculiar optic reflex which he has observed in five cases and believes to be not very unusual. It consists in an irresistible impulse to laugh when the eye ground is brightly illuminated in performing ophthalmoscopy. The author believes that, in most cases at least, the element of the merely comic attending the examination of the eye ground with the ophthalmoscope may be excluded, and that the reflex in question produces an effect comparable to that caused by tickling. The sneezing sometimes caused when bright sunlight strikes the eye involves a reflex of the respiratory organs which may have something in common with the one just described.

Deutsche medizinische Wochenschrift, June 6 and 13, 1907.

The Quantitative Estimation of the Patellar Reflex.—Pick comments on the lack of uniformity that at present exists in records relating to observations on the patellar reflex and suggests a scale of intensity by means of which more accurate designations may be obtained. The normal patellar reflex he believes may be described under three heads: Weak normal, involving visible contraction of the entire quadriceps without distinct jerk; normal, visible contraction with slight jerk; and active normal, visible contraction with active jerk. In decreasing intensity the first grade is represented by a palpable but not visible contraction of the quadriceps and a jerk when the reflex is reinforced by Jendrassik's method. The next grade comprises palpable contraction by Jendrassik's method, and finally there is complete absence of the reflex when under the Jendrassik's reinforcement there is neither jerk nor visible nor palpable contraction of the muscle. In the ascending scale the first grade of exaggeration is represented by active jerk following very gentle percussion of the patellar tendon; the next by the occurrence of patellar clonus on percussing the tendon or drawing down the patella, and finally there may be a third degree of excessive exaggeration. The author suggests that these degrees of intensity may conveniently be recorded by using the figures −1, −2, etc., or +1, +2, etc., somewhat after the manner of the system employed by the oculists. He also emphasizes the necessity for using the percussion hammer in evoking the reflex.

Specific Catabolism in Cancer.—Leyden and Burgell describe experiments on a new ferment extracted from liver juice, which appears to have a selective action in producing lysis of cancer cells. In regard to the selective action of various agencies influencing the cells of malignant tumors they say that the effect of radiation with the Röntgen rays involves very slight selective action, the injection of radioactive substances is accompanied by a temporary and nonprogressive action, and in pacreatin action the selective property is very incomplete. Although the selective action of the liver ferment is pronounced, there seems but little prospect of being able to make use of it therapeutically owing to the uncontrollable nature of its action. It is suggested that the unrestrained growth of malignant tumors depends on a deficiency of the body in a lytic property that probably is specific. That is, the healthy individual possesses a ferment-like body which is absent or is not present in sufficient amount in the carcinomatous organism.

The Detection of the Simulation of Mental Diseases.—Koppen says that the detection of simulation is one of the most difficult problems in psychiatry and that whereas formerly it was the custom to consider malingering as of common occurrence, it is now realized that much greater caution is necessary in making this diagnosis than was supposed to be the case. One of the fallacies to be guarded against is the fact that in many mental diseases the tendency to exaggeration is a distinct symptom. This is especially true in regard to those diseases having a basis of hysteria in which there is a pronounced tendency to intensify the symptoms of disease and to simulate diseased conditions through a process of autosuggestion. Persons with defective heredity and degenerates also come under this class. Furthermore, the conditions under which criminals, for example, find themselves are likely through the sense of guilt, of isolation from the world, of helplessness, of dread of punishment, etc., to lead to an actual alteration of the mental state. Even if the differentiation between simulation and actual mental impairment is successfully made, the further difficulty arises of determining whether the malingerer is not at bottom mentally diseased or has in the past exhibited evidences of abnormality.

Wet Compresses and Packs.—Determann describes the technique of several hydrotherapeutic measures and the conditions under which they may be used. The application of the compress is carried out by dipping a rather thick and rough cloth in cold, warm, or hot water, and either placing it against the affected part of the body or wrapping it around it. Such compresses may be cold, warm, or stimulating. The first two are kept either hot or cold, as the case may be, by repeated changing or through the use of a rubber coil. The stimulating compresses are applied cold and are covered with a dry, poorly conducting layer, such as linen or wool. The cold packs are given by laying the patient on a sheet wrung out of water at a temperature of 12-20° C. This is quickly wrapped about the entire body and in turn a blanket is wrapped over this. Before placing the patient in the pack the forehead, eyelids, and breast should be cooled and a cold compress be applied to the head. The length of time the patient is left in the pack depends on his power of reaction and on the individual conditions. Sometimes it is advisable to transfer the patient several times to fresh, wet sheets. The indications for the cold pack comprise fever, nervous unrest, with or without fever, psychoses, and neuroses, and especially in nervous insomnia. It is used with success in diseases accompanied by tremor, cramps, or musculat spasm, such as paralysis agitans, chorea, athetosis, spastic palsies, etc. It is also excellent in exophthalmic goiter and other conditions accompanied by cardiac or vasomotor excitability. The hot pack is used in rheumatic affections, polyneuritis, renal affections, congestion of the internal organs, and inflammatory conditions of the cerebrospinal meninges.

French and Italian Journals.

Cystomata of the Ovary.—A. Cimoroni classifies the cystomata of the ovary among the mixed tumors. The elements of the endoderm prevail in them and they preserve the hereditary attributes of the cells that constitute them. The dermoid cysts are formed in great part of cells that arise from the elements of the ectoderm, and maintain the physiological activity of these layers, producing sebaceous substances and skin-like tissues. The histological examination of fourteen cystomata examined by the author show that there is considerable complexity of structure. The author has made experiments with the fluids found in these cystomata to learn whether there are digestive substances found in them that are similar to those found in the intestines. He finds that the pseudomucous contents of these cysts have some digestive power of a proteolytic nature similar to that of the intestine. The histological structure of the cysts examined by the author showed them to contain the structures found in the intestinal wall, and in a few cases fragments like the suprarenal capsule. Another showed presence of myxomatous or myxosarcomatous tissue. In all of them there were unstriped muscular fibers and cylindrical and calciform epithelium. These cysts are generally single, sometimes multiple, and often multilocular, with a distinct pedicle when intraperitoneal; when extraperitoneal they grow into the folds of the broad ligament. The contents are serous, mucous, or pseudomucous. They are lined with a single layer of columnar or cylindrical epithelium. They are benign, but sometimes undergo malignant degeneration.—*Il Policlinico*, February, 1907.

Albuminuria in the Course of Impetigo or Impetigenous Eczema in Children.—M. B. Auché describes two cases of impetigenous eczema in which albuminuria indicated the presence of nephritis. Fortunately this complication is rare. The pathogenesis of the condition is the interesting point with reference to the disease. The theory that is most generally accepted is that of infection. But infection may act in different ways. It may act by the production of poisonous substances from the life activity of the germs which are carried by the circulation to the kidneys and produce a nephritis. Again the bacteria may themselves penetrate past the lymphatic glands and be carried by the circulation directly to the kidneys, whose epithelium is irritated and nephritis results. Streptococci are then found in the circulation and in the kidneys.—*Journal Médical de Bordeaux*, May 5, 1907.

Book Reviews.

CATHOLIC CHURCHMEN IN SCIENCE. Sketches of the lives of Catholic Ecclesiastics who were among the great Founders in Science. By JAMES J. WALSH, M.D., Ph.D., LL.D.; Professor of Medical History, Fordham University Medical School, and Professor of Physiological Psychology in St. Francis Xavier's College, N. Y. Philadelphia: American Ecclesiastical Review, The Dolphin Press, 1906.

THE seven clergymen whom Dr. Walsh has selected as the subjects of these agreeable essays are: Copernicus, Basil Valentine, Linacre, Athanasius Kircher, Bishop Stensen, Abbé Haüy, and Abbot Mendel. By means of a review of the very notable contributions to science made by these investigators, the author endeavors to show that the Roman Catholic Church has been wrongly accused of having, at least at one period of its history, placed obstacles in the way of the advancement of knowledge. Whether or not he proves his point must be left to the judgment of the individual reader, but at any rate he has collected a mass of very interesting material, and has put it into very attractive form.

MEDICAL JURISPRUDENCE, FORENSIC MEDICINE, AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., Professor of Chemistry, Physics, and Toxicology in Cornell University, and TRACY C. BECKER, A.B., LL.B., Counsellor-at-Law, Professor of Criminal Law and Medical Jurisprudence in the University of Buffalo; with the collaboration of AUGUST BECKER, Esq.; CHAS. A. BOSTON, Esq.; Hon. GOODWIN BROWN; W. N. BULLARD, M.D.; J. C. CAMERON, M.D.; J. CLIFTON EDGAR, M.D.; JAS. EWING, M.D.; E. D. FISHER, M.D.; J. C. JOHNSON, M.D.; D. S. LAMB, M.D.; H. P. LOOMIS, M.D.; W. B. OUTTEN, M.D.; ROSWELL PARK, M.D.; J. PARMENTER, M.D.; IRVING C. ROSSE, M.D.; E. V. STODDARD, M.D.; GEORGE WOOLSEY, M.D.; J. H. WOODWARD, M.D. Second Edition. Volume Two. New York: William Wood & Company, 1907.

THIS volume continues the consideration of Forensic Medicine which was commenced in Volume I, and contains chapters on the following subjects: (1) The medicolegal consideration of wounds, including punctured and incised wounds, and wounds made by blunt instruments other than gunshot wounds. (2) The medicolegal consideration of gunshot wounds. (3) The medicolegal relations of electricity. (4) The medicolegal consideration of death by mechanical suffocation, including hanging and strangulation. (5) Death from submersion in its medicolegal relations. (6) Determination of survivorship. (7) Abortion and infanticide. (8) When medical examination or other inspection of living human body is permitted or required by courts of law. (9) Pregnancy, labor, and the puerperal state. (10) Sexual incapacity in its medicolegal relations. (11) Medicolegal considerations of rape. (12) Unnatural crimes. (13) Railway injuries; their clinical and medicolegal features. This last chapter (on railway injuries) is the one which shows the greatest amount of alteration and revision, and is one of the most important in the book; it occupies more than two hundred pages, and is a valuable and original treatise on an important subject.

The present volume, while it maintains the high standard of excellence of its predecessor, contains articles which are more likely to appeal to the practising physician. There is hardly a chapter in the book which is not of real interest and practical value to the physician and surgeon, and in some cases he will search elsewhere in vain for the information here given. Among the important features of the work may be mentioned the detailed account of the cases illustrative of the various conditions discussed in several of the chapters, the unusually numerous bibliographical references, and the table of legal cases cited in the volume.

A TEXT-BOOK OF ELEMENTARY ANALYTICAL CHEMISTRY, QUALITATIVE AND VOLUMETRIC. By JOHN H. LONG, M.S., Sc.D., Professor of Chemistry and Director of the Chemical Laboratories in the Northwestern University Medical School. Third Edition. Revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Company, 1906.

THIS is essentially a laboratory manual, and contains the amount of qualitative and volumetric analysis usually indulged in in first-class medical schools. In the present edition a chapter has been included on reactions in solutions in general; sections have been added on the use of indicators, and a number of new processes have been included, the most important of which are methods for the titration of borates and formaldehyde. There is an important chapter on water analysis, in which are given a few comparatively simple methods for determining the suitability of water for household uses. The book is well arranged and clearly printed, and can be used in conjunction with any general text-book.

TEXT-BOOK OF PSYCHIATRY. A Psychological Study of Insanity for Practitioners and Students. By Dr. E. MENDEL, A.O. Professor in the University of Berlin. Authorized Translation. Edited and enlarged by WILLIAM C. KRAUSS, M.D., Buffalo, N. Y.., President Board of Managers Buffalo State Hospital for Insane; Medical Superintendent Providence Retreat for Insane; Neurologist to Buffalo General, Erie County, German Emergency Hospitals, etc.; Member of the American Neurological Association. Philadelphia: F. A. Davis Company, 1907.

THIS is a translation of an elementary work intended for German medical students and practitioners who have to pass an examination in psychiatry. The first half of the book is taken up with general symptomatology, etiology, course, duration, pathological anatomy, diagnosis, prognosis, and general treatment. The remainder of the book is devoted to individual mental diseases; but as the author has omitted all clinical histories, and given only very general descriptions, the student is not likely to obtain a very clear idea of the subject. The editor has wisely omitted the Prussian procedures relating to the insane, and substituted the New York State laws and commitment forms.

WOMAN IN GIRLHOOD, WIFEHOOD, MOTHERHOOD. Her responsibilities and her duties at all periods of life. A guide in the maintenance of her own health and that of her children. By MYER SOLIS-COHEN, A.B., M.D., Instructor in Physical Diagnosis, University of Pennsylvania; Visiting Physician to the Hospital for Diseases of the Lungs, Chestnut Hill; Assistant Physician to the Philadelphia General Hospital; Physician to the Children's Dispensary of the Jewish Hospital, Philadelphia. Profusely illustrated with color plates, scientific drawings, and half-tone engravings, with manikin chart printed in colors, with an index. Philadelphia, Chicago Toronto: The John C. Winston Company.

THIS book covers a multitude of subjects, and is evidently intended to be the "guide, philosopher, and friend" of the girl, the wife, and the mother. While some of the information contained in the volume is undoubtedly good, such as the advice to consult a physician when the child is ill, much of it seems unnecessary. For instance, the illustrations on pages 122 and 123 are surely of no possible use to anyone. In one of these pictures, labeled "when true affection succeeds the first passion," we see the happy man wearing a halo (or is it the lamp globe?). In the other picture, entitled "after blind passion has subsided and nothing has taken its place," we see the man and woman, fashionably attired, and linked to each other with manacles. Now, as this book is presumably intended for the young girl, we are to suppose that at about the time when the young men are beginning to be attentive she will take down this volume, read the chapter on courtship, study these illustrations, and then decide whether Harry with the halo shall be her hero, or whether she shall suffer martyrdom with Mike and the manacles. There will also be found a full-page illustration teaching young America how to brush her hair; a page of poetry on "the perfect woman;" a cut representing "beauty and health," which certainly illustrates the truth of the dictum "tastes differ;" the author's investigations on the pulse rate of a sick child, and how it was thereby proved "that the statements as found in the text-books are incorrect" (page 309); the author's success in the administration of the Pasteur treatment of hydrophobia (page 412), and many other curious and interesting facts too numerous to mention.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia; assisted by H. R. M. LANDIS, M.D., Assistant Physician to the Out-Patient Department of the Jefferson Medical College Hospital. Philadelphia and New York: Lea Brothers & Company, March 1, 1907.

THE present number of Progressive Medicine contains chapters on Surgery of the Head, Neck, and Thorax, by C. H. Frazier; Infectious Diseases, by R. B. Preble; Diseases of Children, by F. M. Crandall; Rhinology and Laryngology, by D. B. Kyle, and Otology, by B. A. Randall. The first two chapters are by far the longest and most important, and among the sections that have impressed us as particularly valuable are those dealing with cranial tumors and abscesses, the surgery of the thyroid gland, suture of the heart, diphtheria, epidemic meningitis, and typhoid and yellow fevers. But the whole number is a good one, and there is hardly a page that will not prove of interest to the practitioner.

Principles and Application of Local Treatment in Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital, etc. New York: R bman Company, 1907.

This little book is essentially a compendium of valuable practical suggestions which are not ordinarily found in text-books. It consists of four lectures given by the author on this subject at the Skin and Cancer Hospital. The principles underlying local treatment of skin diseases are discussed and then applied to various of the more common conditions. The number of formulæ and prescriptions given is not as large as one might expect in books of this kind, but, as the writer wisely states, it is better to have a few well-tried and well-selected remedies of which the application is thoroughly understood than to have a larger number which are readily changed by the claims of the most recent statements or advertisements. The book contains a complete index, and constitutes a very useful manual on the subject of dermatological therapeutics.

Manual of Clinical Chemistry. By A. E. Austin, A.B., M.D., Professor of Medical Chemistry and Toxicology in the Medical Department of Tufts College, Boston. Boston: D. C. Heath & Company, 1907.

In this handy book Dr. Austin combines in a peculiarly happy way scientific and clinical chemistry. The volume is intended primarily for second-year students, and deals with the general proximate principles of the body, the blood, milk, digestive fluids, feces, urine, and the general principles of metabolism. Naturally the subjects are dealt with in a very concise way, but the material has been quite carefully selected and sifted out, so that all superfluous matter has been omitted. Therefore, the book will be found very satisfactory by students and by general practitioners doing their own chemical tests. The illustrations are simple and helpful, and a convenient table of reagents is appended.

Pediatrics. The Hygienic and Medical Treatment of Children. By Thomas Morgan Rotch, M.D., Professor of Pediatrics, Harvard University. Fifth Edition. Rearranged and rewritten. Illustrated by numerous engravings in the text and by colored plates. Philadelphia and London: J. B. Lippincott Company, 1907.

The fifth edition of Rotch's monumental work on diseases of children needs no introduction to English-speaking physicians. Only three years have elapsed since the date of the copyright of the previous edition, and yet in this space of time so many advances have been made in the diagnosis and treatment of diseases of children that the amount of revision and rewriting required for the present issue was considerable. The care of premature infants, for example, has been made the subject of a most carefully prepared special chapter, which will be of value to every practitioner who has to cope with this most difficult problem. In the section on feeding methods we find a very complete account of the modern modification methods of cow's milk for infants' use. As may be expected in a work by Rotch, a very full account is given of "Laboratory Milk" and the methods of preparing the same. Home modification, however, receives its share of notice, and a number of methods, tables, and formulæ are given. While this part of the work is masterly from the viewpoint of the specialist, too little attention perhaps has been paid to the every-day demand of the general practitioner and to short-cut methods of making up approximately correct feeding mixtures—methods which after all will always prevail in the great majority of homes where maternal feeding is impossible. It is also to be regretted that exact directions for sterilization and pasteurization are not given. In the section on gastroenteric diseases a scientific classification of these conditions is given for the first time, tabulated on page 770. No reference is made to the spirochæta of syphilis nor to its existence in the tissues of newly-born hereditosyphilitic infants. Barring these minor defects which creep into such a vast work as this, Rotch's new volume on the diseases of childhood is undoubtedly one of the most comprehensive and most complete treatises of its kind in the English language. It is especially rich in therapeutic information, and is beautifully printed and illustrated.

The Extra Pharmacopœia. Revised by W. Harrison Martindale, Ph.D., F.C.S., and W. Wynn Westcott, M.B., Lond., D.P.H., H.M.'s Coroner for Northeast London. Twelfth Edition. London: H. K. Lewis, 1906.

This unrivaled handbook of materia medica has reached a twelfth edition, and few books have better merited such a distinction. We have repeatedly commented on this work as the successive editions appeared, and nothing good we have said of it needs retraction. This edition is larger by about 250 pages than its predecessor, yet the book remains of coat-pocket size. The type is small, but clear, and as the work is intended only for reference, and not for use as a text-book, this cannot be regarded as a fault. The drugs, official and unofficial, are arranged alphabetically. Under each head are given the source the mode of preparation, the dose, and the uses. The preparations of the U. S. P. are noted, as well as those of the pharmacopœias of Great Britain and the Colonies, and the text regarding the former has been revised in conformity with the latest edition of our Pharmacopœia. There are also a list of natural mineral waters and their indications, analytical memoranda, table of poisons, a list of antitoxins and one of organotherapeutic preparations, an index and posological table, a therapeutic index of diseases and symptoms, and various minor tables of atomic weights, drop measures, freezing mixtures, melting points, etc. Indeed, nothing is wanting to make this a nearly perfect reference book for everything relating to materia medica and therapeutics.

Manuel de Gynécologie pratique. Par J. Barozzi, Ancien Interne des Hôpitaux de Paris, Lauréat de la Faculté de Paris. Préface de M. L. G. Richelot, Professeur agrégé à la faculté de médecine de Paris, Membre de l'Academie, Chirurgien de l'Hôpital Cochin. Paris: Vigot Frères, 1907.

This new book on gynecology is intended specially for the student and for the young practitioner who has had little or no experience in gynecological work. Hence the author takes the trouble to explain in some detail many of the minor matters that are too often either overlooked or taken for granted. The first part of the book deals with "General Considerations:" asepsis, examination of the patient, different positions, curettage, tampons, post-operative complications, etc. The succeeding sections deal in order with the diseases of the vulva, vagina, uterus, tubes, and ovaries, and the peritoneum. The volume concludes with an appendix containing paragraphs on tuberculosis, syphilis, hypertrophy and atrophy of the uterus, disorders of menstruation, pelvic tumors complicating pregnancy, abortion, repair of lacerated perineum, etc. There is an ample bibliography, into which, we are pleased to note, some American and English names have managed to gain admission. Naturally, the teaching of the volume differs in some respects from that which is generally accepted here; but we have no doubt that the book will prove useful to those for whom it was written.

Surgery of the Genitourinary Organs. By J. W. S. Gouley, M.D. New York: Rebman & Company, 1907.

This important volume contains the results of the life work of the Nestor of genitourinary surgery in America. It is the concrete record of his surgical studies and experiences, and his researches into its cognate literature. The book opens with a scholarly and exhaustive study of catheters and bougies, and sounds, in which these implements are described in detail in every particular. Following chapters on chronic urethritis, bulbourethral adenitis, and orchitis, which are full and suggestive, we come to affections of the seminal vesicles, which are treated in all their phases in a satisfactory manner. On the subject of strictures of the urethra the author justly remarks that the rational local treatment is based on a correct appreciation of the general physical condition of the patient, of the cause, duration, and nature of the disease, of the form, site, and degree of constriction, and of existing complications, besides a thorough familiarity with the mechanism and care of the necessary instruments. His own classical operation, known as external perineal urethrotomy, is described. The chapter on injuries of the urethra is very complete, and the directions for treatment and operation are thoroughly up-to-date.

Much surgical wisdom is displayed in the disquisitions on retention of urine during urethritis, from urethral stricture, and in elderly men. These chapters should be read and mastered, particularly by young men. Affections of the prostate and its enlargement receive ample consideration, which is fully abreast of the times. Seeing that its author was the pioneer in prostatic surgery, and the first man to perform the operation and formulate its surgical procedure—prostatectomy—one is not surprised to find these subjects thoroughly and practically handled in these pages. Other subjects here treated are: The Bladder: its Injuries; Foreign Bodies in the Bladder; Bladder Tumors; Urocystitis: its Nature, Causes, and Effects; Urocystitis: its Management; Bladder Contracture: its Nature and Treatment; Bladder Hemorrhage: its Causes, Effects, and Treatment; Bladder Sacculation: its Diagnosis and Management; Bladder Stones: their Diagnosis and Indications for Remedial Means: Lithotomy: its Early History and Modern Adaptations; Modern Lithotomy; Lithotrity: its Development and Present Status.

Society Reports.

AMERICAN MEDICAL ASSOCIATION

Fifty-eighth Annual Session, Held at Atlantic City, June 3, 4, 5, 6, and 7, 1907.

(Special Report to the MEDICAL RECORD.)

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SECTION ON PRACTICE OF MEDICINE.

Thursday, June 6—Third Day.

Election of Officers.—*Chairman,* Dr. Charles F. Hoover of Cleveland; *Secretary,* Dr. Joseph L. Miller of Chicago; *Orator on Medicine,* Dr. W. S. Thayer of Baltimore.

Observations on Plague in India.—Dr. JUDSON DALAND of Philadelphia read this paper. He spoke of the extraordinary number of deaths in different epidemics since the fourteenth century. Plague was always present in Bombay and the Tibetian border of India. The clinical varieties of plague were bubonic, pneumonic, septicemic, intestinal, and ambulatory. The majority of cases seen were in the first group. This type of the disease was restricted to polyadenitis. The second and third groups were rare as primary affections, but more or less common in the terminal stage of any form of this disease. In the pneumonic type of plague, the sputum, blood, and glands contained the plague bacillus. The disease was most often spread by the ambulatory form. The diseases with which plague might be associated or confounded were smallpox and relapsing fever. Mixed infections frequently occurred. When the plague bacillus was found in the blood, 98 per cent. were fatal. The average daily mortality was forty cases. The fever decreased on the third day. The glands involved were the inguinal and femoral; also the axillary glands. In one case the thyroid was enlarged. Plague was conveyed by rats and fleas. The excellent work done was under the direction of the Royal Pregg Institute. The method of transporting plague patients to the hospitals was referred to, as well as the disposal of the dead by cremation.

A Mixed Infection with Tertian and Quartan Malaria Occurring in a Case with Symmetrical Gangrene.—Dr. EDWIN J. WOOD of Wilmington, N. C., read this interesting paper. He said that for many years the idea had existed that there was some relationship between symmetrical gangrene and malaria. In 1880, Marsean collected many cases. The doctor had six cases; four were in one family. Symmetrical gangrene occurred without fever or enlargement of the spleen. The spots on the hands and feet were symmetrical, with dry exfoliation. The blood contained numerous tertian organisms. Three weeks later the temperature rose to 104° F., with the appearance of quartan parasites in the blood. Was there such a thing as latent malaria? This case might lead one to think so. A case of febrile tertian malaria was rare, but a mixed tertian and quartan infection was almost unknown. This patient was an inmate of the insane asylum and the question arose, Was the malaria the cause of the mental trouble, and did the malaria cause the skin lesions? If it was due to malaria, it must have been due to a toxin.

Dr. GEORGE DOCK of Ann Arbor said that the circulation of the blood in malaria was not uniform, and that the parasites gathered in certain parts. Consequently specimens of blood should be taken from different parts of the body, and even from the spleen.

Dr. W. S. THAYER of Baltimore thought that these cases reported by Dr. Wood were a most striking collection of instances of symmetrical gangrene.

The Opsonic Theory and Therapeutic Inoculation with Bacterial Vaccines.—Dr. G. W. Ross of Toronto read this paper. He said that this question was of great practical importance in bacterial diseases. By opsonins was meant certain substances which were in the blood to fight bacteria. This was expressed in an index. Bacterial vaccines were either the bacteria themselves or their products. The opsonic index in tuberculous glands was 0.7. The doctor spoke of three classes of disease in which there were variations of the opsonic power of the blood. In tuberculosis, iritis, and tuberculous cystitis, the opsonic index was persistently low. The second class included autointoxications, and the third class was general sepsis. He thought that tuberculin was of value in the early cases. He spoke of the effect of a single inoculation on the opsonic index, and referred to these toxins in germ diseases relating to a cure as well as a control of the disease.

Dr. JOHN C. HOLLISTER of Chicago spoke of the irregularities of the normal index. During the last eight months he had worked on a number of normal cases, and found the average to be one (1.0). If the technique was carried out by the Wright method, the same results would be obtained.

Dr. WOODS HUTCHINSON of New York spoke of the dose of the bacterial vaccines, varying from 0.004 mg. to 0.002 mg. He said that one should not use this form of treatment to the exclusion of other forms.

Dr. Ross closed the discussion.

A Critical Estimate of the Fermentation-Specific Gravity Method of Estimating Sugar in Diabetes.—Dr. HENRY A. CHRISTIAN of Boston read this paper. As early as the year 1861 Roberts described the yeast fermentation method for estimating sugar in diabetic urine. At the present day it was the most practical method, but how accurate was it? He had compared this method with the copper test and the polariscope. The greatest discrepancy was found with the latter, due to the fact that glucose was present. The fermentation method gave as good results as other methods. The specific gravity of the urine was estimated at the room temperature, then commercial yeast was added; the fermentation was allowed to take place until the specimen gave no reduction with Fehling's solution. The specific gravity was again taken at the room temperature, and the difference between the two readings was multiplied by 0.23 and the result was the percentage of fermentable substances expressed in the terms of glucose. Similar comparisons of normal urines to which varying amounts of pure glucose had been added were studied. He concluded that this method was a practical one. Its cost was small and compared favorably with other methods. Polariscopic examinations were expensive and not accurate for glucose alone, as levulose and butyric acid caused discrepancies.

Dr. HEINRICH STERN of New York said that the commercial specific gravity tubes varied a great deal. In regard to the polariscope, he said that glycogen in the urine would be another cause for a difference in the estimation of fermentable substances.

Dr. W. S. THAYER of Baltimore said that Dr. Christian's paper was of great clinical value. It was not easy for the general practitioner to estimate the amount of sugar in the urine, as a rule, and this simple method made it easy. Diabetic patients must have estimations made of their urine almost daily, and this method was just as good as any other method.

Dr. CHRISTIAN, closing the discussion, said that filtering the urine did not affect the specific gravity, but that boiling the urine did make a change which might lead to an error. He thought that this difference was due to alcohol being driven off from the heated solution.

Prepared and Predigested Foods.—Dr. GRAHAM LUSK of New York read this paper. He said that the normal instinct of the appetite was a good indication for the individual case. From a scientific point of view man was a machine. Two points were of importance in considering

foodstuffs. One was that a sufficient amount of proteid food should be ingested; the other was that the heat value of fats and carbohydrates should be sufficient to protect the individual. He thought that the minimum diet given out by Chittenden of Yale was far below the factor of safety. The relative food value of bread and milk, together with their cost, was considered, as well as the number of calories that were contained in two loaves of bread and two quarts of milk.

Dr. S. J. Meltzer of New York said that Dr. Lusk was the first authority on metabolism, and he personally was pleased to hear him publicly take the stand against the New Haven school.

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS.

Thursday, June 6—Third Day.

The Etiology of Acute Articular Rheumatism.—Dr. Rufus I. Cole of Baltimore read this paper. He spoke of the evidence that rheumatic fever was an infectious disease. He divided it into three groups, viz., bacterial, gouty, and metabolic. The isolation of cocci had been obtained in a number of cases. To this coccus the name of *"Diplococcus rheumaticus"* had been given. Of late years the attempt had been made to differentiate these cocci. The attempt to study them from their agglutinating properties had been unsatisfactory. The doctor had injected six different kinds of cocci into rabbits and all developed arthritis. One had an abscess of the kidney. He spoke of the evidence that the joint lesions represented metastatic foci of infection, also drew the analogy of gonococcal arthritis to that of rheumatism. He thought that evidence had accumulated in favor of the view that rheumatism was not a specific disease. It was possible that acute rheumatic fever might be a mild form of streptococcus septicemia. There was little evidence in favor of the purely toxic view. The peculiar lesions induced by bacteria did not depend so much on the variations in the kind of bacteria themselves as on the differences in the reaction on the part of the body. There was some local site of infection, such as the tonsil, from which point the germs got into the blood. Cultures from the tonsils gave pure cultures in eleven out of fourteen cases. He concluded that acute articular rheumatism might be a general streptococcus infection, the peculiar features depending upon either the peculiarities in the coccus, or more probably on the peculiar reactions on the part of the body at present included under the term "resistance of the patient."

Symptomatology and Diagnosis of Acute Articular Rheumatism.—Dr. Phillip King Brown of San Francisco presented this paper. He called attention to diseases that had acute serous membrane symptoms similar to acute articular rheumatism, such as syphilis, tuberculosis, osteomyelitis, gout, scurvy, and lead poisoning. He referred also to certain skin eruptions, such as herpes, eczema, and purpura, that might occur in these conditions. In some parts of the country, males were affected in the proportion of two to one; in other parts, three to one. Season was an important factor, as well as a low barometric pressure. He spoke of the fact that gonorrheal septicemia might be accompanied by chorea which could not be distinguished from rheumatic chorea.

The Cardiac Complications of Acute Articular Rheumatism.—Dr. Alexander Lambert of New York read this paper. He said that the cardiac complications in this disease were but symptoms. In children, cardiac symptoms predominated, while those of the joints were not in evidence. From the study of five hundred cases seen at Bellevue Hospital, no case had the joints of the hands or feet affected. Half the cases had cardiac involvement. The greatest number of heart complications occurred under ten years of age (75 per cent.), but there was an increase of cardiac complications with the number of attacks of this disease. Tricuspid valvular disease was much more common than was generally supposed (50 per cent). The mitral involvement was most striking. Aortic affections were the least common. The amount of damage to the valves was seen in the amount of hyperthropy and compensation, together with the myocarditis present. In patients below twenty-one years, the sexes were equally affected. After that age, males were more often, in the proportion of three to one. It was interesting to note in some cases that symptoms of pericarditis were seen a few days before the joint manifestations. Those cases in which myocarditis was present were the most serious.

Specific Treatment of Acute Articular Rheumatism.—Dr. N. S. Davis of Chicago read this paper. He asked the question if there was a specific treatment for this disease, and then said that one could not say that there was a specific drug for this condition, but the salicylates came very close to it. The alkaline treatment was not to be regarded as a specific, but it was very useful. Alkalies appeared to prevent cardiac complications. Only one case in thirty had cardiac trouble with this treatment. He said that the acid theory of rheumatism had no foundation. The dose of the alkalines was one dram every four hours. Salicylates in health had no effect upon the temperature. In fever, however, a fall of temperature took place in four to six hours. The drug entered the circulation as a salicylate, but just what form or combination took place was not known. In some cases the salicylates affected the stomach. Because of the stomach irritation, the sodium salt was the best. Salol was good in mild cases, but could not be given in large enough doses for the severe cases.

The Prophylaxis and General Management of Acute Articular Rheumatism.—Dr. S. Solis-Cohen of Philadelphia read this paper. He said that all were agreed that rheumatism was a multiple arthritis. The germ, if there was one, had not yet been recognized. He believed that the germs or group of germs found in rheumatism were closely related to those which harmlessly inhabited the mouth, tonsil, and throat. He stated that cold and exposure aided in precipitating an attack of rheumatism. How were cardiac manifestations to be prevented? How were the relapses and recurrences? In three ways: rest, rest, rest. The length of time for the rest depended upon the patient. The rest should be from six to nine weeks, or until all danger of straining the heart had passed. Precardial blisters helped to prevent cardiac complications, aortitis, etc. Alkalies had to be administered to the limit, and used throughout the attack. In old patients with anemia, tincture of iron was beneficial. Attention should be directed to adenoids or the faucial tonsils, as well as to the vasomotor system. Hot and cold applications were excellent. The therapeutic sweating, as in Turkish baths, was worth trying. In those cases with weak hearts, the electric light bath was beneficial. The diet was important. The intake of carbohydrates should be the lowest possible. Fleshy foods should be avoided. The patient should be put on a milk diet.

Dr. James M. Anders of Philadelphia agreed that the etiology of rheumatism was in favor of a microorganism. He thought that various conditions of the intestinal canal at times led to autointoxication, which in turn played an important part in arthritis. He spoke of the latent symptoms of rheumatism, relating to Dr. Lambert's paper, and said that he had had cases of pure myocarditis as a complication. The treatment was specific and that was the several compounds of salicylic acid, given in from 120 to 240 grains per diem.

Dr. Alfred Stengel of Philadelphia said that he wished to speak of three things: (1) The theory of acid intoxication was exploded; (2) there was an individual predispo-

sition to the disease; (3) greater attention should be given to the circulatory system. The rest treatment was good. He used plaster casts in rheumatism, and it was remarkable how the fever subsided under this treatment. In regard to cardiac complications, he thought that the serum treatment opened up great possibilities.

Dr. Woods Hutchinson of New York said that he assumed the position of the man who said, "I know that I know nothing; others don't even know that." It was not known that rheumatism was a form of specific infection. Might it not be a reaction of the tissues? He believed that calomel with soda was an excellent drug in these cases. In regard to the arthritis, he asked if it was a true arthritis? The difference between a gonorrheal joint and one of rheumatism was as great as that between day and night.

Dr. Burkhart of Indianapolis said that everyone at times had had disappointment with the salicylic treatment. He wished to speak of the hyperemic treatment, or causing a passive congestion of the joint. By placing a bandage above the joint a congestion of the tissues was produced; later a serous exudation took place, which increased the opsonins in the joint. He thought this method had a considerable curative effect.

Dr. John H. Lichty of Pittsburg spoke of the entrance of infection through the tonsils after they had been partly removed. He called it the clipping of the tonsil, and suggested that the entire tonsil should be removed.

Dr. Upsher of Richmond, Va., said that he thought the liver was back of the so-called autointoxications, and possibly it played a part in the cause of rheumatism. Rheumatism was due to complex causes.

Dr. W. H. Nelson of Milwaukee spoke of a patient who had a severe attack of coryza preceding an attack of rheumatism. The condition of the intestinal canal was important in these cases. Fermentation was often marked. He used large doses of salicylates and gave them until toxic effects were produced.

Dr. E. H. Gaither of Baltimore said that every patient with acute articular rheumatism had a margin of infiltration on the edge of the gums, practically a mild septic mouth. In children, during the second period of dentition, chorea was frequently seen, and all had infections of the mouth.

Dr. J. A. Witherspoon of Nashville, Tenn., said that he wished to sound a note of warning in regard to large doses of salicylates. He had had two cases of poisoning from this drug. Another point in the treatment of rheumatism was to give the patient comfort. He thought that hot applications and rest would accomplish this.

Dr. George Dock of Ann Arbor spoke of the myocardial changes in the muscle cells. Some cells were like giant cells. Serious membranous changes followed the use of blisters, and consequently they were dangerous. It was possible that they might add infection. He used the ice bag.

Dr. Norman Bridges of Los Angeles said that patients recovered from the joint affections if nothing was done, but the heart was the important organ to treat. He thought morphine might do as much good as salicylates.

Dr. W. S. Thayer of Baltimore said a systolic murmur meant a change in the heart muscle. Never allow a case of acute articular rheumatism to pass from observation. Watch the patient for a long time. The tonsils should be removed. In regard to the toxic effect of salicylates, he had had two such cases, and it was his rule to tell the patient to take the medicine until the pain stopped or there was ringing in the ears.

Dr. A. A. Jones of Buffalo said that the profession was somewhat at sea in regard to the nature of this disease. Many cases of rheumatism appeared to be mixed infections. He spoke of the difference between rheumatism and septic arthritis. Why was it that chorea was always associated with acute rheumatism?

Dr. Richardson of Camden, N. J., said that the only relief found in these cases was from the hot-air treatment. Was the hyperemia the cause of this improvement?

Dr. Tomkins of Charlestown, W. Va., said that the cardiac complications were more frequent when the joints of the upper extremities were involved.

Dr. Brown, in closing, spoke of the frequency of myocarditis in rheumatism. He had had twenty-two cases in children under five years of age.

Dr. Lambert, in closing, said that myocarditis followed the same law as endocarditis and pericarditis, and he was of the opinion that the salicylates did not affect the heart complications. If salicylates did not give any effect in forty-eight hours, then he changed the drug.

Dr. S. Solis Cohen, in closing, said that there was no need of the coaltar products in this disease. He thought that the salicyl-ion might be a chemical antitoxin.

Dr. Rufus I. Cole of Baltimore closed the discussion.

Friday, June 7—Fourth Day.

The Uncinarial Anemia of Porto Rico.—Dr. Bailey K. Ashford and Dr. W. W. King of Washington, D. C., read this paper. For a number of years their attention had been confined to this disease. The skin was the only mode of invasion by the parasite. Infection through the intestinal canal might be ignored. The mere presence of the ova in the feces was not a manifestation of the disease. In these cases there was what might be called a relative immunity. The initial symptoms of uncinariasis were often preceded by languor for a few months. Then pain and tenderness developed in the right hypochrondrium, together with palpalation. Little by little anemia developed, accompanied by a weak pulse. The hemoglobin was markedly reduced, varying from 20 per cent. to as low as 8 per cent. Pain was often referred to the sternum. The patellar reflexes were reduced and often absent. Circulatory symptoms were profound. Edema of the face and feet was frequently present. Cardiac hypertrophy and cerebral effusions were also present. The death rate was low. Autopsy revealed the skin sodden with fluid. The liver was never normal, but was light yellow in color, with marked fatty changes in the outer third of the lobules. One case only had deposits of yellow pigment. The kidneys were profoundly involved. They were very pale, and presented all the signs of chronic parenchymatous nephritis. In the intestinal canal, the jejunum presented the most marked changes. Chronic intestinal catarrh was always present, and the lymphoid tissues were increased. The glands at the bifurcation of the aorta were always enlarged and abundant. Changes seen in the bone marrow were similar to those in pernicious anemia. Out of 579 cases the average amount of hemoglobin was 43.9 per cent.; 15 per cent. was common. The percentage of hemoglobin was the best sign of determining the condition of the patient. Some cases had a daily rise of 1.27 of hemoglobin. In regard to treatment, they believed that iron was not necessary. Eosinophilia was the chief point of importance in prognosis. A rise in eosinophiles was a good sign; a fall was a bad one, and generally meant a fatal outcome. The treatment consisted of thymol, which caused the worms to be expelled. Betanapthol was dangerous, on account of its effect on the kidneys. The technique of counting the parasites was described.

Experimental Anemia.—Dr. C. H. Bunting of Charlottesville, Va., read this paper. He said that clinically there were two types of blood pictures found in anemia, one the so-called idiopathic, with corresponding changes in the bone marrow, and secondary anemic type. Experimentally the blood of animals could be made to simulate these types in human beings by the introduction of the same hemolytic toxin, but by different methods of injecting it. In a case of tuberculosis with secondary anemia there was a destruction of the blood cells, but the bone marrow

cells were not affected. On the other hand, in a case of primary anemia, the poison caused a reaction in the bone marrow, and this reaction was a process of neutralization. Groups and centers of cells in the marrow could be differentiated. The red cells were mature, but not nucleated. These changes might be called the normal reaction to injury. In primary anemia there was an injury to the bone marrow, while in secondary anemia the injury varied, but there was always a deficiency of the red cells. Certain secondary anemias might simulate primary anemias. The toxins in the system produced these changes.

Differential Diagnosis of the Various Types of Anemias.—Dr. Richard Cabot of Boston read this paper. He said that to establish the fact that anemia was present, it must be determined only by the percentage of hemoglobin. He spoke of pallor and its relation to anemia. A patient might be pale, but not anemic. He gave an interesting table, classifying anemias according to their cause, history, physical signs, and blood examination. There were three classes of anemia. (1) pernicious anemia, whose cause was unknown. (2) Chlorosis. He thought that it was a myth that chlorosis occurred in boys. It always was found in girls or young women from thirteen years to twenty-five years of age. (3) Secondary anemias, due to a parasite. The anemia resulting from fish tapeworm gave blood changes not unlike those found in pernicious anemia. Pernicious anemia was a disease of elderly people, past forty years, but generally between sixty and seventy years old. The onset was insidious. The physical signs were characteristic. Generally emaciation was present. Chlorosis was a rare disease. He thought that the diagnosis of chlorosis was often wrong, and that many of these cases were incipient cases of tuberculosis. One case so diagnosed was a case of exophthalmic goiter. The red cells in chlorosis were not much reduced, but the hemoglobin was low. Secondary anemia was not present in every case in which parasitic eggs were found in the stools, but when the case was well marked and had been prolonged, the eggs in the stools were significant. This form of anemia had a gradual development. That form of fish tapeworm anemia was a rare disease in this country. The blood findings did not differ from those of pernicious anemia. The differential diagnosis was made from the history of the case and the presence of the eggs in the stools.

Treatment of Anemia.—Dr. S. J. Meltzer of New York City read this paper. He said that the medical profession knew that iron, arsenic, fresh air, etc., were most frequently used in the treatment of anemia, but he wished to draw attention to some points in the treatment which marked a distinct progress. He spoke of transfusion and of the recent work of anastomosing the end of a vein with that of an artery. Direct transfusion had cured animals. The work of the Society of Antivivisection was to be deplored.

He spoke of the great work that had been done by Herter of New York in intestinal conditions, and of the anaërobic bacteria, together with the resulting fermentation causing anemia. He believed in frequent irrigations of the colon, as was suggested by Herter. Two cases of pernicious anemia were reported cured by lavage and diet. Inorganic iron was generally used in chlorosis. He believed that the struggle between organic and inorganic iron was in favor of the latter. It was as beneficial as the organic iron in the food. The question of the absorption of organic iron was an interesting one. He did not mean albuminates of iron, or peptonated iron, but the iron that was already in the body. He said that the metabolism of iron had certain features not unlike that of the carbohydrates—somewhat as glycogen was stored up in the liver and fed out into the blood. Iron certainly was stored up in the body and fed out into the circulation and tissues as it was required. This was one of the physiological factors of safety.

Dr. Theodore Potter of Indianapolis opened the discussion. He said that he had been impressed by the relative frequency of pernicious anemia in the rural districts. During the last year he had seen five cases, and four came from the country. All of these were in men—farmers—and all were over fifty years of age. He thought that this fact might point to the origin of pernicious anemia.

Dr. A. D. Atkinson of Baltimore said that he had had one case of uncinarial anemia that had made a perfect recovery. At autopsy, four years later, no lesion was found in the intestinal tract.

Dr. Eshner of Philadelphia said that he wished to bring out the difference in classification between chlorosis and pernicious anemia. He thought that some classification should be made from the blood conditions in these cases, and suggested that one might have qualitative or quantitative anemias.

Dr. Woods Hutchinson of New York said that the more one studied anemia the more one was inclined to consider it a toxemia. He believed the time would come when the term primary anemia would be abolished.

Dr. James K. King of Watkins, N. Y., said that there was a low blood pressure in pernicious anemia. He thought that colon irritation was the best form of treatment. He first cleaned the rectum and colon; then injected saline solution into the bowel. This procedure increased the blood pressure and the symptoms steadily improved.

Dr. A. H. Jones of Buffalo said that out of ten cases of pernicious anemia only two patients were under forty years of age. One was thirty-three, and the other twenty-nine years. The only anemia whose cause was known was the so-called secondary anemia. He thought that before a complete diagnosis was made the stomach should be examined for achylia gastrica. In the treatment of chlorosis, Blaud's pill was superior to other preparations, as Dr. Meltzer had pointed out. He had found occasionally in pernicious anemia that there was a marked improvement in the blood conditions from the use of arsenic.

Dr. S. R. Black of Los Angeles, Cal., said he did not believe Dr. Cabot was justified in his classification of anemias. Primary anemia should be in the class with other anemias that gave the same blood picture. He spoke of hypertrophy of the genitals and cardiovascular changes occurring in pernicious anemia.

Dr. Hobson of Parkersburg, Iowa, said that in a country practice in a town of 3,000 inhabitants he had seen twenty cases. All had had a careful diagnosis, made from the blood examinations, and it was interesting to find how frequently pernicious anemia occurred in the country districts.

Dr. Frank Smithies of Ann Arbor said that he wished to emphasize the point that Dr. Cabot made regarding the examination of the blood in the final diagnosis. The treatment was rest, fresh air, and diet. The patients were placed in the sunlight for eight hours. The gastric condition had to be corrected by careful feeding. At critical periods food was given in spoonful doses. He had found that the blood pressure was low—one case as low as 60 mm.—but he thought that no therapeutic conclusion was to be drawn from the blood pressure. In regard to the fact that pernicious anemia was seen in farmers, he thought that it was due to some geographical condition rather than any condition of the farmer's life.

Dr. Norman Bridges of Los Angeles, Cal., said that there was only one drug in the treatment of chlorosis—calomel in tonic doses, one-fifth to one-thirtieth of a grain. This gave better results than iron preparations.

Dr. Bunting, in closing, spoke of the experimental pernicious anemia and of the various causes. He thought that the great majority of cases of anemia were due to the same cause, which at present one was unable to separate.

Dr. Cabot of Boston said that the question of classification was one of convenience. In some anemias the cause was known, in others unknown. He spoke of the work done

by Dr. Ashford in ridding the whole island of Porto Rico of the hook-worm. He said that Dr. Ashford had found the cause of uncinariasis. He did not agree with Dr. Meltzer that intestinal fermentation was the cause of pernicious anemia.

Dr. Meltzer closed the discussion.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held May 21, 1907.

DR. WARREN COLEMAN IN THE CHAIR.

The Clinical and Autopsy Records of a Case of Paraplegia in Consequence of an Aneurysm of the Arch of the Aorta; Demonstration of Specimen.—Dr. BOND STOW reported this case and showed the specimen. (See page 59.)

Some Sources of Error in Gastric Diagnosis.—Dr. CHARLES S. FISHER read this paper. He said that as most of the serious questions in gastric diagnosis arose from suspected conditions at the pylorus and as most exploratory operations were made to decide conditions involving this region, it was natural that any hint bearing upon this region should be of interest. The presence or absence of a tumor mass was often a matter of such doubt in these cases that little reliance could be placed upon the tactile condition and the imagination of the individual examiner, both very uncertain quantities. Granted that these faculties were developed to the fullest measure, they were often rendered useless by the erratic conduct of the pylorus itself. Unless the sphincter was absolutely destroyed by new tissue infiltration, it would assume a changeable consistency dependent upon the vigor of manipulation, the length of examination, and its general irritability; that was, what one examiner might feel as a contracture at one examination might be a relaxation of the one following. In this respect the first examination always had the advantage, for the pylorus could tire out very easily. No two examinations should be made in immediate succession for this reason. A peculiarity of pyloric new growths in any stage, but of value only in the early period, was the tendency which they had to induce spasmodic strictures of the esophagus in some instances. He said they had been taught to believe that in cases of pyloric stenosis with accompanying dilatation, the differential diagnosis between malignancy and benignancy depended largely upon the duration of the illness, all other things being equal, and it often happened that upon this point they were forced to the conclusion that a given condition of this character was benign only to find that at the operating table the usually accepted evidence had been misleading. Instead of connective tissue contraction they found a very small nodule, very hard in consistency, causing a partial obstruction sufficient to give all the characteristic subjective and objective evidences of retention. In these cases the history was one of long duration, and instead of a lack of secretion there was a hypersecretion in its most active sense. The organ was in a state of overstimulation due to the partial retention. It was impossible in these cases to avoid error, for there was no way to determine the presence of a growth by the usual methods and the history itself could only mislead. There was another condition in which the pylorus had resolved itself into a rigid tube, patent for all ordinary semiliquid diet. In these cases there was no great food retention and no dilatation whatever. The stomach not only emptied itself, but almost constantly contained bile, which was misleading. A suspicion of the actual condition might be aroused by the fact that it was very difficult to determine the size of the stomach by percussion after filling with water or by insufflation. Condition in the gall-bladder, duodenum, kidney and appendix might be obscured by giving rise to gastric symptoms, in which the pylorus played in reality a secondary role. Among the remote influences which might affect the pylorus and occasionally direct attention to it as the seat of some organic lesion were sudden changes in temperatures and sudden changes in mental disposition, sudden fits of temper. Examination of the stomach during the intervals would reveal nothing abnormal, and they must rely entirely upon the history for the diagnosis. He thought that it was hardly necessary to refer to the interchangeable nature of prolapsed kidney and pyloric symptoms in those cases where no pronounced symptoms were referable to either. It sometimes happened, however, that a kidney prolapsed to the first degree might give rise to actual spasmodic pyloric attacks. There were two conditions distinctly connected with the nervous system which at times gave rise to such pronounced acute gastric symptoms as to mislead; though of different origin, they gave rise to acute pyloric spasm with all its accompanying symptoms. He referred to conditions of temper, and to the state of post-prandial hysteria, or nervous excitation beyond the control of the individual affected. In closing he called attention to two very common conditions of the fundus, atony, and catarrh of the stomach.

Dr. ROBERT T. MORRIS said that he was glad to hear Dr. Fisher call attention to the influence gallstones played and, in this connection, he wished to ask members of the section who were engaged in post-mortem work if they knew the proportion of cases in which adhesions from the bile tract engaged the pylorus, no gallstones being present. He said that he had had occasion to operate upon a number of such cases; there was a given proportion of the cases where the obstruction was due to bile tract adhesions. They should be more alert in diagnosing these cases, because a fairly large percentage of his patients with pyloric stenosis were patients with bile tract adhesions which engaged the pylorus. There was no other cause for the obstruction. The percentage was large enough, however, so that they should learn to distinguish these cases. The post-mortem showed that they had adhesions to some extent, probably not important in most people, and probably some did not even suspect that they had any adhesions. In some cases, however, they caused symptoms of pyloric obstruction. Another point he wished to speak of was gas collections in the hepatic flexure occurring in many cases, and which could be explained in two ways: first, the effect of these bile tract adhesions engaging the hepatic flexure, and they were certainly due to gas accumulation with the peristalsis affected; and secondly, to an entirely different group of cases. In involution of the appendix there was a hyperplastic replacement which contracted and engaged the filaments of the nerves, and impulses were transmitted from the base of the appendix to the lumbar plexuses and even to the semilunar ganglion. Meissner's and Auerbach's plexuses were acted upon, and there was a distention of the hepatic flexure, during which the involution of the appendix was under way. He presented three specimens which were removed from patients who had gone the rounds for from five to ten years. In the first there was no mucosa or muscularis, nothing being left but this hyperplasia and nerve filaments. These patients must have had symptoms. In the second specimen, the patient from whom it was removed suffered for ten years, and here there was an irregular involution. The nodes represented mucosa, and there was an internode replacement of muscularis and lymphoid tissue. In the third specimen, the appendix was undergoing involution. These three specimens represented appendices found frequently in people with intestinal dyspepsia of obscure origin. In a certain proportion of cases, a loose kidney presses directly upon the

pylorus. He had found such cases, and had relieved them by fixation of the kidney. Very often he found that eyestrain was a cause of obscure gastric disturbances in patients sent to him for operation. He now made it a rule to work out this possible factor, or at least to get negative testimony upon this point. Ophthalmologists have reported upon the muscular balance, not upon the sight. There was a large enough proportion of cases who had avoided operation every year to make it necessary for them to have negative evidence upon this point. In neurotic patients wtih gastric disturbances, he asked to what extent were the gastric symptoms precipitated by the neurotic condition and to what extent by the toxemia. This was an extremely difficult point to work out in his particular field.

A Clinical Study of Gastrosuccorrhea.—Dr. Henry S. Patterson read this paper. In twenty-three cases there was only one female. Excessive use of tobacco occurred in four cases, while alcohol was a factor in only one case. Occupation seemed to play an important part in all the cases. The one etiological factor which made an indelible impression upon them was the practice of masturbation. In reviewing these cases there seemed to have been present all the elements which were generally recognized as active in producing impairment of nervous function. Another element was the effect of the individual's knowledge that a stomach tube was to be passed, as well as the mechanical irritation of the tube itself. In 413 cases in which gastric analyses were made, a continuous flow of gastric juice was found in twenty-three cases in which they believed they could exclude ulcer and cancer. In sixteen of the cases gastroptosis was present; in three its condition was not noted, while in the remainder the examinations were not sufficiently exhaustive to be conclusive. Of these sixteen cases seven showed a large amount of mucus, six had a moderate degree, and statements as to the others were indefinite. In the cases in which gastroptosis was not found or noted, in three mucus was very abundant, in two it was present in moderate amount, in one it was not noted, and in one not found. Whether these were cases of acid gastritis or not they were not prepared to state definitely. The amount of juice in these cases varied from 30 to 200 c.c. The amount of free hydrochloric acid varied from ten to ninety-two. There seemed to be no relation between the amount of juice and the amount of free acid. The color of the juice was bright green, yellowish-green, yellow, or of the appearance of clam juice, but they had not been able to find any relation between the color and the degree of acidity. In conclusion they emphasized (1) that chronic gastrosucchorrhea with atony or acid gastritis occurred in individuals whose environment and habits deranged the nervous integrity, and that masturbation was a notable causative factor (2) That it was a fairly frequent phenomena in gastric disorders and would be found more often were methods of case study more complete. (3) That the finding of bile in the fasting juice was a fairly constant characteristic.

Dr. W. A. Bastedo said that Strauss regarded forty c.c. as the minimum pathological amount of gastric juice in a fasting stomach, but Dr. Bastedo believed that they should take the stomachs as they found them, and that there might be a continuous secretion of gastric juice, and yet none at all might be found. What figure to take was hard to say. With regard to masturbation, that was one of the causative factors of neurasthenia. Take, for instance, students who were run down by overwork and worry, between fifteen and thirty years of age, they became very neurotic; in their fasting stomachs a great deal of gastric juice was to be found, especially during the more neurotic periods. Masturbation was a causative factor in causing a similar neurotic condition and, therefore, produced a gastrosuccorrhea. In his work he liked to give a meal to satisfy the appetite, or the demands of the appetite for food. He then washed out the stomach as thoroughly as possible in about an hour and a half or two hours, assuming that enough by that time had passed the pylorus to satisfy the appetite on the part of the patient. He then waited one hour and then determined if there was any gastric juice. If so, he assumed that the stomach was secreting with no stimulus from appetite or from food. In his cases of gastroptosis he found a great many secreting a great deal of gastric juice when he could not get the test with iodine for starch or other evidences of food remains. In some cases of atony there was some gastric juice present without gastroptosis. Dr. Bastedo recalled the work of one man who found in cases where there was a great deal of gastric juice, or a moderate amount in a fasting stomach, that there were many in which ulcer was present. There were twenty-eight cases in which the surgeon could not find evidences of ulcer; yet upon operation ulcers were found in every one of them. The type of the contents was very interesting; it did not seem to be a normal gastric juice. In some cases there was no pepsin present; two out of eight cases were reported with no pepsin present. The hydrochloric acid varied greatly as well, and it was interesting to note the differences between the acidity before and after a meal; in some cases the acidity was the same.

Dr. F. V. Goodridge said that he doubted that gastrosuccorrhea could be considered as a primary condition, but as secondary to one which increased the irritability of the gastric glands and caused them to secrete when they would otherwise be quiescent. These diseases were a mild form of myasthenia which through delayed digestion caused stagnation and consequent fermentation. Ulcers and erosions, either recent or healed, with the formation of scar tissue, might act as a direct irritant to the gastric mucous membrane. A pyloric obstruction from any cause and a hyperacid gastritis, the latter very important, were also etiological factors. In upwards of 500 cases of gastric disturbance he said he had only seen eight which had the chief objective symptom of gastrosuccorrhea, that was, the presence of over thiry c.c. of gastric juice in the fasting stomach without food remains. In none of these could the foregoing diseases be excluded. Boas grouped together the symptoms of the disease as follows: *Subjective:* Pyrosis, sour belching, occasional vomiting of intense sour material preceded by severe pain in the stomach and back, increased hunger and thirst and constipation. *Objective:* The patient was poorly nourished, the abdominal tenderness varied from severe and localized pain in the epigastrium to complete absence of pain; the greater curvature was generally found below the umbilicus on percussion and succussion. The other abdominal organs were normal and the most important symptom of all was the presence of over fifty c.c. of brown, green, or colorless gastric juice in the fasting stomach. There was a symptom which objectively and subjectively would fit the condition above mentioned. Reichmann, who first called attention to the disease, considered it a rare condition. Riegel, on the other hand, numbered his cases by the hundreds and Jaworski found it in about twenty two per cent. of all his stomach cases. The French authors, with the exception of Hayem, believed it was a primary and relatively frequent disease, in which conclusion Zweig agreed. Einhorn had seen eight cases in eight years. Boas considered it in almost every case to be an accompaniment of other diseases, while many others believed that it did not exist as a morbid entity. This was an extraordinary divergence of opinion, but it seemed to Dr. Goodridge that the burden of proof was in favor of the negative side of the case.

Dr. Henry S. Patterson said that he had purposely left out many points in his paper. He did not touch upon the symptomatology or therapeutics. At the College

of Physicians and Surgeons last year some very interesting investigations were made on dogs which had a most important bearing on therapeutic applications. Experiments were made to determine the effect upon the acidity when food was introduced in different degrees of moisture; they determined that the more water they gave with a given amount of meat or other food material the greater was the acidity of the gastric juice at a certain time afterwards. They found, however, that if they gave this water at intervals between the meals, not sooner than one hour before, and not earlier than one hour after the meal, no effect was made upon the juice other than diluting it. It was also found that olive oil was instrumental in bringing about an alleviation of the symptoms. Olive oil inhibited the secretion of hydrochloric acid. The use of belladonna was also advantageous.

Philadelphia County Medical Society.

At a stated meeting held June 12 a "Symposium on Opsonic Treatment" was held. Dr. Benjamin A. Thomas read a paper entitled "Variability and Unreliability in the Determination of Opsonic Indices." He pointed out the difficulty of the technique, the time required in its execution, and the necessity for the utmost precision in carrying it out. Great care is requisite in securing proper emulsions and the personal equation is a not unimportant factor in the result. By reason of these facts the opsonic principle, in its present form, is not susceptible of general application in clinical medicine. Dr. Jay F. Schamberg presented a communication entitled "Preliminary Report Upon the Use of Bacterial Injections in Diseases of the Skin." He demonstrated a case of sycosis vulgaris in which remarkable results were obtained from injection of bacterial emulsions of the staphylococcus after long-continued treatment by various other means had failed. He exhibited a second case of sycosis vulgaris in which also good results were obtained, though not so brilliant as in the first case. In a third case of eczema with complications, improvement in the secondary infections took place. Dr. Schamberg cautioned against the indiscriminate employment of bacterial emulsions in the treatment of disease, pointing out that they could be expected to prove useful only in cases of circumscribed infection. Dr. D. H. Bergey read a paper entitled "The Nature of Opsonins, and the Limitation of the Use of Bacterial Infections." He stated that the opsonins are substances, sometimes present normally, but whose production is stimulated by the injection of emulsions of the bacteria whose effects are to be antagonized. They act upon the bacteria in such a manner as to make them more readily the prey of the phagocytes circulating in the blood. The action is in every instance specific, each bacterium producing the opsonins useful in counteracting the effects of the respective microorganism. Dr. Nathaniel H. Gildersleeve presented a communication entitled "The Technique of the Determination of the Opsonic Index, with Remarks Upon the Value of the Same." He demonstrated the method of determining the phagocytic activity of normal blood with respect to the infecting organism under observation, and comparing with this the phagocytic activity of the patient's blood for the same organism. An emulsion of a culture of the organism in question is injected and the phagocytic activity of the blood is studied further. When the conditions are favorable a so-called negative phase of lowered resistance develops first, and this is soon followed by a secondary positive phase of increased resistance. Injections of increasing strength are repeated after varying intervals, but never during the negative phase. Dr. Gildersleeve expressed great confidence in the utility of the procedure from both the prognostic and therapeutic standpoints. Dr. A. A. Uhle read a paper entitled "Preliminary Report Upon Results of Opsonic Treatment in Various Clinical Conditions." He reported cases of acne, gonorrhea, and suppurative joint-disease with sinuses, some of which yielded good results to opsonic treatment. In some instances treatment was instituted without preliminary study of the opsonic index, but it was found that the treatment could be employed more intelligently and more successfully if this index were always obtained before giving the injections.

Books Received.

While the Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, it must be with the distinct understanding that its necessities are such that it cannot be considered under obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Applied Materia Medica. By J. Henry Schroeder, Ph.G., M.D. Second edition, 12 mo, 113 pages, muslin. The Robert Clarke Co., Cincinnati.

The Common Bacterial Infections of the Digestive Tract. By C. A. Herter, M.D. 8vo, 359 pages, muslin. The Macmillan Co., New York.

Physical Diagnosis. By Howard S. Anders, A.M., M.D. 8vo, 456 pages, illustrated, muslin. D. Appleton & Co., New York.

Practical Physiological Chemistry. By Philip B. Hawk, M.S., Ph.D. 8vo, 416 pages, illustrated, muslin. Price, $4 net. P. Blakiston's Son & Co., Philadelphia.

Anesthetics. By Dudley Wilmot Buxton, M.D., B.S. 12mo, 415 pages, illustrated, muslin. Price, $2.50 net. P. Blakiston's Son & Co., Philadelphia.

Die Behandlung der Tuberkulosen Wirbelsäulen entzündung. Von Dr. F. Calot. 8vo, 90 pages, illustrated, paper. Stuttgart: Verlag von Ferdinand Enke.

Die Behandlung der Angeborenen Hüftgelenksverrenkung. Von Dr. F. Calot. 8vo, 283 pages, illustrated, paper. Stuttgart: Verlag von Ferdinand Enke.

Wellcome's Photographic Exposure Record and Diary, 1907. 32mo, 260 pages, muslin. Burroughs Wellcome & Co., New York.

The Miracle Worker. By Gerald Maxwell. 12mo, 349 pages, muslin. John W. Luce & Co., Boston.

Gall-stones and Diseases of the Bile Ducts. By J. Bland-Sutton, F.R.C.S., Eng. 12mo, 233 pages, muslin, illustrated. Wm. Wood & Co.

A Practitioner's Handbook of Materia Medica and Therapeutics. By Thos. S. Blair, M.D. 8vo, 253 pages, muslin. The Medical Council, Philadelphia.

Experiments on Animals. By Stephen Paget. Third and revised edition. 12mo, 385 pages, muslin. Wm. Wood & Co.

Tics and their Treatment. By Henry Meige and E. Feindel. 8vo, 38 pages, muslin. Wm. Wood & Co.

Medical Jurisprudence. Second edition. By R. A. Witthaus, A.M., M.D., and Tracy C. Becker, A.B., LL.B. Vol. 2, 8vo, 1,008 pages, illustrated, muslin. Wm. Wood & Co.

Cancer of the Rectum. Fifth edition. By Harrison Cripps, F.R.C.S. 8vo, 255 pages, illustrated, muslin. P. Blakiston's Son & Co., Philadelphia. Price, $2.00.

Lessons on Massage. By Margaret D. Palmer. Third edition, 8vo, 272 pages, illustrated, muslin. William Wood & Co., New York. $2.50.

Principles and Practice of Medicine. By Arthur R. Edwards, A.M., M.D. 8vo, 1328 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

The Essentials of Histology. By E. A. Schäfer, LL.D., Sc.D., F.R.S. Seventh edition, 8vo, 507 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

Kokkogene Haütleiden. Von Dr. S. Jessner. 8vo, 102 pages, paper. A. Stubers Verlag, Würzburg.

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D., Lond. 8vo, 216 pages, muslin. William Wood & Co., New York.

Surgery of the Rectum. By Fred C. Wallis, B.A., etc. 8vo, 168 pages, illustrated, muslin. William Wood & Co., New York.

Nugæ Medicinæ. By John Godfrey, Surgeon. 12mo, 102 pages, muslin. The Richmond & Backus Co., Detroit, Mich.

Ulceration of the Cornea. By Angus Macnab, B.A., B.Sc., etc. 8vo, 196 pages, illustrated, muslin. William Wood & Company, New York.

Handbuch der Pathologie des Stoffwechsels. Von Carl von Noorden, Wien. 8vo, 987 pages, paper. Berlin, 1907: Verlag von August Hirschwald.

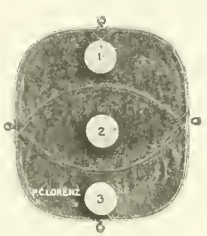
New Instruments.

A NEW ABDOMINAL ICE-BAG.

By ABRAM BROTHERS, B.S., M.D.,

NEW YORK.

The general practitioner of medicine, as well as the operator doing abdominal surgery, has frequent use of local refrigeration in cases of intraperitoneal hemorrhage or intestinal hemorrhage from typhoid fever, traumatisms, ectopic gestation, etc. Similarly in conditions of general peritonitis of puerperal or postoperative origin, cold to the abdomen is indicated. The ordinary ice-bags are usually too small, when used singly, and uncomfortable when two or three are applied at one time. The ice-coil has been a much neater and cleaner method of applying cold to the abdomen. Unfortunately it requires a multiplicity of pitchers, pails, etc., and, in spite of the constant supervision of nurses, it is apt to get out of order and not keep the abdomen continuously cold.



In order to overcome these objections I have had constructed an ice-bag consisting of three separate bags so joined as to readily adapt themselves to the contour of the abdomen. The lightest rubber has been selected and the caps are made of aluminum. The size of each bag is so arranged that an even weight lies on the abdomen at nearly every point, and patients do not complain of discomfort while the bag is in use.

By means of a tape the bag can be fastened to the abdomen and will not be displaced even by delirious patients. Once every hour the ice is replaced. By means of a suction syringe the ice-water can be sucked out and freshly cracked ice introduced into each ice-bag without removing the bag from the abdomen, and with the minimum of disturbance. The bag is manufactured by P. C. Lorenz of this city.

The Intractable Menorrhagias of Arteriosclerosis of the Uterus.—Robert L. Dickinson says that in a case of excessive and debilitating flow at the monthly periods in patients between thirty-five and forty-five years old, cancer, fibroid, polyp, and fungus endometritis, are to be considered. There is no cauliflower cervix, tumor, or much enlargement. Ergot, hydrastis, douches, and rest all fail. Curetting shows no suspicious scrapings; the bleedings continue. It is then certain that submucous fibroids too small for detection by bimanual touch, or arteriosclerosis is present. The uterine cavity should be obliterated or the uterus removed. This will depend upon both the condition of the uterus and the patient. Most incoercible menorrhagias indicate hysterectomy, and occasionally a case calls for panhysterectomy. Hemorrhages are then arrested and the secondary anemia may be successfully treated. "Neurasthenic" manifestations will be relieved in those cases in which the arteriosclerosis has been uterine, but will be only lessened when the vascular change is general.—*Brooklyn Medical Journal.*

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious disease reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 6, 1907:

	Cases	Deates
Tuberculosis Pulmonalis	312	136
Diphtheria	326	39
Measles	616	34
Scarlet Fever	308	28
Smallpox	1	..
Varicella	76	..
Typhoid Fever	38	7
Whooping Cough	18	8
Cerebrospinal Meningitis	14	11
Malarial Fever	.....	.....
Totals	1709	263

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 5, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
District of Columbia, Washington	June 15–22	1	..
Illinois, Chicago	June 22–29	4	..
Galesburg	June 15–22	1	..
Springfield	June 20–27	1	..
Indiana, Indianapolis	June 16–23	2	..
Lafayette	June 17–24	3	..
Southbend	June 15–22	2	..
Kansas, Kansas City	June 15–22	4	..
Kentucky, Covington	June 22–29	5	..
Louisville	June 21–28	2	..
Louisiana, New Orleans	June 15–22	5	1
Massachusetts, Lawrence	June 15–22	2	..
Michigan, Detroit	June 15–29	22	..
Minnesota, General	May 1–June 16	51	..
Missouri, St. Joseph	June 15–22	2	..
St Louis	June 15–22	5	..
Ohio, Toledo	May 18–22	24	..
Tennessee, Nashville	June 23–30	2	..
Texas, San Antonio	June 15–22	3	..
Virginia, Richmond	June 15–22	3	..
Washington, Spokane	June 15–22	3	..
Wisconsin, Milwaukee	June 15–22	3	..

SMALLPOX—FOREIGN.

Africa, Lorenco Marquez	April 1–30	..	3
Austria, Trieste	May 25–June 1	1	..
China, Hankau	May 11–18	..	Present
Shanghai	May 11–18	Foreign, 2 Nat.	29
Ecuador, Guayaquil	May 1–31	..	4
Egypt, Cairo	May 29–June 3	6	3
France, Canne	May 1–31	9	2
Nice	May 1–31	1	1
Paris	June 1–8	10	4
India, Bombay	May 14–21	..	1
Italy, General	June 6–13	27	..
Java, Batavia	May 11–18	4	1
Korea, Seoul	May 18–25	..	Present
Madeira, Funchal	June 1–15	..	44
Manchuria, Dalby	May 18–June 1	5	1
Mexico, Agual Calientes	June 15–22	17	..
Portugal, Lisbon	June 1–15	10	..
Russia, Moscow	May 25–June 8	17	4
Odessa	June 1–8	2	..
Riga	June 1–8	14	..
St. Petersburg	May 11–25	27	2
Spain, Almeria	May 1–31	..	4
Barcelona	June 1–10	..	1
Cadiz	May 1–31	..	6
Huelva	May 1–31	..	1
Seville	May 1–31	..	15
Valencia	June 9–16	12	..
Straits Settlements, Singapore	April 27–May 4	..	1
Turkey, Bagdad	May 11–18	..	Present
Constantinople	May 19–June 2	..	3

YELLOW FEVER.

Brazil, Manaos	May 11–18	..	1
Cuba, Habana	June 24	1	from Union de Royes.
Ecuador, Guayaquil	May 1–31	..	5
Guatemala, Puerto Barrios	June 27	1	..

CHOLERA.

India, Rangoon	May 4–11	9	..

PLAGUE

Chile, Antofagasta	May 18–25	30	13
Egypt, Alexandria	May 30–June 6	..	1
Assiout Province	May 30–June 6	3	5
Beni Souef Province	May 30–June 6	5	4
Keneh Province	May 30–June 6	42	42
Minieh Province	May 30–June 6	2	2
India, General	May 4–11	91,275	82,400
"	May 11–18	77,005	67,681
Bombay	May 14–21	..	124
Rangoon	May 4–11	..	37
Peru, Callao	May 8–June 1	2	2
Chiclayo	May 18–June 1	3	1
Lambayeque	May 18–June 1	1	..
Lima	May 18–June 1	8	3
Mollendo	May 18–June 1	3	1
Trujillo	May 18–June 1	6	2

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Original Articles.

THE CLINICAL COURSE OF GASTROPTOSIS AND ITS TREATMENT.*

By GEORGE ROE LOCKWOOD, M.D.,

NEW YORK.

I HAVE taken for the subject this evening The Clinical Course of Gastroptosis, for the reason that this disease is one of the most common which we are called upon to treat, and, if I might be allowed to say so before this Society, a disease which is not thoroughly understood by the profession at large. As to its frequency, in my last two thousand patients I have encountered this disorder in 351 cases, making 17.5 per cent. of the total number of gastric and intestinal cases due to gastroptosis. This is more than twice the frequency of gastritis, the latter disease being only 8 per cent. Now, of course, 17.5 per cent. of all dyspeptics do not have gastroptosis, and the only inference possible is that the unrelieved cases filter through the hands of the family physician and come to the specialist for relief. In no other way would it be possible to have so great a proportion of these cases. For this reason I am bringing the subject before you for discussion this evening.

On analyzing the histories of these 351 patients, it becomes evident that there is a great similarity in their clinical histories, so that it may be asserted that gastroptosis runs a course which is typical and characteristic, and one which can be divided into successive stages. Instead of presenting a statistical analysis of these histories and a detailed account of the various symptoms, I thought it would be better to take a typical history of one of these patients, and go over the symptoms and the development of the disease as illustrated by this case, and I have selected the history of a patient which presents a perfect clinical picture of the disease and is characteristic in every way of these cases.

CASE.—Young unmarried lady, 27 years of age. Patient was a delicate, undernourished child, although free from serious illnesses. When 15, she noticed that from time to time, especially after physical or nervous fatigue, she suffered from heartburn, gas in the stomach, and occasional distress after meals. When 18, she entered upon an active social life, and these symptoms became continuous and severe. She had more or less constant gas in her stomach, distress after meals, occasional heartburn. She lost weight and became very nervous. The bowels became constipated. The more she dieted, the worse she became.

This is a perfectly typical, straightforward history of the course of gastroptosis, in all its essential details. Let us examine these various statements more in detail.

"She was always a delicate, undernourished child."—This is the ordinary history of the patient before the advent of gastric symptoms, and this condition of subnutrition and nervousness may be said to constitute the preliminary stage of the disease. There is gastroptosis, but no atony. I believe it is possible to pick out in childhood those who are liable to develop symptoms of the disease later in life, and to inaugurate a prophylactic treatment so as to minimize such a liability. The method of diagnosis and the treatment will be alluded to later.

"Although free from serious illness."—A number of pathological conditions have been considered as possible causes of the disease, but I have never found any one of these worthy of serious consideration. Meinert has considered chlorosis a cause; this is not borne out by my histories. In none of the cases has gastritis seemed to be an etiological factor. As regards lacing, upon which so much has been written, I have not found tight lacing to be a cause in any of the patients; and furthermore, I have found that the modern straight-front corset does these patients more good than harm. While not advocating tight lacing, my feeling is that we can absolve it from all blame in the formation of gastroptosis.

"When 15 she noticed that from time to time, especially after physical or nervous fatigue, she suffered from heartburn, gas in the stomach, and occasional distress after meals." *A distressed stomach will do its work without symptoms, unless it becomes atonic, to which it is by nature predisposed.* This is the keynote of the entire situation, and cannot be too strongly emphasized.

At first there are occasional periods of atony, induced by mental or physical fatigue, and which one readily recovers from as soon as the cause is removed. These symptoms in this stage of temporary atony are: (1) Gas on stomach; (2) distress after meals; (3) occasional heartburn.

If patients live within their physical and nervous limitations they do not suffer. If they transgress, they have these symptoms. As the case progresses, these symptoms become more and more readily induced, and more severe. Moreover, as the case progresses, the symptoms tend to become more distressing, so as to lead finally to semi-invalidism.

"When 18, she entered upon an active social life, and these symptoms became continuous and severe." Now starts the third stage of the disease.

First stage: Gastroptosis alone—no symptoms.

Second stage: Gastroptosis—temporary atony—intermittent symptoms.

Third stage: Gastroptosis—permanent atony—continuous symptoms.

As noted before, the symptoms of atony, gas, heartburn, and distress were coming more and more frequently under temporary fatigue. Now, under the increased physical and nervous strain to which the patient was subjected, the atony becomes perma-

*Read before Bellevue Alumni Association, April 3, 1907.

nent, and the symptoms will last with reasonable certainty until the patient is put on a rest cure.

It may seem that the fatigues and nervous strains of a social life are inadequate to produce such distressing results; but patients with gastroptosis have poor resisting powers; they cannot do what other people do without suffering evil consequences, and they must be treated as a class by themselves.

In this case, the demands of a social life were sufficient to cause a continuous atony of the stomach, with its attending symptoms. In other cases, it would be some other definite nervous or physical strain.—A mother may lose her child; a lady will lose her money and have to teach; another will have a fright in a runaway accident, or will have to nurse a sick husband or child; another will have an unfortunate love affair. In 90 per cent. of my cases such a definite cause has marked the onset of the continuous symptoms.

"She had more or less constant gas on her stomach, distress after meals, occasional heartburn." The gas is a constant factor. Given a thin woman with constant gas, always suspect gastroptosis in its atonic stage. This gas is often spoken of as due to fermentation, and the patient in consequence is shut off from starches and sugars. Except in cases of pyloric obstruction, with enormous quantities of prolonged food retention and with a reduction in the amount of hydrochloric acid, as in some of the malignant cases, I am confident that fermentation in the stomach is a myth. Would that the name could be totally expunged from our records, in the treatment of our patients. You cannot make the gastric contents from these patients ferment. You may mix them with sugar, with syrup, with starch solutions, and keep them in proper apparatus, such as a saccharometer or Strauss fermentation jar, for hours and days, and they will not ferment, and you cannot make them do so. Test breakfasts are sent in mailing bottles or by express from distant parts of the country, without a sign of fermentation even after days.

I have aspirated the gas from the stomachs of these patients by catching the gas in a deflated toy balloon tied on the end of a stomach tube, and on analysis of this gas found no CO_2—merely atmospheric air. Again, the higher the gastric acidity in these cases, the more the gas. In other words, the more sterile the contents, the greater the so-called fermentation; which is, of course, an absurdity.

The *distress* regularly depends upon the amount of gas, and the quantity of the food. The distress due to gas is relieved when the patients raise it, leaving them in comfort. It does not depend either on the quantity or the quality of their food, but comes after anything simple, as well as anything indigestible. It is important to remember this in the dietetic management of the case. It has no relation, furthermore, with the time of the meals. If anything, it is more marked in the fasting condition. The distress caused by the quantity of the food is more of a loaded feeling in the stomach. The quality of the food makes no difference; it is the purely mechanical result of putting a certain weight of food into the stomach, and will appear in equal severity with a pound of water or a pound of meat.

Many of these patients have been put on large quantities of liquid food, and especially on large quantities of water. This, as will be seen later, is the worst possible treatment for these cases. Many stomachs are ruined by the attempt to flush the system, and advice on this point is not lightly to be given.

Heartburn almost regularly accompanies these cases, and is directly due to atony. The symptoms are usually more pronounced three or four hours after meals, when the stomach begins to empty itself.

"She lost weight and became nervous."—Loss of weight is a constant factor, and is proportionate to the increasing development of the disease. In some cases the patients seem to eat enough to nourish them, though they grow thin. The cause for the lack of nutrition cannot, in these cases, be determined; in other cases, the lack of nutrition is directly traceable to a starvation diet to which they are subjected, often, I am sorry to say, by medical advice. One article of diet after another is cut off, and practically nothing left but slops and liquid food. The thinner they are, the more the gastroptosis and the atony progress, and the worse they get. You cannot improve these patients even to the least degree unless you improve their nutrition.

Neurasthenia, with all its varied symptoms, is proportionate to the advance of the disease, and contributes a great variety of symptoms of increasing severity. Many of these cases are considered almost hopeless invalids.

"And the bowels become constipated."—This is regularly due to atony of the colon, often complicated by a sagging of the colon in its transverse portion. The flushing of the colon in these cases usually brings large masses of mucus in strings, and this mucous colitis, or better, "myxoneurosis," is perpetuated by the constant use of cathartics to which these patients are addicted.

"The more she dieted the worse she became."—I cannot do more at the present time than to emphasize this point. Nothing is worse for these patients than to allow subnutrition; nothing worse than liquid food; nothing worse than large quantities of water; and yet these errors are of common occurrence in the treatment of these patients. I will revert to this topic under the head of the treatment of the disease.

Physical Examination: Tall, slight, delicate girl; weight, 94 lbs., clothed. The habitus enteroptoticus is present. The lower curvature of the stomach lies 8 cm. below the navel by succussion, by scratch percussion, and by inflation; gastrodiaphany not employed. The upper curvature is not located. In the morning fasting state, 40 c.c. opalescent fluid reacting to congo, withdrawn; total acidity, 40; free hydrochloric, 14; no food remains. Test breakfast in one hour showed 130 c.c., separating into two layers, the upper one-third of clear fluid, a lower two-thirds in depth of well digested food remains; slight admixture of gastric mucus; total acidity, 62; free hydrochloric, 28. The colon is atonic in its ascending portion; irrigation brings strings of mucus. The lower border of the liver is palpable ½ in. below the costal margin in the mammary line; its edge is apparently normal. The right kidney is ⅓ palpable. Physical examination otherwise negative.

Now let us take up a few of these statements seriatim, and discuss them together.

"The habitus enteroptoticus is present." By this we mean the long, narrow thorax and abdomen, and a costal angle under 90 degrees. The sharper the costal angle, the greater the disposition to splanchnoptosis. I regard the enteroptotic habit as one of the most important conditions in gastric pathology. Patients of this class are regularly predisposed to functional disturbances of the stomach and bowels, from which those with broad costal angles are exempt. They are born handicapped in life. These are the patients who develop gastric distress regu-

larly under strains, mental and physical, and who have a lowered resistant vitality. Stiller calls this condition "congenital universal neurasthenia," and with this view I heartily agree. It is a congenital sign of physical degeneracy from which patients suffer throughout their lives. I believe that children who have this sharp costal angle should be brought up differently from others, so that the tendency to neurasthenia and gastric disorder may be minimized.

"The lower curvature of the stomach lies 8 cm. below the navel by succussion, by scratch percussion, and by inflation. Gastrodiaphany not employed."—The simplest method of locating the lower curvature is by determining the lower boundary of the succussion sounds elicited by tapotement. This is readily done, as these patients usually have thin abdominal walls, and the displaced stomach is somewhat superficially located.

I do not now enter into a discussion as to whether these succussion sounds are pathognomonic of atony, but I merely speak of them in connection with the location of the lower stomach boundary. It is important to remember that a stomach filled with gas may not give succussion sounds, and therefore always examine for this sign before the stomach is inflated.

Scratch percussion is also a valuable method for localizing the lower border. The bell of the stethoscope being placed in the epigastrium, gentle stroking is made, from below upward, until a line is reached past which its sound becomes loud and harsh.

Inflation is perhaps the most certain of all the methods, and if employed to a reasonable extent (ulcer and carcinoma being excluded), is devoid of danger. It is never necessary to inflate sufficiently to cause pain, nor should inflation be to such a degree that the stomach is seen to rise as an inflated bag, and bulging out the abdominal wall. It is merely necessary to employ a moderate inflation, so that tympanitic sounds by percussion over the stomach are clearly brought out. Even with this moderate inflation it is possible to see the lower curvature ascend and descend during respiration, if a strong light is thrown obliquely across the body of the patient so as to intensify the shadows.

For the purpose of inflation I regularly employ a level or scant teaspoonful of bicarbonate of soda and one-quarter of this amount of tartaric acid. I have never had occasion to regret these quantities.

Gastrodiaphany to my mind is absolutely inaccurate and misleading, either with or without fluorescent media, and I have long since abandoned its use.

"The upper curvature was not located."—The determination of the position of the upper curvature is not necessary. There are large gastroptotic stomachs, and there are small gastroptotic stomachs, and the size of the stomach has nothing to do with the case. Small stomachs by inflation may be determined in all their dimensions, but the upper curvature of the larger stomachs lies so nearly under the liver that it cannot be determined, and therefore I have found that no attention need be paid to the vertical dimensions of the stomach.

"In the morning fasting state, 40 c.c. opalescent fluid, reacting to congo; total acidity, 40; free hydrochloric, 14; no food remains."—The examination of the fasting stomach has been very much neglected in clinical work. It is often as important as the examination of the test breakfast itself. If fasting stomachs were more frequently tested, the confusion regarding the term "dilatation of the stomach" would not be as great as it is at the present time.

By "dilatation of the stomach," if we use that unfortunate term at all, we should mean merely one thing, namely, pyloric stenosis with food retention; and even then the term is a bad one, because many cases of pyloric stenosis are not large stomachs at all. We find in the milder cases of pyloric stenosis in the fasting state, hypersecretion only. That is, we withdraw with 100 to 200 c.c. of acid gastric juice without food remains. This is in the milder cases. In the severer cases we find not only the hypersecretion, but an admixture of food remains left from the dinner of the night before. We may consider, therefore, fasting hypersecretion as the first evidence of pyloric obstruction.

Now, these cases of gastroptosis have no mechanical hindrance to food exit. A great deal has been said and written about sharp kinks in the duodenum, occurring in gastroptosis, inducing a mechanical hindrance to food exit, and about the so-called arteriomesenteric constrictions, where the root of the mesentery, containing the large blood-vessels, is pulled downward by the downward displacements of the small intestines and compresses the third portions of the duodenum. Also, it is said, that these stomachs are so weak in their muscular power that they never become completely emptied. For these three reasons—duodenal kinks, arteriomesenteric constrictions, and extreme atony—it is said that symptoms of mechanical obstruction are present. To determine this point I have examined fasting stomachs of 200 consecutive cases of gastroptosis and have obtained

0 to 25	c.c. liquid contents,	170 cases—85	p.c.
25 to 50	c.c. liquid contents,	18 cases— 9	p.c.
50 to 75	c.c. liquid contents,	4 cases— 2	p.c.
75 to 100	c.c. liquid contents,	3 cases— 1½	p.c.
100	c.c. liquid contents,	1 case — ½	p.c.

These facts prove absolutely that no mechanical obstruction to food exit exists.

As regards the statement that extreme atony will cause stagnation, I have analyzed 121 cases of gastroptosis and divided them into three classes, according to whether the atony was slight, moderate, or extreme, and the fasting contents of these cases are shown in the following table

SLIGHT ATONY—38 CASES.

0 to 25 c.c.	36 cases.
25 to 50 c.c.	1 case.
50 to 75 c.c.	1 case.

MODERATE ATONY—44 CASES.

0 to 25 c.c.	38 cases.
25 to 50 c.c.	4 cases.
50 to 75 c.c.	2 cases.

EXTREME ATONY—39 CASES.

0 to 25 c.c.	37 cases.
25 to 50 c.c.	2 cases.
50 c.c.	no cases.

I think it will be evident as the result of these figures that stagnation in a gastroptosis stomach does not exist.

"Test breakfast in one hour showed 130 c.c., separating into two layers—an upper one-third of clear fluid, a lower two-thirds in depth of well-digested food remains. Slight admixture of gastric mucus; total acidity, 62; free hydrochloric, 28."—On withdrawal of the test breakfast, a certain degree of ali-

mentary hypersecretion is usual. That is, on standing, the test breakfast divides into two portions, a clear, supernatant liquid, and a layer beneath of digested foodstuffs. The ratio between the liquid portion and the lower food portion is between one to one, and one to three. It is a rare exception not to find the test breakfast thoroughly and perfectly digested, and this is due to the preservation of normal gastric acidity and good peptic power.

In 233 consecutive cases achylia was present in 9½ per cent.; subacidity, 8 per cent.; normal acidity, 55 per cent.; hyperacidity, 27 per cent.; so that in 82½ per cent. gastric secretions are normal or hyperpeptic.

The amount of gastric catarrh is trifling, and is usually evinced by the presence of small amounts of gastric mucus. It is well that this is the rule, because these stomachs, by reason of their atony, are better left unwashed.

"The right kidney is one-third palpable."—I wish I had kept account of these patients with gastroptosis who have been diagnosed only as "floating kidney," and advised to have the kidney sutured; certainly 50 must have been given this advice. I do not remember, however, a single case in which, in my judgment, the proposed procedure was not only injudicious, but unnecessary. I do not wish to enter here into the discussion of the pathological significance of a palpable right kidney, or the proper means for its treatment, further than to state my own convictions on the subject: (1) All patients with gastroptosis have a perfect right to have a kidney from one-third to one-half palpable. (2) Such a degree of motility is not productive of clinical symptoms, except in the rarest instances. (3) The diagnosis of floating kidney is not sufficient; the displacement of the other abdominal organs must also be determined. (4) With a palpable kidney and with gastroptosis medical treatment alone is indicated, and surgical treatment absolutely contraindicated, unless in the rare cases in which the Dietl's crisis occur.

Treatment.—The treatment resolves itself into treatment before the atony, in the stage of temporary atony, and in the stage of permanent atony.

In the stage before the atony we have this undernourished patient with sharp costal angles and without gastric symptoms. Such a condition existed in our patient before her fifteenth year. I must again allude to these cases and emphasize the importance of treating children with the enteroptotic habit different from other children. Their physical condition must be built up by out-door life and freedom from exacting school hours. The amount of liquid that they take must be restricted, especially with the meals. Older patients require vacations from time to time, whenever tired by the duties of life.

The second stage, marked by a temporary atony, indicates a continuance of the prophylactic treatment just alluded to. Each patient must learn her limitations; must know exactly how far she can go without being physically or mentally over-fatigued, and keep within these bounds. The most careful attention should be paid to the daily habits of life; to the limitations of water with the meals, and they must be kept over-nourished. In some of the patients a supporting belt is desirable.

The most interesting treatment is that of the permanent stage of atony, and it is in this stage that we see the majority of our patients for the first time. I have not practically abandoned the idea of doing the patients good as long as they keep on their feet. You may try a variety of ways to build them up, you may improve them for the time being; but sooner or later comes a relapse, and after weeks and months of work you find yourself exactly where you started; and I am so convinced of the truth of this statement that I will not take the responsibility of treating a gastroptosis case unless I can put that patient in bed for four weeks. The patient must be put in bed and under the care of an intelligent, tactful, sympathetic nurse. The family, friends, and mail ought to be excluded. The day is arranged on about the following schedule:

Rest Cure.

7:45 A. M.—Tidy, wash hands and face, then teeth, change umschlag.
8:15 A. M.—Breakfast.
8:30-9:00 A. M.—Rest.
9:30 A. M.—Massage (stroking).
9:45 A. M.—Irrigation.
10:45 A. M.—Warm bath, spinal douche, make bed.
11:30 A. M.—Kumyss, crackers.
11:45 A. M.—Rest.
1:00 P. M.—Lunch.
2:00 P. M.—Rest (alone).
4:00 P. M.—Abdominal massage (stroking, and circling, and electricity).
4:30 P. M.—Sandwich, etc.
6:00 P. M.—Drip sheet (alcohol rub).
7:00 P. M.—Dinner.
8:15 P. M.—Massage (general).
9:15 P. M.—Wash hands, make bed.
9:30 P. M.—Kumyss, crackers, clean teeth.
9:45 P. M.—Lights out.

The more strict the seclusion the better the result. Please remember this, and do not be cajoled into the error of admitting over-sympathetic mothers and indiscreet friends into the sick room.

The hot bath and spinal douche consists in immersion (temperature, 105°) for five minutes, followed by a cold spinal douche, 10 seconds. The hot applications must be moist, and may be applied either by hot flannels, spongiopiline, or a moist flannel covered with an electric pad. The whole application to be tightly applied by an abdominal binder; such applications to be changed every two hours in the day and once in the night.

The diet is conducted on about these lines. *For breakfast*—Cocoa; cereal, with cream and sugar; minced meat on toast, or soft boiled eggs; roll, butter, marmalade. *11 o'clock*—Russell's emulsion. *1 o'clock*—Fish or chicken, or bird; two vegetables; a farinaceous dessert (cornstarch, farina, or rice pudding). *4 o'clock*—Either the remains of the farinaceous pudding, or junket, or malted milk. *7 o'clock*—Like the meal of 1 o'clock. *9 o'clock*—The meal like the 4 o'clock.

Throughout the day cream (16 per cent. to one pint) is to be given; and I am not afraid of giving these patients two or three caramels after each meal, as I think it helps the bowels. Liquids at meals are to be restricted. No fruit or red meats are to be allowed.

If the bowels are constipated, the nurse is directed to massage the descending colon ten minutes three times a day, and to use intestinal irrigations by a to-and-fro current, not introducing more than a pint at a time, just as one would wash the stomach. The custom of giving two or three quarts of water at a time is to be deplored.

As regards medicine, it is best to start with small

doses of bromide, a drug indispensable in the treatment of these cases. I frequently employ the following prescription:

℞ Chloral hydrat..... 5i
Sod. bromid..... 5iiss
Aq. chloroform..... ʒiv
Spts. anisi..... qtt. vi

M. Sig.: Teaspoonful in water after meals, three times a day.

and I can thoroughly endorse its use, for you cannot get along without it. After the first ten days substitute for this prescription tincture of physostigma in 10 or 15 minim doses, substituting it for the bromide solution, first after breakfast and then in a few days after supper, so that the patient takes physostigma after breakfast and supper, the bromide after the midday meal and at night. Toward the close of four weeks, three doses of physostigma are given, and but one dose of the bromide, this at night.

During this treatment the patients rapidly improve. The weight increases, the average gain being ten to twelve pounds in the four weeks, and the lower curvature of the stomach rises, so that at the end of the four weeks it lies just under the navel This rise of the lower curvature is no idle fancy; it is to be regularly expected. During the four weeks intragastric faradization may be employed; but I must say I am using it less than formerly, and find that the majority of patients do just about as well without it as with it. In impressionable patients, however, it has a very decided mental effect. The return to ordinary daily life must be gradual, and a week at least should be taken for what I call the hardening process.

The month after the rest cure patients must be careful about overdoing, must lie down every day after lunch, and must wear an abdominal belt. Food between meals must be continued, liquids at meals interdicted, and no raw fruit allowed.

In nearly every case, the first week after the rest cure shows a decided slump in the patient's condition, the patients losing a little in weight and complaining again of their gas and distress. These symptoms will pass in a few days, but it is well to warn your patients in advance that such a slump will probably occur.

Under this treatment it is rare to be disappointed. The patients gain in nutrition steadily for weeks or months. They gain on an average ten pounds in the rest cure, but at the end of the year they are often thirty pounds heavier, and somehow or other the stomach stays up in place. Thes results are so good from such simple means that any operation on these stomachs in the way of stretching them up in place is, to my mind, totally and absolutely out of the question, and should be considered a surgical disgrace.

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Intestinal Ulcers.—In the typhoid ulcer (1) the main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation. In tuberculous ulcer (1) the long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined, but rather funnel-shaped and irregular; (4) it is not apt to perforate, but it does not tend to heal, rather to spread.

ON RECENT INVESTIGATIONS OF THE ACTION OF RADIUM ON PLANTS AND ANIMALS.*

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Since the discovery of radium a few years ago numerous investigations have been conducted to ascertain the value of this element in medicine and general biology. The results of many of these have already appeared, some containing discoveries of high value for physiology, pathology, or biology, and all indicating that with further study facts of still greater importance may be expected. These papers, however, are scattered through a wide range of journals, some of which are only of local interest and not readily accessible to the majority of investigators. It seemed advisable, therefore, to bring together in a single article a résumé of the leading results thus far obtained. This would present a sort of stock-taking of what has already been done in the various fields, and perhaps, too, help to show the directions in which further investigation is needed.

In arranging my data I found the body of facts so large, that it was impracticable to attempt a résumé of researches in chronological sequence. It appeared more advisable to collect the results obtained in the different fields of research under separate heads. What follows, therefore, is presented in the following sections: (1) Earliest observations. (2) Action on bacteria. (3) Action on protozoa and other microorganisms. (4) Action on tissues. (5) Pathological significance. (6) Action on development and regeneration. (7) Action on plant growth and development. (8) Action on certain specific animal organs or substances. (9) Theoretical considerations and general conclusions. (10) Bibliography.

1. *Earliest Observations.*—The earliest observations bearing on the physiological action of radium rays were made quite accidentally. Experimenters with radium soon observed that it affected the skin of the hands, producing "burns" similar to those resulting from the action of Röntgen rays. Walkoff[45]† and Giesel[21] were the first to record such observations (1900). Giesel carried a preparation of radium bromide in a capsule on his arm for two hours. At the end of that time he observed a slight reddening where the radium container had been applied. After a latent period of two or three weeks the reddening became intensified, local inflammation followed, and the skin came off over the affected area.

During the following year Becquerel and Curie[4] repeated these experiments. They used more active preparations, applied for longer periods, and confirmed the results of Giesel. They, too, observed a reddening at the end of the period of exposure, accompanied by no marked symptoms for several days. At the end of that time, however, the reddening became intensified, and the remaining symptoms described by Giesel were exhibited, *i. e.* inflammation confined to the spot where the radium had been applied, followed by gradual falling off of the skin.

*The fourth paper pertaining to a series of investigations now in progress. See Gies and collaborators, Proc. of the Soc. for Exp. Biol. and Med., II., p. 86, 1905; also *Science*, XXI., p. 988, 1905; *Amer. Med.*, IX., p. 1029, 1905, and *Medical News*, XLII., p. 520, 1905. This paper was prepared at Dr. Gies's suggestion.

†These numbers refer to the bibliography at the end of this article.

They, moreover, established the first principle of the physiological action of radium: "La durée de l'évolution des altérations varie avec l'intensité des rayons actifs et avec la durée de l'action excitatrice (p. 1290).

These experiments drew attention to the physiological possibilities of radium, and led to experiments with it on very diverse types of biological phenomena. Among the earliest were those on the effect of radium on microorganisms.

2. *Action of Radium on Bacteria.*—The first observations were made by Strebel[43] in 1901. He performed only a single experiment, which seemed to indicate that radium rays exercise an injurious effect on bacterial growth. At about the same time a carefully planned and admirably executed series of experiments were being conducted by Aschkinass and Caspari.[3] They worked on *Bact. prodigiosus*, using 1 gm. of a radium-barium-bromide compound. By a series of control experiments they showed that the effects observed must be attributed to the radium rays and not to the other elements of the compound employed. Some of their cultures were protected in places from the effects of the rays by delicate copper wire stretched across. In all such cases the protected portions of the culture, not having been reached by the radium waves, developed, whereas the unprotected portions were arrested in growth, giving, in several instances, singularly clear visual demonstrations of the injurious action of radium rays on bacteria. The authors summarized their observations as follows: "Durch die Gesammtheit unsere Versuche dürfte der bakterienschädigende Einfluss der Becquerel-Strahlen zweiter Art (beta-rays) mit Sicherheit nachgewiesen sein." The minimum period of action that produced a result was one hour. On transferring an arrested culture to normal conditions, it very gradually regained its vitality and began to develop.

In 1904 Alan B. Green[22] found that the radiation from 10 mg. of radium-bromide killed various types of bacilli: *Bacterium coli communis* and *Spirillum choleræ asiaticæ*, after about six hours' exposure. Spore-bearing bacilli required a longer time—from 48 to 72 hours. Vaccine virus was rendered ineffective. Green established also several general principles: (1) The physiological action of radium is proportionate to the distance of the bacterial culture from the radium; (2) Microorganisms killed by exposure to radium rays, after several days, become self radioactive. Rays emanating from such organisms penetrate a thin layer of lead, thus proving to be beta-rays.

Similar effects were observed by E. S. London,[28] working on typhoid and other kinds of bacteria.

Up to that time experiments on bacteria had been carried out with the aim of ascertaining the action of the radium *rays*. During 1905 three German investigators (Dorn, Baumann, and Valentiner[14]) jointly carried out a series of experiments to ascertain the effect produced on bacterial cultures by the *emanation*. The emanation from a relatively large quantity of a "pure" radium-bromide compound (30 mg.) was blown over the mouth of a glass vessel containing various bacterial cultures. In some of their experiments the cultures were grown on gelatin, in others on bouillon. They noted an arrest of growth, and finally the killing of the culture. All germs experimented with were killed in about ten days. Typhoid bacilli they found especially sensitive. They also experimented with radium *rays*. Their data in this connection confirmed the results of previous investigators, and demonstrated that the radiation from 5 mg. of the radium compound killed various bacteria, such as those of cholera and diphtheria.

Quite recently (1906) Bouchard and Balthazard[7] worked with the emanation on color-producing bacteria. They experimented on *B. prodigiosus, B. fluorescens*, and *B. pyocyaneus*, and found that in most cases the color-producing activity was inhibited. In the presence of considerable emanation the germs were killed. In several instances where the radium emanation employed was not intense enough to kill the bacteria, it nevertheless arrested growth.

3. *Action of Radium on Protozoa.*—Among the earliest observations under this head may be mentioned those of Willcock[46] (1904) and of Venenziani[44] (1904). The former found that after several hours of exposure to the radium rays, *Actinosphærium* was killed. Venenziani selected as his subject *Opalina ranarum*. This is a ciliate living in the intestinal fluid of the frog. Because of its transparency, it is a good object for experiment. The organisms were transferred from the intestinal fluid to a watch glass containing a 5 per cent. NaCl solution. Into one such watch glass a fine tube, containing 0.1 gm. of a 10,000 radioactive preparation, was placed; a similar empty tube was used as a control. He performed ten experiments in all. These showed that radium rays first act as a stimulant, since the organisms subjected to the influence of radium survived for about two days, whereas those in the control experiment became encysted and died much sooner. When water, instead of the NaCl solution, was used as a medium the result was even more striking; the organisms not affected by radium dying within ten to twenty hours, whereas those under the influence of the radium rays survived much longer.

Salmonsen and Dreyer showed (1904)[39] that *Nassula* and also *Trypanosoma brucei* are killed by the action of radium rays, the latter in from two to three hours. Cyst-forming *Amœbæ* were affected and in some instances killed. In ciliata they noted a distention of the vacuoles, accompanied by an extreme prolongation of the period of contraction.

But by far the most comprehensive and most conclusive experiments on the effect of radium on protozoa were those performed by Dr. Margarete Zuelzer in 1905.[47] She worked on *Pelomyxa palustris, Amœbæ limax, Arcella vulgaris, Difflugia pyriformis, Actinosphærium, Spirostomum, Lionotus* and *Paramœcium*. It is, of course, outside the bounds of this paper to enter into the details of the individual reactions of these organisms. Dr. Zuelzer's results may here be but briefly summarized. The observations were carried on with the different species for periods varying from a few hours to three or four days. In all cases continued exposure to radium rays led to death—*Pelomyxa* in one to four hours, sometimes only ten minutes; *Amœbæ* three to four hours. The shelled organisms (*Arcella, Difflugia*) showed themselves more resistant—they withdrew their pseudopodia after some ten minutes' exposure to the rays and dropped to the bottom of the vessel. After remaining exposed to the rays for three days in this condition, they were removed from the radium rays and placed in a new culture, and entirely recovered within two hours. In the case of *Spirostomum* it was shown that large individuals, if placed under radium rays, did not divide unless their nuclei had previously divided. In general, Zuelzer's results may be summarized by saying that radium rays act first as a stimulant; this is especially well shown in the case of *Pelomyxa;* secondly, the protoplasm be-

comes progressively more vacuolated, division is arrested, and continued exposure leads to death. *Paramœcium bursaria*, which is green, is not affected as readily as *P. caudatum*, thus confirming Willcock's (1904) observations that chlorophyl-bearing organisms, *e.g. Hydra viridis* and *Euglena*, are more resistant to radium than organisms devoid of chlorophyl.

Before the observations of Zuelzer were published the present writer,[24] at the suggestion of Professor William J. Gies, attempted to carry out a series of similar experiments on the action of radium rays* of various strengths on microorganisms, especially *Amœba proteus*. My experiments were not carried out over sufficiently long periods to lead to any positive results. They are mentioned here only as confirmatory of the observations of Dr. Zuelzer, that the effects of radium rays are not immediate, for during periods of observation of from one to two hours the writer observed no effect on either *Amœba* or *Paramœcium*.

4. *Action of Radium on Animal Tissue.*—Reference has already been made to the observations of Giesel, and of Becquerel and Curie, on the action of radium rays on the human skin. In 1903, and again in 1904, an extensive series of careful experiments were carried out by Danysz[11,12] to ascertain the action of radium rays on various kinds of tissues. He employed chiefly guinea-pigs and rabbits. A chloride compound of radium, having a radioactivity of 500,000, was used. On applying to the skin of rabbits or guinea-pigs for twenty-four hours both the epidermis and the derma were completely destroyed, the connective tissue showing through the wound. On further application of the same radium tube to the wound, for an equal or longer period, no deeper wound resulted. The surrounding connective and muscle tissues were but little affected. This goes to prove that not all tissues are equally susceptible to the action of radium rays. Danysz found, furthermore, that intestinal and serum membranes are less sensitive than the epidermis and derma. The central nervous system, on the other hand, is "infinitely more sensitive than the epidermis." In his 1904 paper he showed also that the degree of purity of the preparation affects the result. He found that the tissues of young animals are more susceptible than those of old individuals.

The results obtained by Danysz are of the highest importance. They have established an important general conclusion, namely, that radium rays do not act with equal effect on all tissues. Epidermis and nerve tissues are particularly sensitive; whereas the subcutaneous tissues (muscle, serous layer, etc.), and the internal organs, are not readily affected. The tissues of young individuals are more easily affected than those of older individuals. Danysz arrived at several other important conclusions, which will be referred to respectively under the heads of pathology and development.

As to physical changes produced in the tissues by radium rays (Exner 1903)[18] has shown that tissues of diverse kinds become phosphorescent, *e.g.* blood, muscle fiber, hair, nails, etc. The lens of the eye produced the most marked luminosity but muscle fiber very little. These observations were confirmed by Bouchard, Curie, and Balthazard (1904). They accord in a general way with the results of the distribution of radium to the tissues after its introduction, as demonstrated in his laboratory, under Dr. Gies's guidance, by G. M. Meyer (1906).[30,31]

*The radium preparations employed were presented to Dr. Gies by Mr. Hugo Lieber.

5. *Pathological Significance.*—From the facts just discussed, as well as from those stated previously, it will be seen that radium *rays* exercise a baleful influence upon animal tissues, more marked in some cases (nerve, epidermis) than in others (muscle). The "burns" resulting to the human skin from a prolonged application of radium are difficult to heal. Remarkable effects of the action of radium on the nervous system were observed by Danysz in 1903. He slipped a glass tube of 1.5 mm. diameter and containing about 1 cg. of a very active salt of radium, beneath the skin of a mouse one month old, so that the tube lay exactly above the cephalic terminus of the spinal column. Within three hours it produced paresis and ataxia. After seven or eight hours the mouse was seized with tetanic convulsions, which, if the tube was left in place, became more and more frequent, finally killing the animal in from 12 to 18 hours. Control experiments with empty glass tubes of the same diameter produced no appreciable effect. Mice from 3 to 4 months old experimented on in the same way died in 3 to 4 days, and mice about a year old died in 6 to 10 days.

Similar experiments were carried out on guinea-pigs and produced substantially the same results. A marked rigidity of the extremities such as occurs in tetanic poisoning was noted, death resulting in from 6 to 8 days.

Very diverse kinds of organisms are killed upon continued exposure to radium rays. Bacteria, protozoa, hydra (Willcock), larvæ of insects, notably the caterpillars of a butterfly, *Ephertia kuehniella* (Danysz), mice, and guinea pigs (Bouchard, Curie, and Balthazard, Danysz), and rabbits (Danysz).

A. Beck[3] has demonstrated (1905) that radium rays deaden the sensibility of the peripheral nerves. In eight out of thirteen rabbits experimented on, sensibility entirely disappeared; in the other five it was only decreased.

The *emanation* from radium also produces pathological effects. Suckling mice were exposed for several days to the emanation from radium, and a few days later developed hyperemia of the lungs (Bouchard, Curie, and Balthazard,[38] 1904). Similar results with emanation were obtained by Dorn and Wallstabe.[16] They found that tap water which had absorbed emanation, when given to rabbits produced no effect. But air containing emanation acted as a poison. Rabbits were kept in such air for one and one-half weeks and showed no effect, but after a latent period of two weeks died suddenly. Their lungs were found to be hyperemic.

The bactericidal action of both the rays and the emanation bids fair to be some day of great service to the pathologist. As was stated in preceding pages, germs of such diseases as typhoid fever, Asiatic cholera, and diphtheria are killed on exposure to radium rays, the time of action varying from a few hours to several days, depending on the purity and quantity of the radium compound employed. The action of rays and of emanation in killing protozoa may also be brought eventually into practical application. There is even hope that knowledge of the action of radium on tissues and pathogenic organisms may be brought to bear on the question of cancerous growths. In this connection might be mentioned the discovery (1905) of Neuberg, that radium affects the fermentative process in cancer cells.

In regard to metabolism, a series of careful experiments have been carried on by Berg and Welker[5] in this laboratory, under Dr. Gies' guidance.

They found that "radium preparations of low activity (240, 1,000, 10,000) containing barium bromide in preponderating proportions were without special influence on metabolism when administered per os or subcutaneously in relatively large quantities. Equal or larger doses of pure barium bromide also failed to show any decisive metabolic effects before fatal results were inaugurated." (p. 409.)

6. *Action on Development and Regeneration.*—The earliest observations on the action of radium on development were those of Geo. Bohn (1903).[9] He performed experiments on 80 larvæ of *Bufo vulgaris* and of frogs (species not specified). The time of exposure to the radium rays varied from three to six hours. He obtained some remarkable results. After a latent period there was noted a retardation in development, giving rise to pathological monsters, some of which died. In these monsters the integument, especially, was affected, being much wrinkled and contorted.

Similar experiments were conducted the following year on *Ascaris megalocephala* by Perthes.[26] He found a marked retardation in the cleavage stages and in the differentiation processes, resulting in abnormal, deformed larvæ which died if the exposure had continued for some length of time.

A series of careful experiments were carried out on a similar subject by Schaper[10] in 1904. He worked with eggs and embryos of *Rana esculenta*, and found that eggs exposed to the action of radium rays at various stages of segmentation or early embryonic differentiation were retarded in development, and that the embryos were dwarfed and deformed. The dorsal region, especially, seemed to suffer, being frequently notched. On exposing larvæ of 4.5-5.3 mm. for five hours he obtained embryos that were much deformed by blister-like outgrowths over the body. Larvæ of *Rana fusca*, 18-20 mm. long, gave similar results, the long period of exposure (24 hours) killing some of them.

Schaper[10] was the first to try the effects of radium on regeneration, employing for this purpose *Triton* and *Planaria*. After an exposure of eight hours he cut off the tails of four *Triton* larvæ and the left hind extremity of four others (1.7-1.9 mm. larvæ). In about ten days when the normally regenerating control larvæ had almost regenerated these lost parts, the ones that had been exposed to the radium had regenerated only short pointed stumps in place of the left hind extremity, and these were arrested in further development. The tail had regenerated but was very short and malformed in places. One or two of these larvæ died about twelve days after the time of exposure. A series of similar experiments were conducted, the time of exposure being nearly twice as long (seventeen hours) with quite similar results, namely a retardation of the regenerative process.

With *Planaria lugubris* the results were as follows: After exposure for three and one-half hours the organisms were cut across in different planes. In eight days they had regenerated very little, although the controls had almost regained their normal form.

Emanation acting on 15 mm. larvæ of *Rana esculenta* produced effects similar to those caused by the rays. Schaper's summary is worth quoting. He notes "eine ausgesprochene hemmende Wirkung der Radiumstrahlen auf die Zellteilung, auf embryonale Differenzierung und embryonales Wachstum, sowie auf den Prozess der Regeneration, . . . die sich jedoch erst nach Ablauf einer längeren oder kürzeren Latenzperiode zu erkennen giebt" (p. 331). These results prove that radium rays act on development and regeneration similarly to Röntgen rays, as shown for the latter by Gilman and Baetjer (on larvæ and eggs) and by Bardeen and Baetjer (on regeneration).*

7. *Action on Plant Growth and Development.*—Some important positive results have already been obtained by investigators experimenting on plants. Max Körnicke[25] was the first to make observations on the action of radium on sprouting and on growth. His results may be briefly stated as showing that radium rays, like Röntgen rays, exercise a retarding effect on growth. But if the preparation employed is not too active there is noted first an acceleration in growth which is only later superseded by a retardation. His later observations (1905) seem to prove that the effect is mainly on the chromatic substance of the cells varying with the strength of the preparation and the stage of development of the plant. The nutritive portion of the plant was found to be more resistant than other portions. No injury was noted to the cytoplasm of the cells. (Roots of *Vicia faba, Pisum sativum,* and bulbs of *Lilium martagon.*) In a series of experiments which aimed to ascertain the difference in action on roots and sprouts, he found that subjecting seeds, either dry or sprouting, to radium for three days, produced a far greater growth in the sprout than in the root before the arrest of growth in both. This indicates, according to Körnicke, an action on metabolism somewhat similar to that of the ultraviolet rays, namely, the radium rays produced a withdrawal of oxygen. Hence those portions of the plant that contain chlorophyll and thus can make good their loss of O more readily than the portions devoid of chlorophyll (roots), are more resistant to radium-action. It will be recalled that the observations of Willcock (on *Hydra viridis* and *Euglena*) and of Zuelzer, demonstrated that this rule holds good also in the case of animals. The combined evidence of both these facts in favor of the view that radium action affects O metabolism is of great importance in the formulation of a theory of the physiological action of radium.

Other experiments of the same character have been made at Dr. Gies' suggestion by Dr. C. Stuart Gager[19] at the New York Botanical Garden. His early results were summarized as follows: "The early stages of seed germination are accelerated if stimulation ranges between the minimum and optimum points [depending upon the proximity of the radium to the plant, the strength, quantity, and condition of the radium salt, the time of exposure, and the nature and condition of the tissue]; otherwise they are retarded. Seeds are less sensitive to the rays when dry than when soaked. When seeds are stimulated during germination, subsequent growth is retarded; but radium rays acting through soil in which plants are growing accelerate both germination and subsequent growth of the shoot. The growth of plants is retarded in an atmosphere of decaying radium emanations." Gager's experiments are in progress.

In connection with the influence of radium rays on the development of the lower plants the work of J. Dauphin (1904)[13] is important. He experimented on *Mortierella, Mucor, Piptocephalis* and *Thamnidium*, and found that radium rays arrest the growth of mycelia and hinder the germination of spores. Cyst-like bodies are produced in the mycelia, which seem to be defensive organs capable of withstanding the radium effect. Spores and mycelia that have

*Bardeen and Baetjer: *Journal of Experimental Zoology*, 2, 1904, pp. 101-05. See also Ibid., 4, 1907, pp. 1-44.

been arrested in development are not killed, but only reduced to a quiescent condition; for on being transferred from under the radium rays to normal conditions, they germinate, and some even develop.

It has also been found that radium rays affect the tropisms of plants. Molisch found (1905)[33] that a zinc compound of radium at a distance of 2 or 3 cm. from the growing plant affects its heliotropism, resulting in distortions. Körnicke (1905) also found that seedlings from seeds which have been exposed to the action of radium lose their heliotropic and geotropic properties. The plants become what Körnicke terms "Radiumstarre." Michaels and De Heen (1905)[32] found that radium rays affect the respiratory processes in plants; less CO_2 is absorbed by sprouting seeds under the action of radium rays than normally.

8. *Action on Certain Specific Animal Organs or Substances.*—From the experiments carried out up to the present time it would appear that radium produces marked effects on various kinds of organs or their biochemical products. M. Mendelssohn[29] found (1905) that on subjecting the electric ray (*Torpedo marmorata*) to the action of radium rays a remarkable effect followed. After a latent period of several days the fish lost its power of giving electric discharges, but the electric power returned within a few days. A complete destruction of the electric reaction was not observed. Incidentally it was noted that following the exposure to radium the spotted skin of *Torpedo* undergoes a series of color changes, becoming first more uniform, then red, brown, and lastly yellow. And after some time the skin peels off.

Radium rays also have a pronounced effect upon various biochemical substances. Henri and Mayer[23] studied the action of the rays on several ferments and on red corpuscles. They found that invertin, emulsin, and trypsin, when subjected to radium radiation, progressively lose their activity, and after several days of exposure become completely inactive. Oxyhemoglobin of the dog and the frog is transformed into methemoglobin and slowly precipitated. Carbonated oxyhemoglobin remains intact. Red blood corpuscles under the action of radium rays give up hemoglobin and salts into the solution in which they are suspended and which under normal conditions preserves corpuscles intact (hemolysis).

Schmidt-Nielson[41] has observed (1904) that radium rays destroy the activity of chymosin; but he believes the result to be due not to the radium rays but to the ultraviolet rays caused by the phosphorus employed in his experiments.

An interesting study in this connection is that of Phisalix (1904)[37] on the influence of radium rays on the toxicity of the venom of the viper. He dissolved the contents of the poison sac of a viper in chloroform in the proportion of 1 to 1,000. He then took four equal portions of this solution, set one aside and exposed the other three to the action of radium rays for different lengths of time: one for six hours, another for twenty hours, the third for fifty-eight hours. These solutions on being injected into four guinea-pigs gave a clear demonstration of the progressive action of the radium rays on the toxicity of the venom. Thus the non-radiated portion caused death within ten hours; the part exposed to radium for six hours caused death in about twelve hours; and the solution exposed for twenty hours produced fatal results in about twenty hours; while that exposed for fifty-eight hours produced no toxic effect whatever. In all cases except the last the symptoms were the same in kind. In the last-mentioned experiment there was neither local nor general effect observable. Hence the radium rays gradually modify, and finally even destroy, the activity of the venom of the viper.

9. *Theoretical Considerations.*—As is now well known, radium emits three kinds of rays which have been designated respectively, the alpha, beta, and gamma rays. The alpha rays have the least penetrative power, being absorbed by a plate of lead only a few centimeters thick; the beta rays are deflected by an electromagnet. The attention of physiological experimenters was early attracted to the question as to which kind, or kinds, of radium rays caused the physiological effects. By an ingenious experiment A. Exner[17] in 1904 gave a very decisive answer to this question. He fixed two white mice in such positions that the rays issuing from the radium container passed over the field of a ring-shaped electromagnet disposed in such a position relative to the two mice that the beta rays were deflected upon a point on the outstretched tail of the one, while the gamma rays impinged on a corresponding spot on the tail of the other. The distance of each affected spot from the radium source was about 3 cm., so that the alpha rays practically did not enter into the result obtained. After an exposure of eighteen hours and forty minutes the mice recovered quickly, but after a latent period of fifteen days an ulceration appeared on the tails at the places corresponding to the points exposed. Hence both the gamma and the beta rays must be regarded as physiologically active. Both rays produced approximately similar changes in the skin. But the deflected rays (beta) produced somewhat less effect than the gamma rays. The experiment was repeated and gave a similar result the second time.

More recently Dr. C. Stuart Gager at the New York Botanical Garden (1905-06) has confirmed these results, showing that in the case of plants "the effect is the same in kind, whether the plants are stimulated with gamma rays only, or with alpha and beta rays as well. When three kinds of rays are employed the effect, within the same time, seems to be increased."

The next question that may be considered is the manner of action of the rays. Is the change produced in living tissues by either the rays or the emanation a *physical* or a *chemical* one?

From the present status of our knowledge, it would certainly appear that the action is a chemical one. This was suggested by some of the earliest investigators with radium, *e.g.* Giesel, Schwarz. They reasoned that the latent period which followed after exposure and before any result was manifested, signified a molecular rearrangement and hence meant a chemical change.

To examine this problem more closely, Schwarz[42] performed some experiments on hens' eggs (1903) which so largely contain the cell constituents. He found that radium rays affect the various egg constituents very differently. The greatest effect is produced in the yolk, which is decomposed, whereas the ovalbumin except for being somewhat thicker, is not affected at all. He argued that the radium rays decomposed the lecithin in the yolk, and therefore drew the conclusion that the action of the radium rays on all tissues was due to the same cause, namely, the decomposition of lecithin. He found apparent confirmation for this view in the fact that cells which are rich in lecithin, such as those of the regenerating layer of the epidermis, of the nervous system, and of growing tumors, are most markedly affected.

But in the few years now elapsed since this theory was put forward, results have been obtained which throw doubt upon this explanation. Neuberg has

shown that radium rays can decompose neither pure lecithin nor proteins and that therefore they probably do not decompose the lecithin within the cell.

In some way still not understood oxygen seems to play a rôle in the process involved; for, as demonstrated by Willcock, Zuelzer, and Körnicke, animals and plants which contain chlorophyl and can therefore produce oxygen readily, are more resistant to the action of radium rays than those devoid of it. This is very strikingly shown in genera which have both chlorophyl-containing and non-chlorophyl-containing species such as *Hydra viridis* (Willcock) and *Paramœcium bursaria* (Zuelzer); also in sprouts as compared with roots (Körnicke).

On the whole, it cannot be said that we yet have sufficient experimental data for a solution of the problems involved in the action of radium. While suggestive working hypotheses may be thrown out by one or another investigator, the fact remains that more data are needed before we can arrive at a logical explanation of the general and local action of radium rays or emanation upon organisms.

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Differential Diagnosis of Croup.—True croup is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become very high. A membrane forms, in which are found the Klebs-Loeffler bacillus or streptococci. Spasmodic croup generally comes on suddenly, at night. There is no appreciable fever, no previous malaise or sickness, and often the patient is asleep again by the time the physician arrives. There is frequently a thick, tenacious mucus, but neither Klebs-Loeffler bacilli nor streptococci are present. It is entirely a local disturbance.

SULPHUR WATERS IN THE TREATMENT OF SYPHILIS.

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THERE are three indications in the treatment of syphilis: (1) Treatment of the disease itself. (2) Prevention of its return. (3) Attention to the general state of health. Treatment with mercury and iodide answers to the first two indications, but not to the last.

The treatment of syphilis, in order to be thorough and complete, should consist not only in the administration of mercury and iodide, but also in the use of certain means to help the reaction of the organism and to enable it to stand the treatment without danger or inconvenience. In a word, whereas mercury acts against the syphilitic virus, an auxiliary treatment is necessary to combat the general decline of health. As Fournier has said, "attend to the general state no less than to the disease itself, and when you are called upon to treat a case of syphilis do not concentrate all your attention on the disease alone." One should never forget that besides the germ it is necessary to consider the soil upon which it develops. A given seed will grow better in a well prepared and favorable soil. In the present case a favorable soil for the growth and development of the syphilitic virus is a weakened and debilitated system, one which is capable of offering the slightest resistance. Therefore, after treating the disease itself it is necessary to attend to the patient from a more general point of view, using all other therapeutic means, such as hygiene, etc. It is hardly necessary to insist further on the importance of attending to the general state in syphilis. As Guéneau de Mussy has said, "syphilis is a soil upon which all kinds of mould will grow and prosper. From the very beginning of the infection nutrition is markedly affected, the entire organism is diseased and weakened. The anemia and asthenia of syphilitics are well known to all."

If mercury is able, on the one hand, to combat the specific lesions and symptoms, it cannot, on the other, act against the lowered state of the nutrition. Besides, mercurial saturation is sometimes obtained too rapidly, and the organism can often scarcely stand the dose necessary to obtain the therapeutic action; one must therefore help the organism to tolerate the treatment. We see, then, that the general treatment has two objects in view, viz., (1) to strengthen the patient, and (2) to help him to stand the exhibition of high doses of mercury without danger.

We shall consider here only the sulphur cure in the treatment of syphilis. It may be stated, however, that the hygienic treatment rests upon other factors, *e.g.* a thorough knowledge of the patient's constitution, which is a great help in carrying out the treatment; the avoidance of all excess, particularly alcoholic; hydrotherapy; administration of tonics, such as iron and arsenic.

Treatment by means of mineral waters, which is one of the oldest adjuvant means employed with mercurial treatment, was at first based simply on empiricism, but is now better known and is applied scientifically. In certain cases it is directed against the anemia or cachexia due to the syphilitic poison. In others it is applied against certain organic defects which existed before the onset of syphilis and which complicate the latter (scrofula, arthritism, neuropathy). Lastly, thermal cures increase in a marked fashion the tolerance of the organism to mercury.

Three categories of mineral water stations are suited for the treatment of syphilis: the *saline*, the *arsenical*, and, above all, the *sulphurous*. The choice of the spa depends upon the physiological and therapeutic action of the water.

Saline waters have a powerful action on nutrition and increase the phenomena of oxidation. Their most important indication is when syphilis is complicated by the existence of scrofula or of syphilitic cachexia and it is necessary to stimulate the whole organism.

Arsenical waters are to be recommended when syphilis affects a torpid nature. They do not really act against syphilis itself, but, according to Mauriac, against certain affections which syphilis gives rise to.

Sulphur waters are those whose therapeutical action is the most marked.

The use of sulphur in the treatment of syphilis dates a long way back and its therapeutic action had not escaped the notice of the earliest physicians, but it was Frascator, in 1545, and Cabias, in 1622, who distinctly advised the use of sulphur waters against venereal disease. We might also quote the names of Fontan, Pegot, Astrié, Lambron, Blanc, and Borden.

At the present time the favorable action of the sulphur treatment in syphilis is admitted on all sides. Formerly these waters were given only when the patient had passed the secondary period, for it was feared they might give rise to mucous and cutaneous accidents. They were given also to patients who *seemed* quite cured, in order to know for certain whether they were so or not, for in the latter case symptoms reappeared after a sulphur treatment. This method is now quite abandoned.

The physiological action of the sulphur cure is complex and depends on several factors. One must take into consideration the chemical composition of the water, the quantities it contains of sulphur, sulphides, alkaline silicates, organic matter; also its temperature and its electrical action. To these factors, which appertain to the water itself, one must add the mode of application of the water, the altitude of the locality, and the hygienic circumstances in which the patient is placed.

The general symptoms which appear in the course of syphilis show how deeply the nutrition is affected. Nothing is therefore more logical than to institute a treatment whose principal action is to stimulate all the functions of the economy. Sulphur waters, whatever may be their origin, act by the presence of one or several of the following substances: Sulphur in its natural state, sulphureted hydrogen, sulphides of potassium or sodium. This applies to sulphur introduced into the organism by whatever means of absorption, by the mouth (as a beverage), by the lung (inhalation), or by the skin (baths).

In the organism the sulphur forms alkaline sulphides. The latter, whether they are contained in the mineral water itself or whether they are formed as a secondary product by a combination of the sulphur, behave in an identical manner. They are decomposed and give rise to hydrosulphuric acid, which is introduced into the blood. A certain quantity of them, however, undergo oxidation and form hyposulphites, sulphites, and sulphates, the action of which we will study later on. Sulphureted hydrogen seems to be the final product of all the different preparations with a sulphur basis. It is found

in sulphurous waters and it can thus be absorbed directly by the lungs and by the digestive tract. A great part, however, of the sulphureted hydrogen is produced in the organism from combinations of the sulphurs and the sulphides.

The elimination of the sulphureted hydrogen takes place rapidly through the lungs and the skin. Another portion, less stable, is carried away in the circulation, meets with oxygen there, and is transformed into hyposulphurous acid, sulphurous acid, and sulphuric acid, and finally into sulphate of sodium.

Alkaline carbonates, silica, iron, iodine, and chlorides increase the action of the sulphur, each element giving to the mineral water which contains it special characteristic therapeutic value.

The different ways in which the waters are used may of course be varied as required. Given by the mouth or as douches, baths, inhalation, etc., their indications and effects are very different.

Experience has shown that sulphur waters have a general tonic and exciting action. This stimulant action, however, depends more on the mode of treatment than on the waters themselves, and the "thermal fever" which has been described by certain authors is due to a too energetic and rapidly applied treatment. The cure has a favorable action on all the organs. The appetite is stimulated, the red corpuscles are increased in number, the urine is more abundant, and the quantity of urea eliminated is more considerable. Nutrition, which is retarded by the direct action of syphilis, is stimulated and activated by the use of sulphur waters.

We have considered the general action of the sulphur cure, let us now consider its special action on the absorption and elimination of mercurial compounds introduced into the system. Mercury is not absorbed in its metallic form; whichever may be the pharmaceutical form used, it penetrates into the system in the form of bichloride of mercury or of compounds such as chlorobromides, chloroiodides, chloromercurates. These different changes take place with the help of the alkaline chloride of the blood plasma. Bichloride of mercury forms with albuminoids a white precipitate insoluble in water. On the other hand, an excess of albumin and especially a solution of alkaline chlorides may dissolve afresh this precipitate of albuminate of mercury and set it free in the circulation. Sulphur waters contain certain compounds which are capable of redissolving the mercury albuminates much better than sodium chloride, which is the principal means the organism possesses of introducing the mercury into the circulation. This power of sulphur waters to render mercury (*i.e.* the precipitated albuminate) more soluble increases very greatly the absorption, action, and elimination of the latter.

A given quantity of mercury, instead of remaining in part in the state of insoluble salt, passes entirely into the circulation in the soluble state and its therapeutic action is complete.

The interesting researches of Desmoulières have confirmed those of Astrié, thus proving experimentally a fact which had clinically been shown to be true long before.

"Sulphur waters," says Desmoulières, "may contain not only sulphureted hydrogen and sulphides, but also substances due to the alteration of these, and the alteration is all the more rapid that the water contains more silica. The sulphur of the sulphureted hydrogen and of the sulphides, set free under the influence of the carbonic acid and oxygen, is oxidized little by little and gives rise to hyposulphurous acid, sulphurous acid, and sulphuric acid, or rather to the sodium salts of these acids, sulphate of sodium being the last term of the oxidation."

Let us recall briefly Desmoulières's experiment to show the action of sulphur on mercurial compounds. If one add to 5 c.c. of serum 2 c.c. of a solution of bichloride of mercury an abundant white precipitate is formed. If one then adds 2 c.c. of a 1 per cent. solution of monosulphide of sodium, the precipitate immediately dissolves. Sulphureted hydrogen plays a similar rôle to the monosulphides, the albuminate of mercury precipitate being dissolved by the presence of a small quantity of the gas. Hyposulphite and sulphite of sodium possess the same power, but the sulphate of sodium does not. The action of sulphur waters is therefore all the greater when the sulphur compounds which they contain are more removed from their term of oxidation.

In waters containing chlorides and sulphides the sodium chloride adds its effect to that of the sulphureted hydrogen and sulphides.

We shall now consider the practical therapeutical conclusions which may be drawn from the foregoing.

1. Sulphur waters act on the mercurial compounds stored up in the organism and facilitate their elimination. Long after a mercurial treatment one can find traces of mercury in the organism, especially in the liver, the kidneys, and the lymphatic glands. After the ingestion of sulphur water, mercury has been found in the urine several weeks after the patient had ceased taking the mercury, the urine containing no mercury before the sulphur cure had been instituted. Furthermore, patients who had ceased taking mercury for more than a year have presented symptoms of mercurial intoxication (salivation, stomatitis) when beginning a sulphur cure; these symptoms, however, soon disappeared under the influence of the cure. These facts prove conclusively that the mercury stored up in the economy is set free in the circulation.

2. Sulphur waters allow a very powerful or energetic treatment of syphilis, for they facilitate the absorption of high doses of mercury without fear of intoxication. This is only natural, for sulphur rendering mercury more soluble prevents all accumulation and therefore any accident; at the same time it allows stronger doses to be used and a more rapid and more energetic action to be obtained.

In this connection Werbeck's treatment is often quoted for the success he obtained in treating workmen employed in an ice manufactory and suffering from mercurial tremor. He used to give them a patent medicine, the principal element of which was sulphur.

Sulphur waters are therefore to be prescribed to patients who stand mercury badly, to those who present symptoms of intoxication as soon as the mercurial cure is given for any length of time, also to those whose whole system is saturated with mercury with a possibility of a rather dangerous accumulation of the latter. In conclusion, it is important to help the diffusion of the mercury stored up in the different organs of the body, to assist its elimination, and thus to obtain its full action, by the exhibition of sulphur waters.

Before considering the sulphur cure itself, we must consider an important question. Ought mercury to be administered to a syphilitic before or after the hydrotherapeutic treatment? If the patient has just lately undergone a strong mercurial treatment, it is not necessary to continue the latter during the water cure.

But it is only in a case of this sort that the water cure is given alone, for the good effects of the sulphur medication are especially felt when mercury is given at the same time. It is in proceeding thus that the patient will be able to absorb really high doses of mercury without the slightest danger of any accident.

Which is the best method of administering mercury? We have the choice of three methods to introduce mercury into the system: by the mouth, by inunction, and hypodermicallly. The first method is the one which used to be the most employed, but we do not consider it applicable when undergoing a sulphur cure, for it is slow and uncertain, whereas a rapid and energetic action is required. The old method of giving mercury in the mineral water itself must particularly be avoided, for if mercury is taken less than two hours after the sulphur water it forms in the digestive and circulatory systems an insoluble sulphide and is therefore of no therapeutic use. Inunctions are much preferable; they should be made immediately after a bath. Each inunction which should be made energetically, should last a longer or shorter period of time, according to the dose of mercury employed. After the inunction the region rubbed should be covered with a piece of flannel, which must be left on until the next day. The dose of mercurial ointment to be used varies with each case. It is therefore useless to indicate quantities here. We must, however, draw attention to a fact which proves how much the tolerance of the system to mercury is increased by a sulphur cure. During the cure inunctions may be made every day with doses twice and even three times as great as under ordinary circumstances, without provoking symptoms of intolerance. It is evident, therefore, that one can obtain a much more energetic therapeutic action.

Of all methods we much prefer the hypodermic injections, using soluble salts of mercury.

The injections must be made with great care in order to prevent the formation of nodes, which might, in certain cases, interfere with the treatment. The injection of soluble salts constitutes the real and scientific method of treatment. It has many advantages—cleanliness, convenience, a therapeutic action superior to that of all other methods, no irritation of the digestive organs or of the skin, exact dosage of the mercury, whose absorption and action are rapid, regular, and constant. Lastly, the chances of intoxication are reduced to their minimum. The choice of the salt to be used, the dose of each injection, the number of and the interval between the injections, cannot be stated in a general way. Personally we use either the benzoate or the biniodide of mercury, but other salts may be used with good results. As a matter of fact, it is best to use the salt to which the patient is the most accustomed and with which one has already obtained good results. Each case has its own indications. The physician must proceed with caution, especially at the beginning of the treatment, increase progressively, and carefully watch the state of the patient in directing the treatment. There are many sulphur spas in France and elsewhere. In France among the best known are Luchon, Barèges, Cauteret, Uriage Challes, and Aix les Bains. As it is impossible for us to describe the treatment used at all these different places, we shall choose as a type the cure as it is applied at Aix-les-Bains.

The means used in the treatment differ in form and in importance. We shall describe only those which may be associated with a mercurial cure. The water at Aix is a sulphide calcic water with a temperature of 45° C. It is used externally, the Marlioz water being reserved for internal use. The waters are used in three different ways: (1) The "douche d'Aix"; (2) vapor baths; (3) internally.

The "douche d'Aix" is a combination of a douche or shower bath and massage; it is also called a "douche massage" and constitutes the real specialty of the spa. It is not a shower bath in the ordinary sense of the word, for the water is not used cold or for a short duration of time, neither is it a massage pure and simple. It consists in a kneading, a "pétrissage" of the muscles, and at the same time the body is sprinkled all over with the warm sulphur water. The douche massage is given in rooms some of which are completely closed in, others have openings at the top in order to allow the vapors to escape. In each douche cabin the temperature of the water varies from 14° to 43° C. (57° to 109° F.), and the douches can be given hot, cold, or tepid. The pipes which bring the mineral water and the cold water end in two metallic boxes fixed to the wall. One of these boxes, called "boite de mélange," is open and is fixed at about five feet from the ground. The mixture of the two waters takes place freely, so that the pressure remains always the same. This mixture is used for the back and the upper part of the body. The other box, called "culotte," or "jumelle," is made of copper and is hermetically closed. A single tube starts from the bottom of this box and the hot and cold water mixed in this box is used for the patient's limbs. In the "culotte" the water has a pressure which varies with each story in the building.

The patient sits on a wooden chair 30 centimeters high with his arms on an elbow-rest and his feet on a wooden footstool. One of the doucheurs is in front of the patient, with the tube which brings the water from the closed box, under his arm. As he sprinkles the water over the limbs he rubs and kneads the muscles and in certain cases performs passive movements of the joints. The other doucheur is behind the patient with the tube which brings the water from the open box. He sprinkles the back and shoulders and at the same time massages the muscles of the neck and trunk. During the whole time of the massage the patient is inundated with the mineral water.

After a certain time the patient leaves the chair and lies flat on his chest on an inclined plane or massage table. The doucheur, still holding his tube, massages the muscles of the back, thighs, and legs. In this position the muscles are completely relaxed, and it is therefore very favorable for a thorough massage of the posterior part of the body. The massage of the back may also be performed, the patient sitting on the chair and leaning forward with his hands on the elbow rest. When the massage is finished the patient is placed in one of the corners of the cabin and is given a "douche en pluie" (shower or rain bath), or a "douche en jet" (spouting bath). This latter part of the treatment is of great importance and physicians are able to obtain different results according as they use a round jet or a spread-out jet, a warm douche or a cold one, or, lastly, a Scotch douche. After the douche, the patient is thoroughly dried and wrapped up in a flannel dressing gown and a blanket. He is then carried out in a kind of Sedan-chair and put to bed. Abundant perspiration soon comes on and lasts generally about twenty minutes.

Vapor baths, local or general, may be given in different ways. Certain cabins, opening into the douche rooms, are called "bouillons." In these the water is pulverized and transformed into a vapor

with a temperature of about 40° or 43° C. (104° to 109.4° F.). By the use of the "bouillon" rapid and intense perspiration is induced and the patient breathes the sulphur vapor. An apparatus called "Berthollet" consists of a large box in which the patient sits with only his head out of it, and a mixture of air and sulphur vapor is circulated through the box. If required, the sulphur vapor may be made to act on a limited region of the body only.

The Marlioz Water.—The internal treatment consists in drinking the water of the Marlioz spring, which is the most sulphurous of the three springs which form the hydromineral group of Aix. The Marlioz water is sulphurous, alkaline, and contains iodides. It has a temperature of 14° C. (57.2° F.). It is easily digested and is eminently suitable for an internal sulphur cure. It is also used for certain local applications (throat, nose).

We have insisted quite sufficiently on the general action of sulphur waters. The "douche d'Aix" stimulates the circulation and nutrition, and acts as a splendid tonic. The "bouillons" help elimination through the skin and absorption of sulphur vapor. The vapor baths act locally on the skin.

Indications of the Sulphur Cure.—The question, at what period of the disease a patient will derive most benefit from a sulphur cure, is no longer discussed nowadays, for it is generally admitted that the cure is indicated at any period, since nutrition suffers and a general stimulation of the system is required from the very beginning of the malady. We must not forget, however, that patients suffering from arteriosclerosis, or from liver trouble, or highly nervous people, should not undergo an active sulphur cure.

A sulphur cure is indicated whenever a patient stands mercury badly, or when he can tolerate only a very small and insufficient dose, or, finally, whenever, in spite of the mercurial treatment, a therapeutic action is not obtained.

The cure is also indicated in the serious forms of syphilis, especially in those forms which are severe at the very outset, also when syphilis supervenes in worn out and enfeebled patients, and in the obstinate forms which resist treatment.

Certain particular cases require a rapid and energetic treatment, with injections of large doses of soluble salts, as they are applied at sulphur spas. These are: Lesions of the nervous system, due to syphilis; ulcerative lesions which threaten to destroy an organ or even a whole region; in a word, all cases in which a rapid action is necessary in order to prevent destruction or disorganization of tissue and in which time lost cannot be regained.

In conclusion, a sulphur water treatment has not the pretention of curing syphilis, but it forms the best auxiliary treatment which may be combined with a course of mercury, as it helps very greatly the absorption, action, and elimination of the latter.

The Diagnostic Value of Pain.—George Peacocke speaks of some of the difficulties which one meets in accurately locating the origin of any given pain. Pain is so often a referred pain that, although both pain and tenderness are usually present in the immediate neighborhood of the affected organ, the pain that causes most distress is situated in some more remote part of the body. As the viscera themselves are not sensitive, the pain to which they give rise is indistinguishable in many cases from pain arising in the body wall. The idiosyncrasy of the individual to pain is a difficulty which is present at every turn. The physician is largely dependent upon the patient's own statement that he suffers pain. In the case of infants and young children, the existence of pain is discovered by the recognition of visible signs of suffering only.

EARLY DIAGNOSIS AND HOME TREATMENT OF PULMONARY TUBERCULOSIS.*

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In what I have to say about the early diagnosis of pulmonary tuberculosis, it is not my purpose to consider those patients who have continuous cough, suspicious expectoration, emaciation, and, upon physical examination, easily distinguished evidence of destruction of lung tissue and cavity formation.

I shall discuss that large number of patients who seek advice before the above symptoms have appeared, and who have no suspicion of a tuberculous infection. If these cases can be correctly diagnosed they will, for the most part, promptly and readily respond to proper treatment.

One of the first things impressed upon the student when he begins the study of physical diagnosis is the importance of examining the lungs in all affections. The value of this teaching should not be gainsaid or overlooked by the careful physician, but in beginning pulmonary tuberculosis the lung findings should be considered of minor importance, as evidence for or against the existence of tuberculous infection.

Although it is a well established fact that disease of the lungs gives rise to symptoms that may be indicative of trouble in some other organ, the involvement may be of such small extent as either to escape notice or to be considered not incompatible with the findings in seemingly healthy individuals. For this reason the physician who depends upon an examination of the lungs in making an early diagnosis of pulmonary tuberculosis, will often fail to arrive at a correct conclusion.

Knowing that circumscribed tuberculous areas give rise to changes in the lung tissue which, so far as palpation, percussion, and auscultation are concerned, differ in small degree from inflammatory conditions brought about by many other agencies, it is patent that the chest examination will not present evidence sufficient to distinguish between other beginning active processes and the results of repair that are not inimical to the well being of the affected individual. To avoid error, if the findings show a departure from the normal, too much stress should not be placed upon the examination of the chest, but what it reveals should be considered as confirmatory rather than positive evidence of tuberculosis.

In many morbid conditions histories do not aid greatly in making a correct diagnosis. In pulmonary tuberculosis the history is of the utmost importance. The family history should be carefully taken, and anything pointing to tuberculosis in the parents or brothers and sisters of the patient, noted. In obtaining this as well as the personal history it is not uncommon for the patient to deny or conceal the fact of tuberculosis existing in any of the relatives. The possibility of encountering such evasions makes it necessary to exercise a good deal of skill in questioning, that deception may be detected. Inquiries should also be made regarding the association of the patient with anyone suffering from the disease.

The occupation should be considered; but as these

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patients are recruited from every trade and every profession, the occupation is not so much of a factor except in those cases in which dust and lack of sunlight prevail. The spitting of a small amount of blood may antedate physical signs in the lungs from one to two years.

To learn from what diseases of childhood the patient suffered, it is not sufficient simply to ask if he or she had the diseases of childhood, but it is necessary in the majority of instances, especially in dealing with the ignorant, to specify each disease; such knowledge may be of value from the fact that during and subsequent to such attacks the resistance of the child being lessened, it may readily fall a prey to tuberculous infection, which may remain quiescent until adolescence.

In addition to those disease processes of adult life that are well known to have tuberculosis as a sequel, syphilis is considered a strongly predisposing factor in the development of pulmonary tuberculosis.

In women, the menstrual history is not of a great deal of importance, only as disease of the uterus, tubes, or ovaries might affect the general health of the patient. It is not uncommon for women who are the victims of pulmonary tuberculosis to menstruate regularly until a short time before death.

One thing that has impressed me in these cases is the vagueness of the subjective symptoms. Many of the patients come rather unwillingly, brought by anxious relatives who see that something is wrong. The patients will state that for some days or weeks they have not been feeling well. They become tired easily—especially in the afternoon. Sometimes they will complain of chilly sensations, but rarely state that they have noticed the presence of fever. After a year's treatment tuberculous patients will often come into the office with a mouth temperature of 100° Fahr., who, if asked as to whether or not they have fever, will reply that they have not. Headache may be present.

When the patient complains of pain in the chest it is quite frequently in the region of the heart. The cause of this pain is difficult to explain, as postmortem examination of the heart in cases of death from pulmonary tuberculosis does not reveal anything in either the pericardium or the organ itself that is especially different from conditions that are found when death has resulted from other causes.

Loss of weight is found, but this may be of so small an amount that in itself it would not aid in making a diagnosis. An indefinite history of nightsweats may be obtained. In view of what has been taught regarding pleurisy and pulmonary tuberculosis, the number of early cases that I have examined, complaining of or presenting evidences of pleurisy, is remarkably small.

While gastric symptoms are apt to be pronounced fairly early in the affection, the patient may be entirely free from distress and state that the appetite is good, and that the taking of food causes no discomfort. Constipation exists in about 50 per cent. of cases. Insomnia is often a feature, especially in women, as well as an irritable condition of the nervous system.

Contrary to the belief formerly held that tuberculous patients are happy and hopeful, I find that despondency may be present to a marked extent. A slight degree of despondency may be detected in nearly every case.

Cold, and sometimes clammy condition, of the feet and hands is common. Dilated pupils have been considered of diagnostic value. I have found this condition in a few cases—more often in women than in men, but do not consider it of much significance. The red line of the gums at the margin of the teeth is often seen, and I am inclined to believe is of considerable diagnostic value. Tonsils that are chronically inflamed, and a number of decaying teeth are pointing straws. Freer speaks of the pale larynx and the often present non-tuberculous laryngitis associated with early pulmonary tuberculosis.

Inspection of the chest in very early cases will reveal nothing abnormal. The expansion may be restricted, as these patients are what might be termed shallow breathers. When the disease is a little more advanced, retraction beneath the clavicle of the affected side is at once detected.

The shape of the chest is not of so much significance. Tuberculosis is found in the stocky form of the Jew and in the burly figure of the blacksmith, as well as in the slender and taper thorax of the more delicately built. Progress of the disease, with the accompanying emaciation, will generally account for the so-called "phthisical chest," or "paralytic thorax."

If the first examination of the patient is in the afternoon, a temperature of 99° to 100° Fahr. is often found, with a pulse of 80. A pulse of 80 at the first examination is much more suspicious than that of 100 or over, as the latter rate is more apt to be due to excitement. In considering temperature the elevation due to intestinal fermentation, to chronic appendicitis, the ½ to 1 degree found in subacute attacks of cholangitis, and the slight rises in temperature of anemic origin, must be excluded.

At this time what may we expect to find in the lungs? In some cases the most careful examination will reveal nothing that would warrant us in saying that the infection exists. In other cases, as stated above, we shall be in doubt as to whether we are dealing with a healed lesion or with the result of a simple bronchitis. When the process is sufficiently advanced to present slight physical signs, we may expect to find a slightly higher percussion note just beneath the clavicle. This dullness does not extend below the upper border of the second rib. In the study of slight variations of the percussion note some one has advised that eighteen to twenty blows be struck with the percussion hammer instead of the customary three or four. I have found this a wise proceeding where doubt as to change of note exists. With the stethoscope over this area an inspiratory sound will be heard that is harsh or jerking in character, or both conditions may be present. The expiratory sound will be prolonged and blowing, in distinction from the short, soft murmur of the normal lung.

Râles, either dry or moist, are seldom heard. To elicit râles that are not easily detected the patient should be instructed to breathe deeply. Bronchial breathing is more readily distinguished by having the patient breathe rapidly. Early in the disease the Germans lay stress upon *spitzen katarrh*, a condition in which an occasional click is heard.

Posteriorly, in the lung involved, increased vocal fremitus may be found. The higher percussion note may not extend below the spine of the scapula. The abnormal breath sounds heard beneath the clavicle may be here more pronounced and the whispered voice is plainly transmitted to the bell of the stethoscope. Pectoriloquy may be noted as low as the fourth rib.

In those cases in which an elevation of temperature is not found, the patient should be furnished with a chart for daily recording of pulse and temperature. This record should begin at 8:00 A.M.,

the pulse and temperature being recorded every two hours until midnight. It is not necessary to have a printed form, as a suitable chart can be readily prepared by the physician. In some cases fever may not be found during the day, but will often be present between 10:00 P.M. and midnight. If a week's daily record shows no temperature elevation, then the rectal temperature should be taken. In one of my cases in which the pulse rate was constantly 80, it was three months before a temperature of 99° Fahr. was obtained in the mouth.

The propriety of the use of tuberculin as a diagnostic aid is a question. In 1901 Osler stated that it was harmless. Francine says that he has seen no ill effects from its use at the Phipps Institute. Trudeau, speaking from an experience of fifteen years, states that he has noted ill effects follow its use in three cases; but expresses a doubt as to whether these ill effects were due to the tuberculin or were merely a coincidence. While he concludes by considering it a valuable test, he advises against its use unless a careful application of clinical methods has failed to establish a diagnosis.

When preparing this paper I wrote Dr. Klebs, asking his opinion regarding the diagnostic and therapeutic use of tuberculin by the general practitioner. I quote his letter in full. Dr. Klebs says: "As to the usefulness of tuberculin I have very materially changed my opinion since I expressed myself last about it in 1898 (*Boston Medical and Surgical Journal*). I held then that its value as a therapeutic agent seemed to me very doubtful, the hygienic-dietetic treatment offering much better prospects and with a greater degree of safety. On the other hand, I advocated its use as a diagnostic aid, although needed only in very rare instances.

"To-day my standpoint is practically reversed, and I do not use it any more as a diagnostic agent, but I employ it in all suitable cases for immunizing purposes, and I believe with very encouraging results. The only danger I can see that it might have in the hands of the average practitioner, is in giving too large doses. When we once can get in the market dilutions of various strengths so that the preparation can be directly injected without further dilutions, then there ought not to be any difficulty in its more general employment. At present the making of dilutions for hypodermic application requires an amount of care for which the average physician who treats only isolated cases has hardly the time or inclination. I believe we will also come to the rectal and stomachal application of tuberculin, the good results obtained by this method with my father's tuberculin derivative, tuberculocidine, seem to speak for it.

"As to the choice of tuberculin, I believe that it does not matter much which preparation is used, provided it is prepared from the tubercle culture. (I may have to modify this belief soon.) All the Koch's preparations, the tuberculocidine, Denys' B. F., Beraneck's tuberculin can be used with equal success, provided one begins with a sufficiently small dose and gradually increases it (injecting twice a week), always carefully avoiding reactions. By the latter I do not understand only increase of temperature, but also subjective disturbances as increased cough, malaise, sleeplessness, etc. In most instances the treatment has to be prolonged for many months, but it is very simple, and without inconvenience to the patient, with perfect technique.

"From what I have seen of the results obtained I believe that tuberculin therapy is the treatment par excellence of tuberculosis, although it is yet in its infancy, and never will do away with hygienic and dietetic methods, which in every case must be employed."

Considering the unpleasant results that may follow the injection of tuberculin as a diagnostic measure and the element of error involved, its use does not seem justifiable.

Treatment.—As the successful treatment of pulmonary tuberculosis depends upon the observance of certain rules of living that are apt to be in such marked variance with the daily habits of most of the patients, the difficulty of effecting a cure is apparent.

The progress of the disease being slow and the disability in even rather well advanced cases not being pronounced, the patients are unable to appreciate the necessity of instituting prompt and effective measures for their relief.

The frequent relapses, the months and sometimes years of patient effort required to establish freedom from objective and subjective symptoms, are discouraging to both patient and physician. All patients suffering from pulmonary tuberculosis should begin treatment by rest in bed, for at least six weeks. This initial rest should be taken under conditions that are as near an approach to out-of-doors as it is possible to obtain.

The family as well as the patient should understand that the six weeks' rest will not cure the disease; that its object is to check its progress and give the patient an impetus towards recovery.

It should be made clear that the road to recovery is not likely to be an uninterrupted one, but that occasional periods of one or two weeks in bed are to be expected. If constipation exists it should be relieved at once. Magnesium sulphate in daily teaspoonful doses acts very nicely, and may be continued for two or three weeks. If the patient suffers from nausea or vomiting, relief is most quickly obtained by administering a high enema, consisting of glycerin, half an ounce, magnesium sulphate, half to one ounce, water one quart.

It is surprising to see how promptly nausea, vomiting, and gastric pains disappear under a liberal diet, when the patient is put to bed, and free movement of the bowels is established. For continuous use, when a laxative is needed, fluid extract of cascara sagrada, in five to ten minim doses three times a day, is one of the best and most satisfactory drugs.

For the associated bronchitis, guaiacol carbonate, in five grain doses four times a day, is of value. I have seen some patients improve nicely, who received ichthyol in thirty grain doses three times a day, while in other cases it has seemed to have no effect

The two drugs that have given me the best results in all cases are arsenic and tincture of nux vomica. They may be given singly or combined; arsenic in the form of Fowler's solution in three-drop doses, and tincture of nux vomica in five-drop doses at meal time.

While I believe that serum therapy, combined with better hygienic conditions, will in the future be to tuberculosis what vaccination is to smallpox, I feel that with the present knowledge of tuberculin, it would be better to confine its use to sanatoriums, where the risk of its administration can be reduced to a minimum, and the reaction carefully observed.

However, as many competent men are using it in general practice and believe in its value, I do not think its use should be entirely condemned or thought unsafe in the hands of the general practitioner. In the matter of feeding it should be kept prominently in mind that, with the patient in bed, the stomach will care for an amount of food which,

if taken with the patient going about, would prove disastrous. The diet should consist of three liberal, properly prepared meals a day. In addition the patient should drink one to two quarts of mixed milk and cream, and take from three to a dozen raw eggs during the twenty-four hours. The patient should be instructed to drink the milk slowly. Three or four drams of lime water may be added to the daily supply.

Sleep can often be obtained for those patients who suffer from insomnia by having them take an egg or two and a glass of milk at midnight, or later, if awake. The egg should be broken into a cup, sprinkled with salt, and swallowed. Patients should not be permitted to render the eggs more palatable by the addition of nutmeg, sugar, vinegar, wine, or whiskey, as such measures are almost certain to create a disgust for the eggs, while if prepared as above indicated, the most sensitive patients take them willingly.

In cases that are not past the curative stage, cough subsides under the influence of rest and care, without resort to sedatives. Mixtures that increase bronchial secretions are pernicious.

When profuse hemorrhage occurs, morphine should be administered hypodermically. I do not believe that any other drug has any influence in preventing pulmonary hemorrhage. Among the poor the trained workers of the Visiting Nurses' Association render valuable service to the patient and accomplish a great deal by keeping the other members of the family persevering in their efforts to prevent spread of the infection.

When the patients are out of bed they should be taught to eat slowly and practise deliberation in all physical movements, as such deliberateness tends to conserve nervous energy and favor the accumulation of fat. Success in the treatment of pulmonary tuberculosis depends upon the enthusiasm of the physician and his ability to prevent his patients from becoming lax in their efforts to maintain their physical condition at its highest possible standard.

34 Washington Street.

STUDIES OF JUVENILE CRIMINALS.

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The scientific study of crime is in its beginning, but the investigation of criminal youth is still more exceptional. It may therefore be of interest and value to give the results of three studies in juvenile crime. One consists mainly in observations of the physical defects of sixty-five young persons. Another is a more general study of 200 children from six to twelve years of age in a reformatory. The third is a special investigation of a "criminal-born child." While these results are quite incomplete, yet it is hoped that they may serve as a suggestion for further inquiry along these lines.

Some Physical Defects of Sixty-five Young Criminals.—Table No. 1 gives the percentage in order of frequency of some prominent physical defects of sixty-five young criminals.[2]

Some of these defects are normal in lower races and in animals, and favor the theory that the criminal is a reversion to a lower type. While it is doubtless true that these criminals have more physical defects than people in general, yet it is impossible to say just how many more, since a sufficient number of people in general have not as yet been studied with thoroughness adequate to warrant trustworthy comparison. Notwithstanding the advancement of this age, the serious study of normal living man has hardly commenced.[3]

TABLE 1.

Per Cent.	Defects	Per Cent	Defects
75	Arm-reach greater than height.	37	Antitragus of ear large
68	Projection of lower jaw.	37	Helix of ear rudimentary or absent.
68	Defective palate.	35	Thick lips.
65	Ears standing out.	34	Face not symmetrical
65	Ears adherent.	34	Length of fingers greater than that of palm.
56	Head defective in shape	32	Mouth kept open
53	Bumps on forehead prominent.	28	Skin dark.
52	Prominent cheek bones.	25	Nose crooked.
51	Teeth defective.	21	Hairy skin.
37	Occipital protuberance large.		

Antecedents.—Of the sixty-five criminals studied it was possible to obtain data in only forty-five cases. The number of defects is doubtless much below the reality, as there are so many temptations to conceal them. The most frequent hereditary taints are: (1) Nervous diseases, 95 per cent.; (2) lung diseases, 64 per cent.; (3) alcoholism, 62 per cent.; (4) insanity, 47 per cent.; (5) epilepsy, 32 per cent.; (6) mental backwardness, 20 per cent.

TABLE 2.

Antecedents of 45 young criminals	No	Per Cent.
Insanity—		
Father	0	0.0
Mother	4	8.88
Paternal and maternal relatives	17	37.77
In all	21	46.66
Mental backwardness	9	20.00
Epilepsy or convulsions	16	32.00
Hysteria	12	26.66
Nervous character—		
Father	17	37.77
Mother	23	51.51
Other relatives	35	77.77
Nervous diseases—		
Father	3	6.66
Mother	9	13.33
Other relatives	43	95.55
Alcoholism—		
Father	22	43.88
Mother	3	6.55
Other relatives	28	62.22
Excess of coffee drinking—		
Father	0	20.00
Mother	0	13.33
Other relatives	0	20.00
Lung diseases—		
Father	8	17.77
Mother	2	4.44
Other relatives	29	64.44

The prominence of nervous diseases suggests the results of extreme pressure due to the abnormal conditions of modern life. The author has indicated this in detail in Senate Document, No. 12, 58th Congress, 3d Session, entitled, "Statistics of Crime, Suicides, and Insanity."

A Study of 200 Children from 6 to 12 Years of Age in a Reformatory.—Of these children 134 were abandoned children, 13 had been in the poorhouse, and the majority of these had committed crime before, 44 had been vagabonds, and 19 beggars, 146 thieves, and 33 embezzlers. The social surroundings of those children were substantially the same, coming from the lower classes and being in the same institution, having the same school advantages, and being born in the same city.

In 10 cases the father was insane, in 14 the mother; epilepsy was found in the father in 11 instances, in the mother 15 times, and in sisters and brothers 7 times. Other nervous diseases were found in the father in 2 cases, and in the mother in 24 cases. In 78 cases the father was an alcoholic, in 5 the mother, and in 2 both parents; 22½ per cent. (45) were illegitimate, about 10 per cent. more than the general average for the city.

In 47 cases the father was dead, in 29 the mother, and in 13 both parents; in 15 cases the father and mother lived apart, and in 4 cases they lived in concubinage. There now remain 80 cases in which the children might have normal home training, but unfortunately in 48 of these the father, in 24 the mother, and in 15 both parents, left home in the daytime to go out to work. In 6 cases extreme poverty and in 15 sickness of parents prevented the children from having any education and training.

It is noteworthy that so few of the parents were criminals; in 8 cases the father and in 7 the mother had been convicted of crime.

In 24 children rickets was present, in 9 hereditary syphilis, in 12 scrofula, in 4 hydrocephalus, in 49 there were found injuries or wounds on the head, 15 of which must have affected the mental condition. In 25 cases there were chronic diseases.

In at least 68 children there was mental weakness, of these 35 were morally deficient, 7 were hysterical, 5 had paronoia.

In 52 cases the anterior circumference of the heart was greater than the posterior, and in 122 instances the reverse was true; in 26 cases the two circumferences were equal, 128 were brachycephalic, 58 mesocephalic, and 14 dolechocephalic.

There were 4 cases of microcephaly, 9 of trochocephaly, 36 showed a degree of asymmetry, 49 limbose coronal suture, 32 bulging out of the parietal eminence, 14 a depression in the parietal occipital region, 21 with retreating forehead, 11 with large superciliary ridges, 12 with temporal muscle, 19 with irregular limits to where the hair begins, 30 with wrinkles in the forehead, 12 with asymmetrical spots in the iris, 30 with adherent ear lobes, 17 with ears unsymmetrical as to size and insertion, 31 with Darwinian nodules, 20 with Wildermuth ear, 14 with decayed teeth, 21 with gap in row of teeth, 39 with irregularly inserted teeth, 43 with high standing gums, 41 with torsus palatinus, 26 with birthmarks. Other stigmata were found in 134 cases. Of the 83 normal children there were only 5 with no stigmata.

There was no unusual number with abnormal sensibilities. There was no conspicuous obtuseness to pain. The general physical development of the children was good, corresponding to the favorable hygienic conditions in which they lived. A striking physical development was noted in 17 cases, and a very defective one in 7 cases; 4 were left-handed and one ambidextrous.

Nervous abnormalities were not specially frequent; 10 had strabismus, 17 difference of pupils, 23 facial irregularities, 16 with no abdominal reflex, 6 had convulsive tics and 8 stuttered, 17 others had various nervous abnormalities.

Out of the 200, 83 were tatooed, a relatively large number. The tatooing consisted in the simplest forms, as heart, arrow, crown, coat of arms, initials, banner, cross, anvil, anchor, ship, sailor, dolphin, snake, women bracelet, ring, head, athlete, dumbbell, indian, tomahawk, horse's head, clown, half-moon. The location of the tatooing was on the arm, except in three cases in which it was on the breast. Of the 83 normal children 32 were tatooed; of the 68 mentally defective 21 were tatooed. The cause of the tatooing was due mostly to imitation, it being a common practice in the institution.

We will add here a few tables giving the results of some minor studies. Table 3 gives the results of study of the ears in different classes of people by Gradenigo.

TABLE 3

Ear	Criminal, Per Cent.	Normal Per Cent.		Insane, Per Cent.
		Men	Women	
Pavillion regular	20.2	50.55	62.	46.
Lobe adherent	25.	20.	13.	30.
Outjutting	24.	12.5	3.2	4.2
Of Wildermuth	18.	0.2	0.12	6.26
Antihelix prominent	14.2	.....	11.5	26.

Table 4 gives the results of the investigations of Ottolenghi and Maupaté as regards the nose in thieves.

TABLE 4

Nose in Thieves	Ottolenghi, Per Cent.	Maupaté, Per Cent.
Rectilinear	40.	50.
Concave	23.	37.5
Base elevated	32.13	31.25
Short	30.92	.....
Large	53.28	18.75
Flat	31.33	.....
Crooked	37.5	37.5

It has been said that thieves have large noses and swindlers pointed noses. But the number investigated is so small as to make such a conclusion merely tentative.

Marro gives in Table 5 the antecedents of criminals indicating the possible influence of hereditary conditions. Alcoholism, cerebrospinal diseases, and immorality in character play the most prominent part.

TABLE 5

Antecedents	Father, Per Cent.	Mother, Per Cent.	Ancestors, Paternal Per Cent.	Ancestors, Maternal Per Cent.
Alcoholism	41.	5.1	.....	.....
Old age	32.	17.	.....	.....
Insanity	9.2	3.3	2.7	4.1
Cerebrospinal diseases	21.1	18.	.....	.....
Epilepsy	1.7	.9	0.1	0.1
Immorality or violent temper	22.6	11.3	.....	.....
Consumption	5.1	10.1	.....	.....
Criminality	3.3	0.3	.....	.....

According to Lombroso and Blomberg those addicted to the use of alcoholic liquors are frequent among the antecedents of thieves, as indicated in Table 6.

TABLE 6

Epilepsy in Parents of	Lombroso, Per Cent.	Marro, Per Cent.
Thieves	2.1	3.3
Violators	1.2	.....
Suicide of Parents:		
Thieves	5.	5.1
Violators	3.9	.....
Insanity in Parents:		
Thieves	0.4	14.5
Parents Addicted to Drink:		
Thieves	14.3	46.

The Criminal-born Child.—In accordance with the belief of Dietrich,[4] the child to be described illustrates the criminal type.

Carlo was ten years old, 110 cm. in height, weight 18 kilograms, length of head 170 mm., width of head 140 mm., circumference of head 505 mm. The child was very short for its age, its head was very large (macrocephaly), its eyes large, glistening and projecting prominently from the orbits. A little down covered the forehead. The child had a snub nose, the sutures of the head were prominent and easy to feel, the teeth were very small and irregularly arranged, the zygoma were prominent. The visual field was abnormal, showing peripheral scotoma. The esthesiometer gave 2.2 on right wrist, 2 on left wrist, and 2 on the tongue. Electrical sen-

sibility on right 40.0, on left 15.0; sensibility to pain on right 15.0, on left 25.0. The father died of pneumonia, at 41; he was a strong drinker; the mother died at 31 of uterine trouble, was always sickly; had seven children, of whom three are living.

Right after its birth the child was difficult to treat and caused the nurse much trouble; at eighteen months of age the child began secret habits, and no way could be found to prevent it. When larger he would bite and scratch other children. He began to drink wine. He was a liar. He began to steal when two years of age. The child since his birth had been subject to starting up in its sleep and to spells of vertigo. He was very uncleanly. At school his desire to steal increased continually; he would steal from his schoolmates; he would put his hand into the pocket of his sister, stealing her money to buy candy. He read bad books. He was very fond of his aunt, and was sent to her after the death of his mother. He had an intense hatred for anyone who did him the least wrong, and sought opportunity for revenge.

According to Dietrich the following are some of the principal stigmata of the criminal type: Plagiocephaly, megalocephaly, microcephaly, prognathism, irregularity of teeth, ears outstanding, hypertrophy of genital organs, asymmetry of face, inequality of body, especially the eyes, ears, hands, and feet. In many cases bad secret habits are practised from the earliest periods. It should be noted that no individual would have all those stigmata, yet would have some of them in a striking way.

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TREATMENT OF MALARIA IN THE VICINITY OF NEW YORK CITY.

By WILLIAM STUMP, A.M., M.D.,

LARCHMONT, N. Y.

Of all human diseases, tertian malaria is one of the most amenable to treatment. That the ordinary treatment by quinine in divided doses is finally effectual, is undeniable, but that such administration is the best, is debatable. I believe in the light of the actual pathology of the condition, and from my own experience, that the usual treatment is susceptible of radical improvement.

We know that the cause of the disease is the plasmodium, a single cell protozoön, and that it is introduced into the system by the bite of one genus of mosquito, the Anopheles. When the organism is transferred to the human body from the salivary glands of the Anopheles it enters the red corpuscles, and while in the red corpuscles grows, so that at the end of forty-eight hours it has attained its full size, when it reproduces itself by splitting up into 15 or 20 new organisms which, breaking forth from the enveloping red corpuscle, escape into the serum. At the same time a toxin is liberated, causing the paroxysm which we commonly call the "chill." At this time each of the newborn organisms seeks out a future home, enters a red corpuscle, grows, and at the end of another 48 hours finishes its cycle and has reproduced. Thus we have our paroxysm recurring every other day at the same hour.

Knowing the life history of the plasmodium within the human body and knowing that it is enveloped in a protective sac as it were, and is only free in the serum at the time of segmentation, does it not seem logical to administer the remedy at the time when it will kill the organism? In the ordinary manner of treatment it has been the custom to give quinine in divided doses at intervals of three or four hours, thus maintaining a constant but low quinine percentage in the blood plasma. The result is that a certain number of the organisms are retarded in their development or killed, yet many spores find refuge in red cells and the disease is uncured.

Now were the quinine so administered as to have the maximum saturation at the time when the organisms were young and tender, were extracellular, and particularly vulnerable to the toxic effect of the quinine, the disease would be much shorter and more effectually eradicated.

My method of administering quinine in these cases is to give it in solution one hour before the expected paroxysm, to give it in sufficiently large dose to kill the maximum number of the organisms, and to follow up with the same amount at the same time for those three or four successive days on which the paroxysm would have occurred. I then give the same amount two weeks later for two more successive days on which the chill would have occurred. I have found that the ordinary tertian malaria, such as we meet with in the vicinity of New York, always responds to treatment in one dose, and there will be no relapse, provided the directions are carefully followed by the patient. I usually give five grains for each fifty pounds of body weight; thus the average patient will receive fifteen grains. After having examined the blood, which I always do, I write out a schedule to be followed minutely.

We will assume that the paroxysm was at 10 o'clock on Monday, May 27, and that the patient has taken quinine in 5-grain doses every three or four hours. We know that on Wednesday, May 29, he will probably have another chill at 10 o'clock. He is given at once calomel to be followed by a saline. I write the following:

℞ Quininæ Sulph., ...5iss
Acid Sulph. dilut. to dissolve
Aquæ 5ij
M. Sig. One tablespoonful as directed.

I then hand the following schedule to the patient, warning him to follow it carefully: Take one tablespoonful at 9 o'clock on Wednesday, May 29; Friday, May 31; Sunday, June 2; Tuesday, June 4; Thursday, June 20; Saturday, June 22.

The reason for the second course of quinine at an interval of two weeks is that any stray or latent organism not destroyed by the first course may be eradicated. During the two weeks' interval should a fresh paroxysm occur it is usually found by consulting the calendar that such paroxysm belongs to the cycle of an entirely distinct infection from the one originally treated.

The method outlined has the advantages of curing in the shortest possible time, with the least risk of subsequent relapse, and with the minimum drugging of the patient.

Résumé.—Examine the blood in every case.

Flush the alimentary tract.

Give quinine in solution, 5 grains for each 50 pounds of body weight, one hour before the expected chill, and follow with the same dose in chronological sequence.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE SIGNIFICANCE OF MONGOLIAN PIGMENT SPOTS.

For centuries Japanese writers have discussed the nearly constant presence in the sacral region of irregular areas of bluish pigmentation in recently born children of their race. The occurrence of this phenomenon is but little known among our medical men, and still less is known of its meaning and distribution. The spots vary in size from a small coin to that of an expanded hand, and while usually found over the sacrum, isolated ones may occasionally be found in other parts of the body. They are not raised above the surrounding skin nor are they influenced by pressure. In nearly all cases this pigmentation is present at birth, though it may not appear until a few weeks after birth; it then gradually fades, leaving no trace after a few years. Similar areas are found in ninety-seven per cent. of pure Chinese and in other Mongolian peoples. Microscopical examinations of these spots in the Japanese and Chinese have revealed large spindle and stellate-shaped pigment cells deep in the corium.

In 1903 Adachi instituted a search for these cells in the skin of white children. He found deep corium cells (similar to those found in Japanese and Chinese with blue spots), only in limited areas, usually in the sacral region, in ten out of twenty-four white children up to two and a quarter years of age, though blue spots could not be seen in any of them. Other observers, however, have reported well-authenticated cases of blue spots in pure white children. Definite reports of similar spots have also been obtained from various other races and peoples (Malayans, Hawaiians, etc). J. Brennemann, writing in the *Archives of Pediatrics* for June, 1907, says he has recently examined forty American negro children under one year of age. Thirty-six showed well-marked areas of pigmentation, the area varying in size from that of a dime to that of a dollar, and being usually found in the sacral region; the color varied from a bluish gray to a deep violet color. It was impossible to establish any definite relationship between the intensity of these spots and the amount of white blood in any given case, because of the uncertainty concerning ancestors more than one or two generations removed. He examined skin from over the sacrum and from the ventral surface of the chest in a still-born negro child, in which no blue spots were seen. In the piece from the chest no pigment could be found in the corium, while in that from the sacrum the deep layers of the corium were thickly strewn with large pigment cells closely resembling those described in Japanese, Chinese, and Caucasian children. It seems certain, therefore, that these spots, which were formerly considered a distinct Mongolian racial characteristic, are a human characteristic found in different degrees in all races. The view held by Adachi that we have here to deal with a rudimentary formation can alone explain them satisfactorily.

In the white man these deeper lying pigment cells of the corium exist as a localized transitory condition. In darker races, where there is more pigment in general, the cells are often present in sufficient number or degree of concentration to show through the overlying layers, and thus appear to the eye as blue pigment spots; in the race of least pigment, the Caucasian, the same pigment cells are present, but only exceptionally occur in sufficient numbers to be visible as the blue spot. They must not, therefore, be considered as an exclusive race characteristic, but are to be accorded the same value as other racial traits—color, hair, etc. Their presence or absence in given cases leads to highly probable, but not positive determination as to race or to degree of admixture.

THE RELATION OF TRANSIENT GLYCOSURIA TO DIABETES.

Von Noorden has recently expressed the opinion that transient glycosuria, the reason for which does not obviously lie in a diet excessively rich in sugar, has a tendency to be followed by diabetes. As this undoubtedly occurs in a number of cases it is important to know which ones are followed by diabetes, so that by proper treatment the latter may possibly be prevented. In the June number of the *American Journal of the Medical Sciences*, T. B. Barringer and J. C. Roper endeavor to show how many and which cases of spontaneous transient glycosuria develop later into diabetes. They selected from the records of a life insurance company all cases showing a glycosuria of one per cent. or less during the years 1900 and 1901; twenty of these could be followed up closely. In 1906 all but two patients were in apparent health, the one having a chronic nephritis and the other tabes. Of five patients who showed sugar in the urine previous to 1900, two had developed a constant slight glycosuria and could be called diabetic, although the glycosuria was the only symptom present. Of the fifteen in whom sugar was first found in 1900 and 1901, two had developed a constant slight glycosuria, but showed no other diabetic symptoms. Thus four developed mild diabetes in from five to eight years.

Barringer and Roper showed furthermore that there exists a relation between spontaneous transient glycosuria and glycosuria e saccharo. When one hundred grams of glycose or cane sugar was given to a healthy individual, usually no glucose was found in the urine, and it ordinarily required 150 to 200 grams of either substance to produce glycosuria in a normal individual. Hence the production of glycosuria by the ingestion of one hundred grams would prove conclusively that the assimilation limit for glucose was lowered. Eighteen of the twenty patients received one hundred grams of glucose three hours after breakfast, and their urine was examined two or three hours later, no food being taken in the interval. The four diabetics showed an alimentary

glycosuria of from one to three per cent., an additional evidence of the correctness of the diagnosis. Five others showed from one to four-tenths per cent. glucose, while two showed traces, but not enough for quantitative analysis; in seven patients the urine examinations were negative. Thus fifty per cent. showed a disturbed sugar metabolism five years after the first discovery of sugar; four were surely diabetics, five were probable diabetics, and nine were surely nondiabetics. Eighteen of the twenty were examined again after sugar had been first found, and eleven showed a glycosuria on this second examination. These eleven included the four diabetics and four of the five probable diabetics, which exemplifies the prognostic value of a repeated detection of traces of sugar. All but one of the nine cases which showed alimentary glycosuria also showed sugar on repeated examination. It is thus seen that alimentary glycosuria arising from glucose or cane sugar, provided the test is properly conducted and repeated at intervals, affords an indication as to whether the spontaneous transient glycosuria will develop into diabetes. Those patients in whom the glucose reaction is repeatedly positive should be put on a restricted diet, even though the spontaneous glycosuria has not recurred; the others in whom the reaction is negative require no treatment.

As regards the occurrence of non-diabetic glycosuria, however, A. L. Benedict (*American Medicine*, May, 1907) thinks it has been overestimated. In 3,500 urine examinations he did not find a non-diabetic glycosuria once, except such as might be explained by excessive ingestion of sugar, three cases of Addison's disease, ten of Graves' disease, and several pregnant and nursing women being included. He feels certain that the idea that such cases are at all common rests on errors of technique, and believes that any suggestion of sugar should be checked by the picronitric acid and fermentation tests.

THE PRODUCTION OF SEX.

An explanation of the causes which govern the production of sex has been sought for from earliest times. The ancient belief, which still holds among some of the laity, that the right ovary gives rise to male and the left to female children, was effectually denied over a century ago and has more recently been proved to be false by the fact that after a unilateral oophorectomy, a woman could bear children of either sex. Statistics have shown that the male sex of the human species exceeds the female by a fairly constant proportion, from fifty to sixty per thousand births, and this is another fact which has not been accounted for satisfactorily. The period of time at which the sex of the offspring is determined has also been the subject of much attention, and a number of hypotheses have been advanced to provide a solution of this problem. Whether sex is determined in the ovum before conception takes place or at the moment of its occurrence, or finally at some later period of development, is still unknown. The idea that it might be dependent upon external circumstances during the period of development has served as a basis for a number of investigators to formulate a theory which shall have a practical value, but none of these theories, not even the much heralded one of Schenk, has been satisfactorily substantiated. The latter's experiments have stimulated further experimental research, however, among which considerable interest attaches to the recent observations of Peham (*Monatsschrift für Geburtshülfe und Gynäkologie*, April, 1907) on the influence of ovarian substance on the sexual functions of animals.

Peham's experiments consisted in feeding ovarian extract to rabbits during a number of generations, his observations extending over a period of three years. Successive broods of females were fed with this substance, but in every instance the results were negative as regards the production of either sex in greater proportion. It does not seem possible therefore that by feeding with ovarian substance the germ cells in the ovary can be stimulated to form one kind of ovum in preference to another, and the laws of nature which govern the production of the sexes remains unsolved at the present. It is perhaps just as well that we cannot interfere in a process which, if it could be controlled, might result in more harm than good.

THE SURGICAL TREATMENT OF GASTRIC ULCER.

In regard to the treatment of gastric ulcer both surgeons and internists seem to agree that surgical measures should be resorted to when persistent and thorough internal treatment has brought about but little or only temporary improvement and the patient's life has been rendered burdensome through pain, vomiting, dyspepsia, etc. While this view is now pretty universally accepted, there is still difference of opinion in regard to the precise means that shall be resorted to by the surgeon to whose care an operative case of the disease has been referred. Some surgeons, such as Rydygier, still regard resection of the separate ulcers as the most widely applicable procedure, but there are many objections to this view, and at present the majority of operators undoubtedly prefer gastroenterostomy as the routine measure. The manner in which this operation exerts its curative influence is not altogether clear, however. It was formerly supposed that as a result of the anastomosis the stomach was subjected to a species of drainage which insured the rapid passage of the food magma into the intestine, but Hildebrandt (*Berliner klinische Wochenschrift*, June 24, 1907) accepts the theory of Katzenstein, who believes that this element is operative but little, or not at all. He states that if the stomach is inflated after a gastroenterostomy it is found that there is an air-tight closure of the fistulous opening, and Katzenstein has also shown that the ingesta remain in the stomach just as long after a gastroenterostomy has been done as under normal conditions. The chemical aspects of digestion undergo modification, however, as the hyperacidity is reduced or entirely relieved through the fact that the alkaline intestinal juice periodically flows back into the stomach and reduces the amount of free hydrochloric acid in that viscus. According to this view, the operation of gastroenterostomy is to be regarded not simply as a palliative measure, but as one which is directly curative, since it tends to remove one of the underlying etiological factors or concomitants of the lesion.

Obstetrical Operations on Animals.

The value of the practice in surgical technique to be obtained by performing operations on animals is self-evident, and the addition of courses in operative surgery of this sort is a noteworthy improvement in the surgical instruction given in many of our medical schools. It has been suggested that equally desirable training in obstetrics may be derived from the performance of the usual and unusual manipulations and operative procedures on the larger domestic animals, such as the sheep and cow. Sellheim has recently (*Deutsche medizinische Wochenschrift*, May 30, 1907) described a method for practising the operation of pubiotomy on the sheep, and in a subsequent publication in the *Münchener medizinische Wochenschrift*, June 18, 1907, he urges young medical practitioners to familiarize themselves with the management of certain obstetrical emergencies by rendering active assistance during parturition in the cow. The manual removal of the retained placenta is one of the most serious of the more ordinary obstetrical operations, and is likely to tax severely the skill and judgment of the operator the first time he is called upon to perform it. Valuable practice in intrauterine manipulations of this sort may be had by removing the placenta and membranes of the cow. In this animal the placenta is multiple, often being made up of sixty or one hundred separate portions, and in the process of removing this mass of material the opportunities for appreciating the difficulties of the corresponding procedure in the human female are manifold.

The Eyesight of Chauffeurs.

The announcement that a regulation is about to be enacted in Germany requiring chauffeurs to exhibit evidence of having successfully passed an examination of their eyesight before licenses to drive motor cars will be granted or renewed, involves a suggestion that appeals to common sense and a regard for public safety. The desirability of normal visual acuity in chauffeurs is self-evident, and restrictions in their regard similar to those applying to railway employees would seem to be a not unreasonable requirement. Feilchenfeld, in discussing the subject in the *Deutsche medizinische Wochenschrift*, June 20, 1907, calls attention to another feature of the question which is not without importance. Owing, he says, to the short period of apprenticeship required and the comparatively high rate of remuneration, crowds of individuals who have been unsuccessful in other occupations are taking up that of driving motor vehicles. Among these are many who are physically deficient, notably in the matter of eyesight, and legal regulation of those eligible for work of this sort is not only desirable but extremely necessary. The very great frequency of automobile accidents, often under what seem to be rather mysterious circumstances, appears to indicate that the physical incapacities of those driving the machines may contribute in no small degree to the dangers inherent to the abuse of this means of locomotion.

A Medicolegal Mayor of San Francisco.—Dr. Edward R. Taylor, physician and lawyer, Dean of the Hastings Law College and of the University of California, was elected Mayor of San Francisco by the Board of Supervisors on July 16. One of the arbitrary acts of former Mayor Eugene Schmitz, now in jail, was the turning out of the health board of the city because it dared to do its duty, in opposition to his commands, in acknowledging the presence of plague in the city and taking measures to prevent its spread.

News of the Week.

A School for the Deaf.—The Board of Education has authorized the establishment of a school for the deaf, which is to be located in the building at 225 East Twenty-third street, now occupied by the Stuyvesant High School. This school will move into a new building in the fall, and it is expected that by September accommodations will be provided for 175 deaf pupils. It is intended to teach lip reading and oral speech exclusively, and to make manual training and industrial work a prominent feature in the courses of instruction. When necessary, provision is to be made for the payment of carfares of children coming from a distance.

Food Preservatives and Coloring Matters.—The Department of Agriculture on July 12 published a decision in regard to the use of chemicals in food products. Common salt, sugar, wood smoke, potable distilled liquors, vinegar, and condiments may be used as food preservatives, and pending further investigation the use of saltpetre will be allowed. Pending further study of the use of sulphur dioxide the presence of small amounts of this preservative will not be regarded as cause for prosecution. The use of sodium benzoate will be permitted for the present, but its presence must be stated on the label. Certain coal tar dyes are specified as permissible for coloring purposes, and the use of small amounts of copper salts for greening canned vegetables is permitted providing the label bears the statement that these salts are present.

Bequests to Cincinnati Institutions.—The will of Francis T. White, formerly of Cincinnati, Ohio, filed in the Surrogate's office of this city, gives $2,500 to the Cincinnati Orphan Asylum and like sums to the Cincinnati Union Bethel, the Children's Home, the Widows' Home, and the Home for Aged Men, also of Cincinnati. The Children's Aid Society of New York is to receive $2,500.

Chicago College Buys Central Site.—The Chicago Eye, Ear, Nose, and Throat College has completed the purchase of a site, and within a year will begin the construction of an eight-story building, fitted for its uses, to cost from $125,000 to $150,000. The college owns the property at the southeast corner of Washington and Franklin streets, which adjoins the site just bought, so that it has a frontage on Washington street of 40½ feet and 80½ feet on Franklin.

The Fourth of July in Chicago.—The elaborate preparations for the Fourth of July by the Chief of Hospitals and Ambulance Service—which included a volunteer corps of twenty-six senior students from the College of Physicians and Surgeons and the Rush Medical College, happily proved largely unnecessary. Thanks chiefly to the agitation by the public press, the repeated warnings as to the danger of explosives, advice as to the handling of fireworks and the importance of prompt treatment of wounds, the Fourth of July casualties were fewer in number than for many years.

State Hospital Reports.—Governor Hughes has approved the Armstrong bill providing that the proceeds of the sales of the manufactures and products of the State Hospitals shall be reported monthly to the State Treasurer by the State Lunacy Commission.

Bellevue Hospital Decision.—The State Board of Charities has adopted a resolution requesting the Attorney-General to take an appeal from the decision of Supreme Court Justice Pitts in the case

against the Bellevue and allied hospitals of New York City. The Board sought to compel these hospitals to submit their plans for building improvements for its approval, but Justice Pitts decided that they need not do so.

Plague in India.—According to the London correspondent of the *New York Times,* the deaths from plague in India have been greater during the first six months of 1907 than in any previous entire year since 1896, not even excepting 1904, when there were 1,022,299 deaths. From January 1 to June 30, 1907, there were 1,060,067 deaths. The mortality from plague last year was 332,181, and the total mortality since 1896 to June 30, 1907, was 5,471,309.

Tuberculosis Sanatoria in Germany.—The recent report of the German committee for the restriction of tuberculosis shows that great progress has been made during the past year in providing accommodations for the tuberculous poor. There are now in Germany 87 public sanatoria with 4,822 beds, and 35 private sanatoria with 2,118 beds, numbers which are said to exceed the total of all the other public sanatoria of Europe combined. Eleven other public sanatoria with 800 beds are in the course of construction. There are also 17 institutions with 650 beds for children with advanced tuberculosis, and 67 institutions with 6,092 beds for less advanced cases of general tuberculosis in children.

Rubber Stoppers in Germany.—Owing to the fact that it is now considered that rubber containing antimony is not dangerous to health, the German government has rescinded a former measure making it unlawful to use rubber of this sort in connection with containers of food stuffs.

British Medical Association.—The seventy-fifth annual meeting of this Association will be held at Exeter, July 27 to August 2, 1907, under the presidency of Dr. Richard Andrews Reeve, Dean of the Faculty of Medicine, University of Toronto. The President-elect is Dr. Henry Davy, Physician, Royal Devon and Exeter Hospital. The address in medicine will be delivered by William Hale White, M.D., F.R.C.P., Lond.; the address in surgery by Mr. Henry Trentham Butlin, D.C.L., F.R.C.S., Eng., and the popular lecture will be delivered by Sir John William Moore, M.D., D.Sc., F.R.C.P., Irel.

Second International Congress on School Hygiene.—This will be held in London on August 5 to 10, 1907, under the patronage of the King and many other eminent personages. The preliminary program provides for sessions in ten different sections devoted to various aspects of school hygiene, and exhibits of interest in this connection have been arranged for. The general secretaries are Dr. James Kerr and Mr. E. White Wallis, Royal Sanitary Institute, Margaret street, London, W. The president of the committee for the United States is Dr. Henry P. Walcott of Boston, and the secretary is Dr. Thomas A. Storey of Boston.

The Medical Society of the County of Dutchess held its quarterly meeting on July 10, 1907, at the Hudson River State Hospital, Poughkeepsie, under the presidency of Dr. D. H. Mackenzie of Millbrook, N. Y. Dr. Charles E. Nammack of New York City, president of the First District Branch of the State Medical Society, addressed the members and guests on the subject of the legal, professional, and social advantages of the present plan of county, State, and national organization. The scientific portion of the program consisted of papers on the following subjects: "Commitment of the Insane," by Dr. Charles W. Pilgrim; "Anxiety Depressions," by Dr. Frederick W. Parsons; "Improper Commitments of Alcoholics," by Dr. Clinton J. Hyde; "Training Schools in State Hospitals," by Dr. Isham G. Harris. The papers were discussed by Drs. Borst, Cotter, Frederick J. Mann, Kruse, and Nammack. Over seventy members and guests were in attendance.

Rutland County (Vt.) Medical Society.—At the annual meeting of this organization held in Rutland on July 9, officers as follows were elected for the ensuing year: *President,* Dr. A. H. Bellerose of Rutland; *Vice-President,* Dr. J. W. Estabrook of Brandon; *Secretary,* Dr. C. F. Bail of Rutland; *Treasurer,* Dr. H. R. Ryan of Rutland.

Somerset County (Me.) Medical Association.—The forty-third annual meeting of this association was held in Skowhegan on June 27. Officers were elected as follows: *President,* Dr. W. F. Stinchfield of Skowhegan; *Vice-President,* Dr. W. S. Milliken of Madison; *Secretary and Treasurer,* Dr. H. C. Taggart of Skowhegan.

Missouri Valley Medical Society.—The twentieth annual meeting of this society will be held in the city of Council Bluffs, Iowa, on Thursday and Friday, September 5 and 6, 1907. In addition to the regular program, visiting physicians will be guests of the Carnival Association, which will give its annual fair at this time, lasting the entire week. The arrangements are in the hands of a committee of which Dr. Donald Macrae is chairman. The president of the society is Dr. O. Beverley Campbell, and the secretary is Dr. Chas. W. Fassett of St. Joseph, Mo.

Death of Sir William Perkin.—Sir William Henry Perkin, the founder of the chemistry of the aniline dyes died in London on July 14, at the age of sixty-nine years. Last year the jubilee of his discovery of the color mauve in 1856 was celebrated in this country and in England. On the occasion of his visit to this country in October, a Perkin Medal was instituted, to be awarded each year to an American research worker in chemistry; a reference library was founded at the Chemists' Club of this city, and to Sir William himself were presented the first impression of the medal named after him and a silver tea set. The degree of LL.D. was also given to him by Johns Hopkins University.

Death of Sir William Broadbent.—Dr. Sir William Henry Broadbent, physician in ordinary to the King and Prince of Wales and consulting physician to St. Mary's Hospital, Paddington, and other London hospitals, died on July 10 at the age of 72 years. Dr. Broadbent was a prominent London consultant and was well known for his works on diseases of the heart. He was at various times president of the Harveian Society, Medical Society of London, Clinical Society, and Neurological Society. He was a Knight Commander of the Royal Victorian Order and a Commander of the Legion of Honor, and held several honorary university degrees.

Obituary Notes.—Dr. William LeGrange Ralph of Washington died on July 8 at the age of fifty-six years. He was born in this State, and was graduated from the College of Physicians and Surgeons in 1879. He practised for some years in Utica until obliged to give up active work on account of ill health, and then turned his attention to the study of natural history. He made valuable collections of birds' eggs and nests, which he presented to the National Museum in Washington, and since 1897 he had been curator of that section of the Museum.

Dr. Ellie Barnaud of Brockton, Mass., died on July 2, at the age of fifty-seven years. He was born in France, but came to Canada at the age of twenty-one years and received his medical education at Laval University, Montreal. He practised for many years in Spencer, Mass., and then removed to Worcester. Five years ago he became a resident of Brockton.

Dr. Eugene A. Bassett of Chicago died at Barre, Mass., on July 6 of nephritis, at the age of sixty-seven years. He was born in Templeton, but grew up in Barre, and received his medical degree from the Harvard Medical School. He had practised in Chicago for about eighteen years.

Dr. Acland W. H. Oronhyatekha, son of the late Dr. Oronhyatekha, died suddenly on July 8, at the age of thirty-eight years. He was born in Frankford, Ont., and was graduated in medicine from Trinity College, Toronto, fourteen years ago.

Dr. William Miller of Davenport, Ia., died on July 5, at the age of fifty-nine years. He was born in Germany, and in 1869 came to this country. He was a graduate of the Iowa State University.

Dr. W. M. Price of Florence, Ala., died at an advanced age on July 2, as the result of a long illness following a paralytic stroke. Dr. Price had practised for many years in Florence, and had served numerous terms as president of the County Medical Society.

Dr. William Greaves of Northfield, Minn., died on July 2, at the age of sixty years. He was graduated from the medical department of the University of Michigan at Ann Arbor in 1871, and had practised in Northfield for over thirty years.

Dr. Ralph P. Stubbs died at Wilmington, Del., on July 7, at the age of thirty-two years. He was graduated from the medical department of the University of Pennsylvania in the class of 1897.

Dr. George A. Sweeney died at Chester, Pa., on July 8, at the age of thirty-three years. He was graduated from the medical department of the University of Pennsylvania with the class of 1898.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

KING'S BIRTHDAY HONOR LIST—SLEEPING SICKNESS CONFERENCE—CONSERVATIVE SURGERY OF THE ABDOMEN (CAVENDISH LECTURE)—NURSING—ALCOHOL—FOOD REFORM LEAGUE—ST. THOMAS' HOSPITAL PRIZES—OBITUARY, BENNETT OF DUBLIN.

London, June 28, 1907.

A long list of honors conferred by the King in celebration of his official birthday—the day appointed for the purpose, which is not the real birthday—was issued last night. There are four new peerages and as many privy councillorships, eleven baronetcies and thirty-three knighthoods. Among the last you will find Swanzy of Dublin and Alderman Crosby, M.D., of London. In the service honorary are Sir W. MacGregor, M.D., K.C.M.G., promoted to the grand cross of the order; Dr. J. A. Ewing, F.R.S., to be C.B. Surgeon-General Trevor, P.M.D., Western India, to the same distinction. Prof. Ray Lankester receives the K.C.B.

The International Conference on Sleeping Sickness concluded its labors on Monday, having had seven sittings in all. Of these, four were plenary meetings, two of administrative, and one of medical committees. A number of resolutions dealing with proposed preventive measures were agreed to, but with the exception of the British representatives none of the delegates had full powers, so that no formal convention could be entered into. It was proposed that another conference should assemble in the autumn, at which the delegates should be provided with full powers. Perhaps the most far reaching recommendation was the establishment in London of a permanent central bureau to collect material and take the initiative in reference to all international questions in relation to the disease and to fix the dates and places of meeting of future conferences. This central bureau was further to be assisted by a similar national office in each country concerned. Some recommendations of the medical committee as to the prosecution of research were not endorsed by the full conference, in consequence of opposition on the part of the German delegates, though it is hard to imagine why.

Is the vermiform appendix of any use? This question was touched in the Cavendish lecture, which was delivered by Mr. Keetley on the 21st inst. His discourse embraced, indeed, the whole subject of conservative surgery in abdominal operations, and he pointed out that while some surgeons may be ready to remove organs, others may be too anxious to retain them. Having referred to Treves' first paper in 1888, he said for the next sixteen years the appendix was treated as a mere vestige. But in 1904 Macewen raised doubts as to this and reported a case in which a portion of the abdominal wall had been accidentally removed as well as of the cecum, the orifice of the appendix being exposed. Referring then to Weir's first appendicostomy, he asked what inference was to be drawn, and replied that when about to remove an appendix the surgeon should ask himself whether in that particular case it might possibly be wiser to retain it. He went on to show that this could in properly selected cases be done by transferring the appendix from the peritoneal cavity and embedding it in the abdominal wall, opening or excising its distal end, if there was any narrowing. Thus, instead of a mere appendicostomy in which all but a stump of the organ is cut off, the whole or the greater part is preserved. In selecting a case for such a procedure a fair length of the proximal part of the organ must be free from kink, stricture, ulceration, and perforation. Of course, tubercles or actinomycosis were contraindications. Most of the appendix should be placed beneath the fat on the external oblique muscle. Care must be taken not to injure the artery.

The surgical treatment of chronic constipation was also treated in the lecture. Mr. Keetley did not think much of ileo-sigmoidostomy and ridiculed the notion that the cecum was a cesspool. It was, he said, a bag of living tissue with an aperture of egress nearly equal to its own diameter, with a lining of secreting and absorbing epithelium as well as a muscular wall. It was compressed by the muscles of the abdominal parietes and as a general rule contained gas—not feces. In his own practice the lecturer had performed appendicostomy for chronic constipation in nine cases and in all the operation had answered its purpose. It was a clean operation, if properly performed, did not give egress to feces, and did not require a catheter to be kept in.

Sir Dyce Duckworth gave an address on nursing last week at the Institute of Hygiene. He spoke of the progress of the last thirty years and said nursing was seen at its best in the British empire, for the needs of the patients were imperfectly met on the Continent and in the United States. The nurses were rather overtrained. No room in a house, he said, was too good to be ill in, and as the Spanish proverb teaches, "Where the sun comes not the doctor does." He held that our open fire and open window surpassed any "system" of ventilation. The fire could be replenished noiselessly if the fuel was wrapped in paper. As to feeding, he declared it was hard to improve on nature, so he had not much to say in favor of predigested or peptonized foods, which he thought were too often resorted to. Sleep was most important and a well-fed brain sleeps well, but improper food and excessive fluids often prevent sleep. The introduction of the motor traffic has proved a grave danger to the peace and rest of both the healthy and the sick. The tendency of the times is to induce impatience and captiousness, frequently shown by the sick to their medical advisers. A little more stillness and meditation was much wanted in these days.

The reopening of the alcohol question by the manifesto, as I wrote some weeks ago, has aroused the dealers to fresh advertisement and now their recognized organ is distributing a circular in which that document is quoted, together with some still less defensible assertions. But the other side is not idle and a recent volume by Sir V. Horsley, F.R.S., and Mary D. Sturge, M.D., entitled "Alcohol and the Human Body," deals with the subject in a manner that will interest the public as well as the profession, and is especially deserving the attention of politicians. In relation to the public health there is a chapter by Dr. Arthur Newsholme which sums up this part of the question in the fewest words. Of course, scientific statements put forward by Sir Victor Horsley are beyond contradiction and anyone disposed to question his conclusions had need arm himself with something more than prejudice. To how great an extent alcoholism is a disease is not recognized by politicians and reformers, but their eyes should be opened by this accumulation of reliable evidence.

Sir J. Crichton Browne addressed the Bread and Food Reform League at the Mansion House on Wednesday. The object of the meeting was to inaugurate an educational campaign on the diet and health of children. He repudiated any vegetarian tendency and was a firm believer in the value of the mutton chop.* To create a group of mixed hooligans and imbeciles it was only necessary, he said, to starve young children from time to time and diligently ply them with what was called "a liberal education." He would like to see adulterators of food electrocuted.

Mr. Rider Haggard distributed the prizes at St. Thomas' Hospital and told the unsuccessful students not to be downhearted. It was not given to everyone to shine in examinations. This was a self-satisfied world, but we had not rid ourselves of all superstitions when such things as Christian Science, the faith of the Peculiar People, and of the antivaccinationists and those who believed in patent medicines still flourished. One thing they would have to grapple with in future was overcrowding in large cities. The shrinkage of the birth rate would make it necessary for medical men to concentrate their skill and ability upon saving such children as came into the world and preventing the frightful waste of child life. He recommended them to cultivate imagination and go in for hard, steady work.

Dr. Edward H. Bennett of Dublin died on the 21st inst. at the age of seventy. Educated at Trinity College, he graduated A.B., M.B., M.Ch. in 1859, and M.D. in 1864, taking the F.R.C.S.I. the previous year. He was appointed university anatomist and later professor of surgery. He was also surgeon to Sir P. Dun's Hospital, consulting surgeon to Steeven's Hospital, St. Mark's Ophthalmic and the Dental Hospitals, Dublin. He became president of the R. W. A. Surg. in 1884 and was president of the Academy of Medicine from 1897 to 1900, in which year he received the honorary Fellowship of the English College. He represented the University of Dublin in the General Medical Council. He contributed to the *Dublin Quarterly Journal of Medicine* on foreign bodies in the larynx, on ankylosis of the hip-joint, fractures of costal cartilages, etc. On bones and fractures, indeed, his authority was second to none. Anything relating to joints or osseous pathology was intensely interesting to him. The Museum of Trinity College is rich with his specimens. "Bennett's fracture" has found its way into the text books. I believe he was the first to practice Listerism in Dublin. As a teacher and hospital surgeon he was a great favorite with both students and patients.

OUR PARIS LETTER.

(From Our Special Correspondent.)

THE TREATMENT OF TETANUS—APPENDICULAR PELVIC ABSCESS—OYSTERS—TOXICITY OF THE URINE IN APPENDICITIS—ANEURYSM OF THE AORTA—RECTAL EXAMINATIONS—NECROLOGY.

PARIS, June 5, 1907.

AN interesting discussion on the treatment of tetanus took place in the Société de Chirurgie in connection with the presentation of a patient by M. Guinard. Monod spoke of the important work done by Nocard on this disease and stated that it was through this that the efficacy of antitetanic serum had been shown on animals. Pierre Delbet expressed a doubt that the serum acts on man as it does on animals and said that the serum was without action on the tetanus bacillus, as it was simply antitoxic. The serum does not prevent the bacillus from growing, but it does prevent the action of the toxins on the nervous system. The immunity that it confers is only of short duration and some experimenters believe that it does not last longer than ten days. When the serum has been injected into a patient he is immunized against the tetanus toxin for about ten days, but during this period the bacillus either disappears or when the period of immunity is over it may regain its activity and continue to produce toxins, so that the disease resumes its course as before. Therefore the instances in which the symptoms of tetanus appear ten days or more after the injection of the serum prove nothing against the value of the latter. They simply show that its action is of short duration. Delbet said that, far from believing that the prophylactic use of the serum should be abandoned, he was of the opinion that it should be resorted to more frequently. The injections should be repeated at intervals of about ten days until the suspected wound was completely cicatrized. Paul Thiéry and Routier spoke of the distinction that should be made between the use of the serum when the tetanus has already begun and its employment as a prophylactic measure. Under the former conditions it has little or no value, but in the latter case it is certainly effective and its use is entirely without danger. Nearly all the other speakers were of the same opinion and counseled the prophylactic use of the serum.

Pelvic abscess of appendicular origin was another subject that led to an animated discussion before the Société. Picqué spoke in favor of draining abscesses of this sort through the perineum instead of through a rectal incision. He considered that the perineal operation was founded on correct anatomical principles and was well adapted for the drainage of the pelvic peritoneal cul-de-sac, which was rendered easily accessible through its distention with exudate. Routier, on the other hand, was of the opinion that appendicular pelvic abscesses may more advantageously be opened through the rectum, since the operation is easier and recovery is quicker than when the pre-rectal incision is used. Broca also held this view and said that he had never seen any untoward results through secondary infection of the cavity communicating with the rectum. Reynieret and Le Dentu expressed themselves similarly. Mauclaire held that a great deal depended on the situation of the suppurating focus and the direction in which it was pointing. He was not an advocate of exclusive pelvic drainage, but maintained that the abdominal route, the pre-rectal route, and the rectal operation all had their indications and might even be used in combination.

A noteworthy communication on the dangers attending the ingestion of oysters was presented by Netter before the Académie de Médecine. Numerous regrettable instances of gastrointestinal disorders and even of typhoid fever following the consumption of oysters from polluted waters have occurred and have justified the interest taken by the Académie in this question. The only method of preventing such occurrences is to safeguard the consumers from all oysters that have not been protected from contamination. In order to do this the oysters must be gathered only from waters in which there is no possibility of direct or indirect pollution with sewage, and to prevent any subsequent contamination during the transit from the point of origin to the table of the consumer. The Académie adopted a resolution recommending that an investigation should be instituted by the maritime authorities regarding the topographical, chemical, and bacteriological aspects of this question. Only those oyster beds should be used the safety of which has been established by searching investigation, and in which the necessary surveillance recommended by the commission is carried out. All oyster beds should be subjected to regular inspection.

Lannelongue read a paper on the importance of investigating the toxicity of the urine in appendicitis. In acute appendicitis the most careful study of the subjective and objective symptoms is not sufficient to enable even the most skillful clinician to determine the intensity of the infection and to formulate the indications regarding the advisability or nonadvisability of operation. Lannelongue thinks that the problem may be solved by determining the toxicity of the patient's urine. Normally the toxicity is 84 c.c., that is, this quantity of urine per kilogram of body weight must be used in order to kill a rabbit by intravenous injection. The urine of patients with acute appendicitis is three, four, or even five times as toxic as this. When the toxicity is 25 c.c. instead of 84, the patient's death is inevitable unless an operation is done. By means of this method the prognosis may be more accurately determined and by gauging the degree of infection the most favorable time for operation in chronic cases may be selected with great precision. In this connection Hayem observed that it was difficult to compare the toxicity of the urine of appendicitis patients and normal individuals. During the disease the amount of urine was much diminished and its concentration was increased so that its toxicity was apparently heightened. Before injecting the urine it should be made isotonic with normal urine or at least be brought to the same specific gravity.

At the meeting of the Société Médicale des Hôpitaux Lamy and Cléret showed a very large aneurysm of the thoracic aorta which had been almost completely cured by concentric lamination of the sac. The patient was a man of sixty-five years, who contracted syphilis at the age of forty and had spent the last five years of his life in the hospital. The treatment had consisted in rest and the administration of iodide of potassium.

Lion and Bensaude demonstrated a rectoscope intended for examination of the rectum and colon. The use of the high-tension electric current was recommended by these speakers to reduce the pain sometimes attending the use of the instrument. By allowing the current to pass for from four to six minutes almost complete anesthesia is obtained and the instrument may be introduced without causing any discomfort.

Prof. Charrin has died at the early age of fifty years. He was attending physician to the hospitals, adjunct professor

of medicine, member of the committee of hygiene, and professor of pathology in the Collège de France. He did important work in bacteriology and did much to prove the part played by bacterial toxins in infectious diseases. He was also one of the first to introduce vaccination by means of soluble products, and contributed important observations on the bactericidal properties of the blood. His researches on glanders and on the *Bacillus pyocyaneus* enabled him to demonstrate the experimental polymorphism of bacteria. He was taken from the world of science while still in the plenitude of his powers.

Progress of Medical Science.

New York Medical Journal, July 6, 1907.

Auscultation Ratios in Pulmonary Tuberculosis.—J. R. Billings, Jr., mentions the difficulty of definite diagnosis in very incipient cases, particularly those in which these abnormal signs are localized at the right apex and appear to be, qualitatively, but an exaggeration of the normal differences in that area. He noted that in a number of cases, in which abnormal signs seemed to be due to physiological intensification only, there was a corresponding intensification of the signs over the lower part of the right upper lobe, both in front and behind. The breath sounds and vocal resonance, not only of the two sides of the chest, but also of the upper and lower portion of the affected lobe, were always compared. Eventually, by reason of training and experience, he came to feel that he could estimate the relative intensity of the sounds at the apex and lower portion, respectively, of the affected lobe. The results of this continued observation along the foregoing lines are expressed in the following propositions: (1) It seems probable that the relative intensity of the breath and voice sounds over the upper and lower portions of the upper right lobe of the lungs remains about the same in health, being about 5 to 4, or 5 to 3. (2) That when the sounds at the apex are physiologically intensified, there is a corresponding intensification of the sounds over the rest of the upper lobe, the ratio being about the same as in normal chests, namely, 5 to 4, or 5 to 3. (3) In incipient tuberculosis, with beginning infiltration of the right apex, the signs at the apex are intensified, while those over the rest of the right upper lobe remain normal. The ratio between them is thus distinctly increased to 2 to 1, or even higher. (4) An increase in these ratios to 2 to 1, or over, suggests the presence of infiltration, possibly tuberculous, at the apex of the right lung. The author describes certain modifications of the stethoscope which have proven of service in his investigations.

Recognition and Treatment of Pneumonia in Infants and Young Children.—W. P. Northrup says that the early manifestations of pneumonia in infants are sudden onset, prostration, fever, disturbed respiration, altered pulse ratio, and râles. These are sufficient for a diagnosis. Then follow in due order diminished respiratory murmur, bronchovesicular respiration, bronchial voice, and breathing, bronchial "whiff," dullness, and cough. This order he regards as characteristic of practical value and relative appearance. Treatment should commence with castor oil and calomel, or the former alone in full dose. Careful feeding will prevent flatulency. Water internally and externally should be freely used. Fresh, flowing, cool air should enter the sick room freely. Antipyretics may be given, with sponging, but no coal tar products are allowable. For cardiac stimulants we should use wine, whiskey, and strychnine. Complications should be recognized early and treated according to indications. Our great aim is to aid the child in its struggle against toxemia. Poultices are good only for local pain. They should be applied to local areas only, not bound around the chest, and should be used only intermittently. Periods of three hours should be allowed for sleep, during which the child must not be disturbed. The feet should be kept as warm as the head. The author repeats his well known views as to the value of outdoor open air day and night.

A Pathognomonic Eye Symptom in Rabies.—While engaged in studies on rabies W. B. Coakley noticed a peculiar scum which partially covered the left eye of a mad fox terrier dog. On wiping away this discharge he found the pupil in pin point contraction and uninfluenced by light, the cornea and conjunctiva were analgesic, and the outer layers of the former were destroyed. This animal was just entering upon the last stage of the disease and was still strong and very furious. After applying atropine at intervals of ten minutes for one hour, he failed to influence the contraction. Cocaine was then tried with the same result. He then administered large doses of atropine hypodermatically with negative results. After a wait of four hours he gave a large hypodermic injection of cocaine; the result was the same as before. At the end of eight hours after his original observation, the contracted pupil suddenly dilated to about the size of a large match head, while the pupil of the right eye remained practically unaffected. The animal at this time was very weak and unable to stand. His respiration was labored, and the heart sounds were indistinct. Two hours and thirty-five minutes from this time he died. The post-mortem findings were about the same as those usually found in a rabid dog. The same phenomenon was noted in subsequent observations with such constancy as to lead the author to believe it pathognomonic of rabies. It must not be confounded with the pupillary contraction which sometimes follow the sudden removal of an animal from a dark cage to a bright light. If there is any doubt as to the permanency of the contraction, mydriatics should at once be used; if mydriasis is secured and the animal lives for several hours, we may be sure we are not dealing with rabies.

Histogenesis of Tumors, Particularly of Cancer.—The paper of H. Oertel is largely a review of recent literature on the general subject of malignant neoplasms. His own contribution to the matter mainly concerns deductions from a certain case of liver cancer in which he traces the gradual metamorphosis of degenerated liver cells into cancer cells. In this cellular transformation he has detected three transitorial stages. The first one, the destructive stage, is represented by a cell of the type of the liver cell with extensive loss and granular degeneration of protoplasm. The nucleus has lost its structural chromatic arrangement and most of it has disappeared. There remains the form of a vesicle with little or no central chromatin, no distinct nucleolus and at the periphery small, rather faint, apparently unconnected chromatin granules. In the second or incipient regenerative stage the nucleus shows marked enlargement with irregular production of small chromatic granules within the vesicle of the same type as in stage 1, but without definite arrangement or connection. A faint nucleolus may be visible. The protoplasm around such nuclei is still of the degenerated, granular type, and much wasted. In the third stage, finally, these chromatin granules have largely coalesced to form one or more larger rich clumps which are connected; a pale nucleolus is distinct. At this point an accumulation of smooth protoplasm takes place around the very large nucleus, stamping the cell at once as an entirely different type of cell. This is the true cancer stage. A new cell type, identical with the cancer cells, is thus formed directly from the degenerated, wasting liver cells, bridged over only by a small mass of remaining nuclear chromatin. But these cells still enter into the construction of the lobule, and show the arrangement in rows after their individual change in cell character has occurred, and no disturbance of the lobule has taken place; ample proof that these small islands are not metastases, but primary cancerous foci. However, as soon as these new cells begin to reproduce, they break with the former physiological arrangement and structure. As they have lost the morphological character as liver cells, they now prove their new functional type by rapid independent growth, with utter disregard to their original source and surroundings. They begin to infiltrate, their true malignant nature is manifest, a carcinomatous growth is established.

Journal of the American Medical Association, July 13, 1907.

Metastatic Conjunctivitis in Gonorrhea.—J. J. Carroll, after some historical preliminary remarks, reports two cases of metastatic gonorrheal conjunctivitis and discusses the symptoms, diagnosis, and theories of the disease. Its essential distinguishing characteristics are: The primary gonorrheal infection, its bilaterality, the absence (almost invariable) of gonococci in the eye, the generally associated arthritis, the tendency to recurrences and to be accompanied by iritis or iridocyclitis. The diagnosis is rarely difficult, though the ocular conditions alone may sometimes be insufficient to distinguish it from catarrhal conjunctivitis. After iritis has developed and the conjunctival symptoms have become less marked, it may not always be easy to decide which was the primary condition. All the reported cases have occurred in males; whether this is due to anything in the anatomy of the male urethra or not is difficult to say. The most tenable theory of the disease, in Carroll's opinion, is that of a special toxin, and he refers to the results of Morax and Elmassian who produced conjunctivitis with filtered cultures of gonococci which they attributed to the action of the derived toxin.

Lacrymal Obstructions.—M. D. Stevenson describes the methods of treatment of lacrymal obstructions, urging, in the main, conservatism as regards probing methods.

The tendency at present is toward the greater use of the syringe, giving the probe a less active part in the treatment of these cases. The portion of the nose into which the nasal duct enters should be carefully examined before treatment is commenced, especially before passing probes or otherwise using radical treatment, and the treatment of the lower portion should also be gentle. The sac should be extirpated when pus or mucopus can be pressed out and the disease does not yield to conservative treatment, especially in persons who are exposed to injuries, such as stonecutters, farmers, etc. It should also be removed when the disease is bilateral, and if one eye has been lost by hypopyon ulcer the sac should be removed on the side of the healthy eye. He would also remove it in cases of severe ulceration of the cornea with dacryocystitis and as a preliminary to the operations requiring the opening of the eyeball when dacryocystitis is present; in chronic lacrymal obstruction, when normal drainage cannot be restored; when lacrymal fistula is present; when there is necrosis or disease of the bony walls of the canal; in some cases of polypus, or when there is much thickening of the sac lining; in debilitated or nervous persons, or in those who cannot endure probing, and in dangerous conditions, such as tuberculosis or malignant disease. A dilated or atonic sac should often be removed, especially in long standing cases with partial destruction of the walls of the sac and duct. He does not favor the removal of the gland ordinarily, as the flow of tears may be required to remove irritants, etc.

Abdominal Symptoms of Thoracic Disease.—A. A. Jones calls attention to the abdominal symptoms of thoracic disease; the pain referred to the hypochondrium in acute pleurisy, the pains felt not only in the epigastric and hypochondriac regions, but somctimes in the inguinal region in pneumonia, and the striking abdominal symptoms attending empyemas. All these may occur while the physical signs of the thoracic disorder are in abeyance, and he gives an account of one case in which the patient was operated on for appendicitis, and of another in which an operation for perinephritic abscess had been decided on before the real disorder was diagnosed. The explanation of this transferrence of pain to the abdomen is clear when we recall the anatomy of the six lower intercostal nerves, branches of which are supplied to the abdominal parietes. The very troublesome abdominal tympanites of lobar pneumonia is noticed. This usually occurs in patients near the extremes of life or in obese objects with low resistance and myocardial disease. In its most aggravated form it is of bad prognosis and its treatment is eminently unsatisfactory. Usually only strychnia, fresh air, and eliminatives are effective, but in a few cases he has found physostigmin salicylate, 1/100 grain, hypodermically, of some apparent use. One of the most common abdominal symptoms of cardiac disease is epigastric pain, and two cases of myocardial degeneration and rupture are reported. Similar symptoms may occur with angina pectoris, the gastric symptoms yielding to iodides and nitroglycerin. Some so-called cases of gastralgia are due to cardiovascular disease and are relieved by iodides and nitrites. Doubtless aortitis is the fundamental cause in some of these cases, as the pain caused by thoracic aortitis may be felt in the epigastrium. Gastric symptoms are also observed in many cases of valvular heart disease, due, it may be, to passive hepatic congestion or portal or mesenteric engorgement. Whatever the explanation, they yield only to measures that better cardiac action and improve the condition of the circulation generally. Other conditions in the thorax mentioned as accompanied by abdominal symptoms are asthma and emphysema, with or without chronic bronchitis, and the well-known ascites and edema of cardiac disease.

The Acid Intoxication Theory.—Otto Folin reviews the history of the acid intoxication theory, which he does not think will suffer materially from the more recent findings. He especially notices the work of Knoop as furnishing a working hypothesis defining not only the material out of which the acetone bodies can be formed in diabetes, but also the chemical reactions involved in their formation. His fatty acid oxidation theory admirably accounts for the facts and it gives a tangible conception of the intermediary catabolism involved in the oxidation of foods in the animal organism. By linking the fatty acids to the stable benzene group Knoop was able to arrest their otherwise too rapid oxidation at enough intermediate points to form a fairly definite conception of the successive steps in their destruction. Summarizing the results as regards normal fatty acids, we may say that all these which contain an even number, and not less than four carbon atoms, can be oxidized to oxybutyric acid. Normal fatty acids which contain an odd number of carbon atoms cannot yield oxybutyric acid. The formation of oxybutyric and diacetic acid in these cases may be said to be due to the fact that the diabetic organism is not able quite to finish the attack of the betacarbon atom of butyric acid. Whether this is a matter of faulty oxidation or of inadequate hydrolysis Folin considers still uncertain. The amino acids which go to make up the proteids may by parting with their amino groups become fatty acids and thus also the precursors of the acetone bodies. The question whether fat or protein is the chief source of the acetone bodies is, theoretically, at least, settled. There are still things uncertain and calling for further investigation in these recent researches, and some important questions calling for discussion, but Folin passes to the question of the alkaline therapy of acidosis which must after all furnish the final proof of the acid intoxication theory. He criticises the dependence on sodic carbonate alone as not in accordance with current physiologic teaching, and this may serve to explain its shortcomings. The superiority of salt mixtures as against any one salt in maintaining living tissues intact has been abundantly demonstrated, and flooding of a diabetic patient with sodium, considering the toxicity of some of its compounds, may be injurious or less helpful than the use of an equivalent mixture of sodium, calcium, potassium and magnesium. Since the blood of these patients shows a diminished capacity for carrying carbon dioxide, he thinks the useless and burdensome carbonic acid of the carbonates should be replaced by organic acids having some fuel value. Like other foods, they ought to reach every part of the tissues as the precursors of oxybutyric acid are supposed to do, and through their oxidation the oxybutyric formation should tend to decrease, and whatever did form be neutralized in the very cells where it originates, a result confessedly lacking in the sodium carbonate treatment.

The Lancet, June 29, 1907.

The Influence of School Life on the Spread of Scarlet Fever.—That schools greatly contribute to the spread of scarlet fever is the view of B. K. Goldsmith, one of the health officers of Manchester. He presents elaborate tables and a chart showing local conditions in reference to his main contention. His study embraces 19,219 cases. In taking up the question of school influence, we may ascertain the day of the week on which the onset of each case occurs. By this method one can see on which day most cases arise, and further, whether Saturday and Sunday, days of non-attendance at school, produce any influence in lessening the number of cases on certain days following, allowance being made for incubation. Again comparison can be made between the holidays and the school terms in relation to the days of onset. It is of importance also to ascertain if, as regards the day of the week, the onset in infants and adults corresponds or not with the results obtained in school children. A second method of approaching the subject consists in ascertaining the total number of cases occurring among children of school age during the holiday and comparing this with the number of cases occurring during an equal period of time before and after the holiday. Further, the effects of the holidays on infants and adults must be compared with that in children of school age. One might expect infants to show only a slight diminished incidence during the holidays. In adults also a fall may be expected, proportionately greater, however, than in infants, owing to the diminished number of cases among school children during the holidays. This fact, of course, would tend to lessen the number of cases in infants also, but the greater amount of contact during the holidays between infants and those members of the family who are of school age will in all probability counterbalance the diminished prevalence of scarlet fever among the latter. In adults the amount of contact is not increased, as they are at work all day and are exposed to infection from school children mainly in the evening whether the schools are open or not; this observation refers chiefly to male adults, but it is applicable in a less degree perhaps to females also, many of whom are employed in mills, shops, etc. The author's cases extend over a period of nine years and his tables, while they cannot be well abstracted, are yet very suggestive to educational officers. Most striking is the sudden rise in the number of cases when the schools reopened after summer and Christmas holidays. The author simply presents his facts without suggestions as to remedying the present state of affairs, except as to hint at the systematic medical inspection of all school children and the instruction of teachers in the recognition of the early evidences of the contagious diseases.

Rice and Beri-Beri.—W. Fletcher presents a preliminary report on experiments conducted in the lunatic asylum in the Malay States. He declares that uncooked rice is either directly or indirectly a cause of beri-beri, the actual cause being either (1) a poison contained in the rice; (2) deficiency of proteid matter, the disease being due to nitrogen starvation; or (3) uncured rice does not form a sufficiently nutritive diet and renders the patient's

system specially liable to invasion by a specific organism, which is the cause of beri-beri. The author excluded all doubtful cases from his statistics. Examination was made of the knee-jerks and of the presence or absence of edema. Comparisons were also made on the basis of rice grown in different localities. Thus on a given day the figures were as follows: the knee-jerks of patients on Siam rice, present, 13; absent, 18 (in 5 absent on admission); increased, 6; total, 37. Knee-jerks of patients on Bengal rice, present, 23; absent, 8 (in each case absent on admission); increased, 5; total, 36. With regard to edema, patients on Siamese rice 10 out of 37 had it and patients on Bengal rice 4 out of 36. Sixteen of the 37 patients on Siamese rice had been on this diet for a considerable period; in 8 of these 16 cases the knee-jerk was absent and in three it was increased, while in five edema was present. In all those 8 cases on Bengal rice in which the knee-jerks were absent they were noted as being absent on admission. Three were cases which had been transferred to a Bengal rice diet after having developed beri-beri while on a Siam rice diet. Two had been treated for beri-beri in other hospitals. Two gave a history of previous attacks. In one case the cause of absence of reflex is unknown. Since the end of December, 1906, up to the present date (May 10, 1907) 12 cases of beri-beri have developed among the patients on a Siamese uncured rice diet. No patients on Bengal (cured) rice have suffered from the disease. Thus excluding patients actually suffering from the disease on their admission to the asylum, there were 51 cases of beri-beri among the patients on Siamese rice and none among those on a Bengal rice diet.

Loss of the Tendo Achillis Reflex and Its Diagnostic Value in "Alcoholic" Failure of the Heart.—R. T. Williamson recognizes a clinical form of heart disease due to the ingestion of large quantities of beer or spirits. It may be that the exact cause of the affection is the alcohol itself or some impurity, as arsenic, which has been known to be in beer in sufficient amount as to cause an epidemic of peripheral neuritis. The author notes that loss of the tendo Achillis reflex is one of the first signs of the injurious action of alcoholic beverages on the peripheral nervous system and this reflex is often lost before the knee-jerk. His investigations demonstrate that in cases of heart disease not due to alcoholism, the tendo Achillis jerks were present in all cases except two, and in those two cases the loss of these reflexes was almost certainly due to early tabes. On the other hand, in *alcoholic* heart failure the tendo Achillis jerks were lost on both sides in sixteen out of twenty-one cases, on one side in two other cases; they were both present in only three cases. In these three cases the symptoms were slight and the diagnosis not quite certain. Hence we may say that the tendo Achillis jerks are present in non-alcoholic heart disease unless there is some nervous complication, but are usually absent in alcoholic heart failure if the symptoms are well marked and if edema and dyspnea are both present (*i.e.* absent in alcoholic heart failure on both sides in seventy-six per cent. of cases, on one or both sides in eighty-five per cent.). The loss of the tendo Achillis jerks in alcoholic heart failure is probably due to very early neuritis. It is not due to the edema of the leg, since these reflexes may be obtained in non-alcoholic cases when there is marked edema. The author thinks, therefore, that under certain conditions the tendo Achillis may be of service in the differential diagnosis of alcoholic heart failure, but we should first exclude diabetes mellitus, diphtheria, and tabes as causes of the loss of the tendo Achillis jerks. Providing there is no glycosuria, no evidence of a recent attack of diphtheria, no sign of lesion of the spinal cord, or cauda equina, and providing the pupils react to light and that there are no lightning pains or other signs of tabes dorsalis, then the loss of the tendo Achillis jerk is of value in diagnosis as a confirmatory sign that the alcoholic beverages taken have had an injurious action on the system—*i.e.* that they have produced one of the first signs of their toxic action on the peripheral nerves.

British Medical Journal, June 20, 1907.

Relapses in Enteric Fever.—The case reported by H. C. Hamilton concerns a girl of sixteen years who was admitted to hospital at about the end of the third week of typhoid. At the end of five days her temperature had fallen to normal. She had had during this time two slight hemorrhages, but seemed on the way to convalescence. In twenty-four hours, however, the temperature began to rise and for the next ten days it varied from 99 to 102°. It then dropped suddenly 3°, unaccompanied by any other immediate symptom or sign. She died four days later. Autopsy showed non purulent peritonitis and a small perforation six inches above the ileocecal valve. The author notes as a feature of the case the fact that care proved fatal in a relapse, which is contrary to rule. When such fatality results it is nearly always due to some such complication as that mentioned above, partial immunization having almost certainly exempted the patient from the effects of a toxemia sufficient to cause death. The case also exemplifies the difficulties which are sometimes present in the diagnosis of perforation, even in the absence of abdominal distention and where the patient is quite conscious. There was no acute sudden pain, no marked collapse, no great or immediate alteration in the pulse. In fact, there was practically no evidence which would justify the immediate diagnosis of a perforation.

Surgical Tuberculosis and the Opsonic Index.—Two cases are reported by J. Stark illustrating the infection of the blood system in surgical cases of tuberculosis. In the first case a child (male), aged two years, had an attack of acute ascites, put down as tuberculous in origin, although there were no enlarged glands to be found. The child made a good recovery, but about a year afterwards it came again under his care, suffering from tuberculous periostitis of a rib with abscess. He advised surgical interference. The rib was scraped and a tuberculous necrosis removed. The wound healed nicely, but the child developed tuberculous meningitis, and died about five weeks later. The second case was one of tuberculous knee. Excision of the joint was performed, and the child recovered from the operation, but showed symptoms of meningitis four weeks later, and died of that condition about one year later. These two cases tend to prove that there is a great danger of general infection by interfering with localized tuberculosis, and also that tuberculous meningitis, bone lesions, and peritonitis are caused by the same bacillus—namely, the *typus bovinus*. That children are more susceptible to bovine tuberculosis is shown by the preponderance of bone, meningeal, and abdominal lesions in children as compared with adults.

Severe Hemoptysis Treated by Means of Ice Bags.—H. Downes reports one case, his patient being a man of twenty-eight years. The author's object in reporting it is to call attention to the value of a therapeutic measure which has fallen into unjustifiable disuse. The treatment in this particular instance included absolute rest with the shoulders slightly raised, a diet of milk and eggs, and mild saline aperients. Hypodermic injections of morphine (one-quarter grain) were given at first, but were discontinued as ineffectual. Amyl nitrite was administered in 3-minim capsules at frequent intervals, but appeared to have no effect. Finally an ice bag was applied over the front of the right upper lobe, and kept continuously in position night and day, the ice being frequently changed. Not a single drop of blood was expectorated from the time it was first applied. All drugs were stopped and the bag kept in place for six days. At the end of that period the chest was examined, and no crepitations could be discovered. The patient is now (twelve weeks after the cessation of the attack) rapidly improving in health, has gained fifteen pounds in weight, and has no cough or expectoration. The author notes that it is seldom that the bleeding point can be localized with sufficient accuracy for the ice to be applied directly over the seat of the hemorrhage, and thus to produce reflex contraction of the pulmonary vessels in the affected lobule. If applied in the wrong place, it probably does harm by raising the blood pressure in the region of the hemorrhage. In the case under consideration there is little doubt that the blood was coming from a minute cavity situated deeply in the lower portion of the right upper lobe, since there was no sign of breaking down of lung tissue in any other situation.

Goiter Operations Under Local Anesthesia.—Local anesthesia in cases of goiter operation is commended by A. J. Fairlie Clarke, who has had very satisfactory results therewith. He follows the general plan previously advocated by Barker and uses the following solution: sodium chloride, 12 grains; beta eucaine, 3 grains; water, 3½ oz.; this is boiled, and then 10 minims of commercial adrenalin solution are added. The solution is ready for injection as soon as cool enough. The injection is made in two parts, superficial and deep. The superficial injection is made about the middle of the line of the proposed operation wound with a long, sharp needle; by passing the needle through the subcutaneous tissue and injecting at different points, the whole site of the incision can be dealt with through a single puncture. It is well to inject high up and to the outer side of the incision line, so that the nerves may be dulled on the proximal side of the wound. Half of the 3½ oz. of fluid are injected superficially. For the success of the deep injection it is important to introduce the fluid behind the transverse layer of the cervical fascia, so that it may reach the nerves which compose the cervical plexus. To this end the author has been accustomed to make a deep stab puncture with a sharp tenotomy

knife—if possible, through skin already anesthetized, behind the posterior border of the sternomastoid muscle at the junction of its upper with the second fourth. The puncture is made here to be above the point at which the spinal accessory nerve emerges from the muscle. A flexible blunt-pointed steel needle is then passed along the track of the tenotome deeply into the neck, and the remaining half of the fluid injected here. If need be, the process may be carried out on both sides of the neck at once, 3½ oz. of the fluid being injected on each side. The injection, apart from the punctures, does not seem painful, though some patients complain of fullness in the throat during the deep injections. All this injecting can be done with the patient in bed, and after a brief delay she may be moved to the operating room, where the operation should begin not sooner than half an hour from the commencement of the injection. The anesthesia will last for at least an hour after the commencement of the operation. The edema produced in the tissues is often considerable, but is seldom troublesome to the surgeon, for the bloodlessness of the tissues due to the adrenalin compensates for the inconvenience so caused. The operations done have been excisions of half the thyroid gland or ligature of both superior thyroid arteries. The arteries were found without difficulty.

The Electric Treatment of Lupus Vulgaris.—Three cases are reported by J. G. Tomkinson. Case 1, male, twenty-five years of age, was treated wtih the Finsen light, and Case 2, female, twenty-three years, in a similar way. In Case 3 a woman of twenty-seven years, the Finsen light, iron electrode lamp, and the *x*-rays were all used. Results in the first two cases were very satisfactory, but the third case, after partial improvement, seemed to hang fire. The *x*-ray treatment was alternated with a mildly caustic treatment consisting in the removal of as much of the diseased tissue as possible by the use of a strong salicylic acid plaster, the subsequent application of ichthyol in ointment and lotion till the irritation more or less subsided, and thereafter repeated cauterization by 80 per cent. phenol in absolute alcohol.

Berliner klinische Wochenschrift, June 24, 1907.

Abdominal Extirpation of the Carcinomatous Uterus.—Veit says that while the results of the abdominal operation have shown it to be superior to vaginal hysterectomy as far as results are concerned the latter operation has had the reputation of having a smaller primary mortality. He considers that the abdominal operation has now been perfected to such a degree as to render it just as safe as the other, and he reports twenty-four consecutive cases which he has done without any primary deaths. He believes that this operation may now be considered both theoretically and in practice as a procedure without risk to life. Its dangers are the result of its complications, which are common enough in advanced cases. Among these, injuries to the urinary passages are especially serious and gangrene of the ureter is difficult to manage. Cardiac failure has become less of a menace since the introduction of spinal anesthesia, and the less often general anesthesia is used the better the results. The experience of the surgeon is an important factor, and the results obtained improve in proportion to the operator's familiarity with the operation. The author operates on nearly all cases except those in which there is already a vesicovaginal fistula or in which the new growth fills the entire pelvis.

Münchener medizinische Wochenschrift, June 18, 1907.

The Relations of the Medulla Oblongata to the Pupil.—Bach states that there is an inhibitory center in the medulla for the pupillary reaction which is extremely delicate. Experiments on this center are rendered difficult because it is a very small one and the lesions produced in the medulla either injure it sufficiently to throw it out of function or do not approach it closely enough to influence it at all. By experiments on monkeys, cats, and rabbits the author was able to show that decapitation does not abolish the pupillary reflex unless the medulla is destroyed up to the fourth ventricle. On cutting through the medulla near the spinal end of the ventricle immediate disappearance of the light reflex may be caused, but this is never the case when the incision is placed a little to the cerebral or the spinal side of this spot. On exposing the fourth ventricle from the rear myosis and loss or diminution in the light reflex was observed, and in some instances the reflex was caused to reappear after the lapse of as much as three-quarters of an hour by making an incision to the cerebral side of the middle of the ventricle.

The Use of Scopolamine in Obstetrics.—Holzbach has investigated the question of the excretion of scopolamine as used by injection in obstetric practice. The most serviceable method of testing the milk and urine of the mothers and the urine of the infants was found to be the physiological test on the enucleated frog's eye. Tests on thirty-five eyes showed that the colostrum of the parturient women always gave a dilatation of the pupil, and the milk did the same up to the third day postpartum. The urine of the infants obtained immediately after birth always contained the alkaloid, while the second passage gave a much less marked reaction, and in the third it could usually not be detected at all. Even when the hyoscine had been given only once a quarter of an hour before birth the alkaloid was found present in the urine of the infant. The author accordingly concludes that the hyoscine administered to the mother is not only excreted in the urine, but is also present in small amounts in the colostrum and milk during the first few days. It also passes through the placental circulation into the body of the infant, from which it is promptly eliminated through the kidneys. Whether the child suffers as the result of this is not yet certain, though it seems unlikely. The proof of the presence of small amounts of the alkaloid in the infantile circulation appears, however, to justify the contention of Gauss that the respiratory difficulties often exhibited by children born under scopolamine anesthesia are referable to this cause.

Deutsche medizinische Wochenschrift, June 20, 1907.

A Contribution of the Subject of Myontonia Congenita or Thomsen's Disease.—Kamp was called to see a young man suffering from this condition and on investigation found that the disease had been hereditary in his family for four generations. A peculiar coincidence was that two members of two entirely unrelated families, both suffering from Thomsen's disease, married and were among the patient's antecedents. The disease had been transmitted both through sons and daughters, but the tendency to it subsides more quickly on the male side than on the female. When the disease has died out in one branch of the family it does not appear again in the descendants of that branch. In the author's case the principal causes for the occurrence of the muscular cramps were cold, psychical excitement, mechanical stimulation, and the sense of hunger. The tendency to the attacks was decreased by warmth and by the ingestion of alcohol. There appeared to be neither muscular atrophy nor hypertrophy in the patient or his relatives.

A Simple Method of Performing the Agglutination Reaction.—Gossner describes a method for performing agglutination tests, particularly that for typhoid fever, which has been simplified to such a degree as to make it easy to carry out under all circumstances and without any bacteriological training. Whole blood is used and is diluted with formalin salt solution by the addition of the necessary number of drops of diluting fluid to the drop of blood. The bacteria used are in the form of a sterile formalin culture and are added to the blood dilutions in small test tubes. The essential part of the method consists in the fact that after the physician has made the necessary dilutions at the bedside he leaves instructions with the patient's attendant at the lapse of two hours and again at four hours to place a drop of the mixed blood and bacterial culture on ordinary microscopic slides that are labeled beforehand. These drops dry promptly and at the physician's next visit the slides are taken back to his office, fixed, and stained with methylene blue. If agglutination has taken place it is readily discernible with the naked eye on holding the slide to the light, and if desired the result may be confirmed by the use of the microscope. The advantages of the method are the simplicity of the apparatus required, the fact that no dangerous material is used, and the slight degree of trouble it involves for the busy practitioner.

Veratrum Viride in Eclampsia.—F. Mirto gives the histories of sixty-one cases of eclampsia treated by the hypodermic use of extract of veratrum viride in the obstetrical clinics of Pavia and Milan. He recommends the use of this drug because the convulsions are invariably accompanied by a rise in arterial pressure, which may be regarded as an index of the approaching seizure, although it may not be the cause of the convulsions. He has observed that as soon as the arterial pressure is lessened the convulsions are moderated, the frequency of the attacks is lessened, and in some cases the convulsions are so controlled that the pregnancy can go on to full term and delivery be normal. He has also given it as a preventive measure in many cases in which there was albuminuria and casts accompanied by high arterial pressure, and believes that it prevented the convulsions which would otherwise have occurred. He recommends the use of the drug as a preventive and as a curative treatment for frequent and puerperal convulsions.—*Annali di Ostetricia e Ginecologia.*

Book Reviews.

Auscultation and Percussion. together with other Methods of Physical Examination of the Chest. By Samuel Gee, M.D., Fellow of the Royal College of Physicians, Honorary Physician to H.R.H. the Prince of Wales, and Consulting Physician to Saint Bartholomew's Hospital. Fifth Edition. London: Smith, Elder & Company, 1906.

There is very little difference between this edition and the two previous ones. The author has taken great pains with the nomenclature of the subject, and technical terms are used in their proper and original meaning. "The sense of words clearly defined has not been perverted, nor have new words been introduced to denote signs already well denominated." Among the characteristics of this work are the literary and historical notes; also the very careful language and classification employed by the author. To one beginning the study of medicine the work will hardly appeal; but to the practitioner and to all interested in the history of the subject this little volume will prove most valuable and instructive.

The Muscles of the Eye. By Lucien Howe, M.A., M.D., Professor of Ophthalmology, University of Buffalo; Member of the Royal College of Surgeons of England; Member of the Ophthalmologische Gesellschaft, of the Société Française d'Ophthalmologie, and of the Ophthalmological Society of the United Kingdom; former President, Section on Ophthalmology, American Medical Association. In two volumes. Vol. I., Anatomy and Physiology. Including Instruments for Testing and Methods of Measurement. Illustrated. New York and London: G. P. Putnam's Sons, The Knickerbocker Press, 1907.

The first volume of this work is a book of 467 pages, beautifully printed and illustrated. In Part I directions regarding the preservation of tissues and the desired dissections are given very fully. Complete descriptions of the extrinsic ocular muscles, the orbitoocular fascia, the cheek ligaments, and other structures connected with the ocular muscles are found in the first chapter. The second chapter treats of the anatomy of the intraocular muscles and the other parts of the eye concerned in accommodation. A third chapter gives a description of the nerve supply to the muscles and a comprehensive review of our present knowledge of the subject. Short chapters devoted to the vascular supply and to the embryology of the muscles and the ocular group of nerves are included. Part 2 takes up the consideration of the physiology of the eye, and enters quite fully into an explanation of the planes, axes, angles, etc., a knowledge of which is essential to the intelligent study of physiological optics. The act of accommodation is considered in another chapter. The significance of entoptic images, their changes, and the methods of studying them; the theories of the mechanism of accommodation, range of accommodation; irregular contraction of the ciliary muscle; the effect of cycloplegics and mydriatics from personal studies, as well as from those of others; the rapidity of the movements of the eye from one position to another, etc., are discussed. The question of the position of the eyes in relation to each other (orthophoria, heterophoria, etc.) is fully considered; the methods employed in this study are described and their relative values, as estimated by the author, are given. The phenomena of torsion and of "false torsion" are described and the rules governing the latter are formulated. Convergence and the various methods of measuring it are fully discussed. The last chapter is followed by an extensive bibliography, an index of authors and three short appendices. The index is followed by biographic notices of eight eminent students of ocular muscles. The text is as clear and as simple as the author could make it. Very few formulæ are employed, the purpose of the author being to produce a work which one not familiar with higher mathematics could understand. The volume presents the subject in a fairly complete, practical form, and will be welcomed by all who are interested in the study of the muscles of the eye.

Studies in the Bacteriology and Etiology of Oriental Plague. By E. Klein, M.D., F.R.S. Lecturer on Advanced Bacteriology at the Medical School of St. Bartholomew's Hospital, London. With 80 photographs. London and New York: The Macmillan Company, 1906.

The contents of this volume are sufficiently described by the title. The author, well known as an expert in bacteriological work of all kinds, has had unusual opportunities for investigating the bubonic plague both in human beings and in rats. In the present volume will be found accounts of cases which, from the point of view of the clinician and epidemiologist, were under suspicion of being plague; on bacteriological examination some of these cases proved to be plague, and others proved not to be plague. To medical officers of sea ports this book will be indispensable, since it is only by bacteriological examination that the diagnosis of plague can, in all cases, be made with certainty. Health officers in general will find this an instructive volume, for, as the author says, "no greater misfortune, from a public health point of view, could befall a community than an epidemic outbreak of bubonic plague in a large and crowded city."

The Immediate Care of the Injured. By Albert S. Morrow, A.B., M.D., Attending Surgeon to the Workhouse Hospital and to the New York City Home for the Aged and Infirm; Assistant Attending Surgeon to the Manhattan Maternity Hospital. Fully illustrated. Philadelphia and London: W. B. Saunders Company, 1906.

In the present volume the author has endeavored to prepare a book that should prove useful alike to physicians, nurses, and laymen, and at the same time serve as a textbook for use of First Aid classes. It is more than doubtful if any one volume on a technical or scientific subject can be really serviceable to all of these classes; but the author has certainly produced a volume that will be of considerable benefit to laymen and as a text-book for First Aid classes. The first part is on the anatomy and physiology of the human body, and in about one hundred pages the author has managed to compress, with unusual skill, the essentials of the subject. We think this part far superior to many books on Anatomy and Physiology written especially for nurses. The second part deals with bandages, dressings, practical remedies, etc. The volume concludes with chapters on various accidents and emergencies, such as hemorrhage, wounds, burns, fractures, dislocations, asphyxia, unconsciousness, poisoning and its treatment, and the transportation of the injured. These last two parts form the most important and valuable portion of the book, and they include all the emergencies that are likely to occur in even the most enterprising families. The book is well written, the advice it contains is always sound, and the author is to be congratulated on having composed a volume which many practitioners will be glad to recommend to the families under their professional care, and which will be of much value in every household at a distance from a physician.

Anatomical Terminology, with Special Reference to the [B.N.A.]. By Lewellys F. Barker, M.D., Professor of Medicine, Johns Hopkins University; formerly Professor of Anatomy, Rush Medical College, University of Chicago. With Vocabularies in Latin and English and Illustrations. Philadelphia: P. Blakiston's Son & Company, 1907.

This is a presentation of the Basle Anatomical Nomenclature—the [B.N.A.] of the title—which was adopted with the purpose of systematizing and simplifying the nomenclature of anatomy, which in the course of the ages has become confused and divergent in the different countries. The Anatomical Society, meeting at Basle in 1895, made a list of some 4,500 anatomical terms for use by anatomists throughout the world, employing only one Latin designation for each anatomical structure (not microscopical), and doing away with the vast number of synonyms which had grown up in the terminology of this science. The book contains the complete list of the Latin terms adopted by the Anatomical Society, with their English equivalents and their synonyms, and is enriched by a scholarly introduction by Professor Barker, explaining why this nomenclature was adopted and the principles which guided the compilers in their work. Future writers on Anatomy will, without doubt, adopt this nomenclature, and the author of this work has done well in preparing the way for the general adoption of this simplified terminology by publishing the vocabulary of the Basle reformers and explaining its *raison d'être*. In the field of pure anatomical science this is the book of the year.

Dining and Its Amenities. By A Lover of Good Cheer. "He that is of a Merry Heart Hath a Continual Feast." New York: Rebman Company, 1907.

This is a collection of papers read before a club of literary and professional men who dined together once a month and enjoyed a feast of reason as well as of the most delectable of viands. If the chef provided a menu which pleased the palate as much as the essays here collated must have delighted the soul, one may well have envied the select coterie of diners. One might have been satisfied, indeed, with bread and cheese and good old ale accompanied by such charming discourses on gastronomic lore. Most of the essays have to do with alimentation ostensibly, but incidentally nearly every subject of human interest is touched upon. The book will not please the ascetic, but to the man who loves good cheer in his moments of relaxation, the reading of these papers will afford a delightful entertainment

Society Reports.

MEDICAL SOCIETY OF THE STATE OF NEW JERSEY.

One Hundred and Forty-first Annual Meeting. Held at Long Branch, June 25, 26, and 27, 1907.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. ALEXANDER MARCY, JR., OF RIVERTON, IN THE CHAIR.

Tuesday, June 25—First Day.

THE House of Delegates devoted all the morning and part of the afternoon session to hearing the reports of committees.

Addresses of Welcome.—Rev. GEORGE L. DOBBINS of the Methodist Church opened the afternoon session with invocation. Charles O. McFaddin, Mayor of Long Branch, welcomed the Society and tendered the members the freedom of the city during their stay.

It was announced that Senator Jos. Frelinghuysen, the father of the pure food bill in the Legislature, was ill at the Auditorium Hotel, Chicago, and the following telegram was ordered sent: "The Medical Society of New Jersey, in annual meeting assembled, send greetings. We appreciate your services in behalf of scientific medicine and sincerely hope for a speedy restoration to health." Dr. Chandler announced that the membership amounted to 1,230. Over 200 registered at this meeting. A committee was ordered to be appointed whose duty it was to select a subject and make conditions for competition for two prizes, one of $100 cash, the other a medal worth $50.

The Legality of State Medical Examinations and Reciprocity in Interstate Medical Licensure.—Dr. E. L. GODFREY of Camden presented this communication. He said that the legality of State medical examinations and interstate reciprocity in medical licensure had offered occasion for such diverse comments in medical societies and medical journals and the opinions expressed by the profession were so at variance one with another that he ventured to present these subjects for the consideration of the society. Prior to the institution of State examinations for medical licensure, the degree of doctor of medicine was conferred after two courses of lectures of five months each in two calendar years, and by some colleges for a consideration and without attendance upon lectures. The registration of a copy of a medical diploma with the clerk of the county in which he was to reside was the only requisite for legally practising medicine in several States. The State of New Jersey in 1890 instituted examinations as a prerequisite for license to practise medicine within its borders irrespective of medical registration in another State; and in addition requiring the possession of a legitimate medical diploma. The subject of the legality of State medical examinations, especially in New Jersey, was presented from two standpoints: (1) The history of medical legislation in New Jersey, and (2) the right of the State to establish examinations for licensure and to regulate medical practise within its jurisdiction under the authority and constitution of the United States, as interpreted by the United States Supreme Court.

Special Inquiries in Respect to State Medical Examinations.—The following were some of the most frequent inquiries made to the Board: (1) What had State examinations accomplished in New Jersey? History gave its answer. He had no hesitation in stating that New Jersey, in establishing medical examinations in 1890, had done more to protect the public health and to advance the medical profession of the State than by any other enactment since the incorporation of the Medical Society of the State of New Jersey, 117 years ago. (2) What would be the effect of establishing educational licensing boards with lower standards of a limited field of treatment, as proposed in the Legislature last winter? It would prove injurious to the public and detrimental to the profession. (3) What would be the effect of discontinuing the State medical examinations? The State could not guarantee proper qualifications of the medical licentiates. The present high standards for medical graduates could be maintained only through State examinations. (4) Why could not national examinations to license the practitioner be created, either by Federal Government, or through voluntary effort of the American Medical Association, the certification of which would be accepted in lieu of examination by the several States? Neither of these propositions was tenable. The practise of medicine, law, and other professions was conducted under reserve police authority of the States. Over the authority the Federal Government had no control. (5) The plea was frequently advanced that a State certificate earned upon examination should be valid in all States on the ground that the science of medicine was the same everywhere. The theory of this was admitted, but its application was impracticable because of the condition of the medical statutes in the forty-six States. (6) It was claimed that a license issued by a European Government was valid in all the States and provinces belonging to the nation and therefore a license issued by one American State should be valid in all of the United States. There was a marked difference between Europe and America in the issuing of medical licenses. European nations were on a monarchical basis, while the United States was a republic. In England and the Continental nations the regulation of the practice of medicine was the prerogative of a central government; in the United States such regulations were in the provinces of forty-six different State governments. (7) The plea had been advanced that a State should respect the medical school to which it granted a charter, guarantee the validity and scope of its diploma, and endorse the same in lieu of a State examination. A State had no right to inspect a particular medical school except when so authorized by the statutes. The State could not guarantee the validity of a diploma issued by a school which it did not control. The Council on Medical Education of the American Medical Association had inspected 160 medical schools in this country and of these only eighty were found to be qualified to teach medicine and to have the facilities for giving medical instruction.

Reciprocity in Medical Licensure.—He said this had recently been placed before the medical profession in an exaggerated, absurd, and an erroneous light by Dr. William J. Mayo in his presidential address before the American Medical Association at its last meeting. His statement that present conditions of reciprocity were well nigh intolerable was an exaggeration, since about 50 per cent. of the States were exercising reciprocal privileges. Reciprocity was not a compulsory requirement, but a discretionary privilege. It was exercised in the interests both of the public and of the profession and rested upon uniformity in State standards. It promised public good by raising standards. It protected the public by limiting the migration of charlatans. It set a premium upon higher medical education because it was denied to graduates of substandard colleges and licentiates of substandard boards. Dr. Godfrey presented the subject of interstate reciprocity in medical licensure from four standpoints: (1) Its legality; (2) its limitations; (3) its necessity and justice; (4) its method of accomplishment. Its legality and endorsement were natural outgrowths of State examinations. They were based, first, upon the reserve police right of a State to regulate the practise of medicine within its own jurisdiction for the public good; second, in specifying the provisions or power of the statute of a State to establish reciprocal relations with other States, and third, on voluntary agreement between different State boards concerning the conditions and methods of examination. Recip-

rocity must necessarily be limited to States having substantially equal licensing standards. These limitations were, first, difference in requirements of medical colleges in respect to matriculation and graduation; second, inequalities of standards of the several States in respect to licensure; third, diversity in rules of medical boards as to methods of examination and percentages given; fourth, issuing of certificates on other than a State examination basis; fifth, there were a few States that endorsed the license of other States only which in turn endorsed theirs; sixth, some States (as Massachusetts) would not endorse the certificate of any State; seventh, the moral character and professional standing of applicants occasionally limited reciprocity; eighth, the requirements for reciprocity should be substantially the same as those for examination. Its necessity and justice were based upon two factors, one of which was the increased demand for interstate medical licensure. Regarding the method of accomplishment, he gave the requirements of New Jersey as follows: 1. A certificate or evidence of a diploma, which was granted after four years of study in a high school in the first grade in this State, or its equivalent as determined by the State Superintendent of Public Instruction. 2. Certified evidence of a medical diploma issued after four years' course of lectures of at least seven months each in four different calendar years from an approved medical college. 3. A copy of a certificate of a State medical license, showing that the standard of requirement of the issuing State was substantially the same as that of New Jersey. 4. Certified evidence of good moral character. 5. A letter of recommendation from a registered physician of New Jersey. 6. A recently signed photograph of the candidate with an affidavit as to the identity of the signature.

Dr. W. Perry Watson of Jersey City believed that every State should divorce the teaching from licensing power; that it should adopt academic medical requirements, and that it should harmonize the physicians and unite them in the State. The requirements and wishes of the people, too, should be considered. The personnel of those applying last week for medical license was far better than that of those taking the examination ten years ago; they were of a much higher average grade than ten, yes even five, years ago. The Board of Medical Examiners, he believed, should consist of nine members of recognized powers; they should meet three days every year for the examination of candidates; each member of the board should prepare the questions in his branch and submit them to the entire board for final approval before they were handed to the candidates; the examination papers should be left with and graded by a committee of three members, the examiner himself being the chairman of that committee; the final report of such a committee should be reviewed by the entire board acting as a committee and as a whole. After a second rejection candidates should be required to take one full year's course of study. Oral and clinical examinations should be asked for.

Dr. Mortimer Lampson of Jersey City, Dr. W. H. Davis of East Orange, Dr. Baldwin of Newark, Dr. E. E. Worl of Newark, Dr. Campbell of Short Hills, and Dr. Geo. H. Balleray of Paterson discussed this paper.

Some Remarks on the Lymphatics.— Dr. F. M. Z. Hawks of Newark read this paper. He said that the lymphatics concerned each individual cell, and that the intercellular lymphatics received the waste products. Absorption occurred by means of the blood capillaries and lymphatics, the blood capillaries taking up the material by selection. The lymphatic capillaries absorbed the secretions of certain of the ductless glands. The lymphatics were active under pathological conditions. When toxins were introduced into the blood by the lymphatics it was associated with fever and other constitutional symptoms. At first there was a chill and afterwards more or less constitutional disturbances, but no more chills. These chills resulted not from the absorption from the lymphatics, but when the toxins were emptied into the venous system. In cases of appendiceal abscess constitutional symptoms were present until it was walled off; this walling off made a mechanical block and the toxins were not escaping; but so soon as the abscess was opened there occurred lymphatic absorption and a return of the constitutional symptoms. They were in the habit of thinking of cancer being spread in three ways—by the veins, by contiguity of tissue, and by metastasis through the lymphatics. The distribution of the lymphatics was of surgical importance. They were abundant beneath the skin, the mucous membranes, in the groin, axilla, liver, kidneys, base of lungs, etc. They were practically absent from the mucous membrane at the base of the bladder. They were most abundant where the requirements for absorption or tissue metabolism was greatest and *vice versa*. They were arranged in distinct systems. Carcinoma of the bladder grew slowly; on the other hand, carcinoma of the stomach, rich in its lymphatic supply, rapidly involved the lymphatic glands. In the large intestine, except the rectum, carcinoma remained longer than when cancer involved the small intestine. The brain had no lymphatics, except the membrane lining the ventricles. Sometimes they had anastomotic relations, and sometimes they were absolutely isolated from each other. Lymphatics were abundant in the vagina and cervix, but not so abundant in the body of the uterus. Infection of the cervix might cause deep-seated abscesses, while that of the body of the uterus might not. Cancer of the cervix might soon cause death of the patient by extension of the disease through the lymphatics and at autopsy the growth would be found to be widely infiltrating. Cancer of the body of the uterus might be far advanced and yet the cervix not involved. The isolation of the lymphatics in the stomach was most striking; here there were three distinct systems of lymphatics, at the greater, the lesser curvature, and at the fundus. A growth at the pylorus would practically be isolated from the fundus. If cancer involved the pylorus there might be infiltration towards the greater or lesser curvature, but the fundus of the stomach and the duodenum adjacent would remain free. Enlargement of the lymphatic glands was usually over the area drained by those glands. It was given as a very striking fact that normal lymphatic glands could be found only in the child. Dr. Hawks then gave their life history. Lymphatics were abundant in early life, but in old age they, to a certain extent, disappeared. Their influence upon pathological processes was great, as was well illustrated in the fact that general peritonitis from criminal abortion was usual in young girls, but was seldom met with in women of middle life. Age was a great factor, too, in malignant disease; the more abundant the lymphatics, as in the younger patients, the more virulent the disease. Age was a great factor in cancer of the uterus. Cancer of the cervix occurred most often between the ages of forty and forty-five; adenocarcinoma between the ages of fifty and fifty-five. The latter was almost always curable by operation. Cancer of the cervix in the young woman was rapidly fatal. In the old it progressed more slowly. Cancer of the breast occurred comparatively early, say at forty years of age, and metastases occurred. After fifty not only did many of the lymphatics diminish, but the channels in the breast and mediastinal glands became obliterated and operations then gave a better prognosis. After the age of seventy years malignant disease was successfully treated by caustic applications, the cancer in such cases being entirely a local disease.

Dr. Young called attention to the fact that fifteen or twenty years ago nothing was known practically about the lymphatics except those connected with the small intestines, the lacteals, which carried the chyle to the receptaculum chyli, then through the thoracic duct to the left subclavian vein. The lymphatic system was designed to be the protective agency of the body.

Dr. N. L. Wilson of Elizabeth emphasized the point that glandular enlargement meant bacterial invasion, and this was especially true in regard to the cervical glands, whether superficial or deep. One frequently saw enlarged cervical glands becoming infected through diseased tonsils. He said he had seen many cases of this nature, and the enlarged glands receded after the tonsils had been properly treated.

Dr. Emery Marvel of Atlantic City called attention to the work done at the Cornell physiological laboratory, showing that bacteria in the peritoneal cavity could reach the liver through the thoracic duct and in at least fifteen minutes. In tracing the channel the rapidity with which charcoal particles could pass through the omentum and lymphatic channels of the peritoneum and into the liver and spleen was demonstrated. He said he was interested in the phagocytic and enzymodic relationship.

Dr. Hawks closed the discussion.

Otitic Pyemia without Mastoid Involvement.—Dr. W. P. Eagleton presented this paper, which was read by title.

Oration in Surgery.—Dr. Albert Vander Veer of Albany, N. Y., delivered this oration, choosing as his subject "Some Observations on Four Decades of American Surgery." From 1866 to 1906 comprised the time since his entrance into private practise.

First Decade.—Amputations at the thigh then had a mortality of 60 per cent., while to-day it hardly reached 6 per cent. The attempts to save lives in cases of bullet and stab wounds were almost futile, and when the intestinal tract was involved the mortality was little lower than 100; the same mortality attended bullet wounds of the brain and chest. Hospital gangrene, erysipelas, and infectious diseases prevailed. Suppuration was an enemy to successful surgery. The introduction of the drainage tube resulted in much benefit. The war gave the young and middle aged men much to do and post graduate courses in 1865 found these men in a receptive condition to reach out and grasp the marked advances made in the practice and art of surgery. Many became thus early specialists. During this decade were made the discoveries of Pasteur and others in regard to microorganisms. This was one of the most important periods and the evolution of modern surgery seemed to be most marvelous. Few then realized the strides that were being made. For instance, hernia was an operation which was approached with much anxiety and its successful result was greatly to the credit of the operator. Few of those present could realize the amount of discussion that occurred in regard to the disposal of the contents of the sac. A resection of a gangrenous portion of the gut was almost unheard of. With the introduction of the carbolic spray and other antiseptics resections of diseased and injured intestines gradually was introduced. Various methods for treating hernias were employed, but it was only in this last decade that they reached a point where they could deliberately attack a hernia by one method or another. At the end of the first decade the study of microorganisms began, but it was in the second decade that the cultivation of the various germs was made. Erysipelas was beginning to be understood. In the second and third decade the work of surgeons was greatly aided by the establishment of laboratories. The preparation of dressings was worked out, as well as the preparation of patient and surgeon. In the first decade much progress was made in the surgery of the urethra, and the distensibility of certain portions of the urethra was determined. The introduction of the bulbous and olive pointed bougie, the guide and tunnel instruments enabled them to make much progress. In this decade they witnessed the beginning of the operation of oophorectomy. Cholecystectomy was also ushered in. They were also successful in the treatment of tumors of organs and malignant growths of the neck. The treatment of aneurysm by ligature was most impressive. In 1880, under antiseptic precautions, the left iliac was tied for aneurysm of the external iliac. During this period occurred the introduction of the elastic bandage, also the bloodless operations or amputations were carried on with success. There was then much discussion regarding the danger of ligating the large veins. Great advances were made in the treatment of dislocations, and better knowledge was had in the reduction of dislocations of the hip and shoulder by simple manipulation. At this time much attention was given to neuralgias of the feet due to flattened arch, but it was only in this last decade that they found the true cause. Different forms of neuralgia, especially of the fifth pair, were studied, but it was only in this last decade that removal of the Gasserian ganglion was attempted. During this decade was noted a spirit of inquiry on the part of American surgeons and surgery advanced; much was brought about by efforts in antiseptic work. In this decade the operation for an adherent and constricted prepuce was done to relieve partial paralysis of the lower extremity. The operation for vesicovaginal fistula and lacerations of the cervix and perineum shed luster upon this time. Also the removal of carcinomatous tonsils and other operations upon the mouth and neck. The silver wire and other sutures and ligatures were introduced. In this first decade the treatment of fibroid tumors of the uterus was seldom attempted, but in the third decade was introduced a method which gained the confidence of the operating surgeon. And in the fourth decade splendid advances in the operation were made and the operation was done with a very low mortality and the patients were readily relieved. In the first decade great strides were made in the treatment of fractures by plaster-of-Paris and other dressings. The treatment of compound fractures was more successful through antiseptic surgery. In this period was fully developed the control of hemorrhage by torsion. Subcutaneous osteotomy received a marked impetus. Also nephrectomy by the lumbar incision. In the first and second decade tracheotomy was done under trying circumstances, and later intubation. During the fourth decade both disappeared because of the introduction of antitoxin.

Second Decade.—This decade witnessed the introduction of litholopaxy for the relief of vesical calculi, and to-day it was a method of treatment in selected cases. To-day they were meeting with less and less numbers of cases of vesical calculi and they did not meet so many cases as they did thirty years ago. In the second and fourth decade the treatment of stone by suprapubic cystotomy, if large, and by litholopaxy if small, was done. Rectal feeding received attention, which to-day was one of the greatest aids in surgical work. There was also the removal of ovaries and small tumors through the vagina. This decade also witnessed the introduction of carbolic acid and ergot in the treatment of hemorrhoids, but the length of time required and the number of injections which were attended with some risk and mortality caused this operation to be almost entirely abandoned. This was the period that witnessed successful laparotomy for gunshot wounds. At the end of the second and beginning of the third decade local anesthesia with cocaine was studied and introduced and surgery was greatly aided by the use of this drug. Cocaine in the urethra and cavities of the body should be used with great care. Laparotomy under local anesthesia was proper and indicated in cases where patients had passed through a long illness.

Third Decade.—Much was done in this decade. Cystoscopy was made possible. This was a period of wonderful advances in abdominal surgery; likewise in surgery of the spine and in the treatment of fractures and tumors of the spine and cord. Also great advances were made in the treatment of tumors at the base and removal of blood clots in the brain. This subject had received much

attention and to-day the surgery of the brain was quite a problem. The operating part can be done with success, but the ultimate results are not good. Operation for tumors of the brain was most impressive at first. The treatment of spina bifida and meningocele was encouraging. Lumbar puncture for diagnostic purposes was a great aid, and more was to be developed along this line in cases of acute hydrocephalus. Bone lesions were treated with success and great strides were made in the treatment of fractures of the patella. Free incisions could now be made into the joint, and when compared with the results of this during the Civil War made one most grateful. The treatment of fractures had not been sufficiently emphasized, especially the ambulatory treatment which did away with such long confinements in bed in the hospital wards as in the past. In this third decade much excellent work was done in fractures of the neck of the femur. Advances were made in the treatment of uterine fibroids and in the surgery on enlarged prostates, in appendicitis, in work on the kidney, urethra, and gall-bladder. During the third, but more especially in the fourth, was the evolution in the symptoms and treatment of appendicitis. Suprapubic drainage was used in operations on enlarged prostates. At the present time such great advances had been made that prostatectomy by the perineal or suprapubic route had become so firmly established that patients now would readily submit to operation. The third and fourth decades witnessed brilliant operations upon the intestines, much of the work having been first done experimentally in the laboratories. This was the experimental period in work on the abdominal tract. During the second and fourth decades great advances were made in the treatment of perforations in typhoid fever, but had not met with such decided success as they could wish. Nevertheless it was a recognized procedure. In the third decade was discovered the bacillus of tuberculosis. The use of iodoform in surgery of the bones and tuberculosis was attempted. The operation for the removal of tubercular foci about the bones and glands was one of the pronounced advances made by American surgeons. During this decade scientific methods in blood examinations were employed, and were brought to great perfection. The operation for stretching the sciatic nerve was done, but to-day the bloodless operation was done.

Fourth Decade.—More attention was given to anesthetics during this period. Great strides were made in pelvic surgery. It seemed almost impossible to improve upon the work done in the third decade, but great work was done in the treatment of malpositions of the uterus in cases of appendicitis, etc. This fourth decade witnessed marvelous advances made in the operation for the relief of carcinoma of the stomach and intestinal tract. The complete removal of the stomach was one of the most brilliant operations surgeons were called upon to perform. This operation was growing less frequent because of the advances made as the result of studies in diseases of this organ. He referred particularly to the operative work done in gastric and duodenal ulcers. Great advances had been made in the latter part of the fourth decade in surgery of the sigmoid flexure and the rectum. Diagnoses were made now with greater degree of certainty. It was much safer now to open the peritoneal cavity by incision than to trust that the lesion would not produce any perforation of the intestinal tract, or to allow a subperitoneal or an intraperitoneal hemorrhage to be treated by nature than by the assistance of the surgeon. The study of the pathology and treatment of appendicitis made one of the most impressive chapters in American surgery. The third and fourth decade brought forth the successful treatment of lesions in and about the appendix. The necessity for cesarean section and craniotomy grew less and less. The diagnosis and treatment of extrauterine pregnancy were improved upon, and it was difficult to state how many lives were saved by the modern understanding of this condition. During the fourth decade greater advances were made in the treatment of pleuritic effusions than at any time in the history of surgery, as well as operations upon the upper air passages, ribs, and lungs. One pathological condition which was called to the attention of the surgeon was the influence the tonsils exercised in introducing septic microorganisms into the system. The transfusion of blood, milk, and other solutions received careful study and with much resulting satisfaction. Also great satisfaction resulted from the employment of normal salt solutions, as well as direct transfusion of blood, according to Crile. The introduction and employment of the *x*-ray was of value not only in the diagnosis of fractures and dislocations, but in the treatment of lupus and certain forms of skin cancer. The pathology of phlegmasia alba dolens was not yet understood. Dr. Vander Veer told of the many operations that had been tried and found wanting. It was found that the gonococcus was more fatal in its effects than the *Spirochæta pallida*. From the middle of the third decade up to the present time more papers on surgical lesions had been written than at any previous time. He also referred to medical instruction. The surgery of the world was best represented to-day by two famous American surgeons, whose names it was not necessary to mention.

Oration in Medicine.—Dr. Morris Manges of New York delivered this oration, choosing as its title "The Physician and the Medical Press." He said the present was a time of general investigation which even the medical profession had not escaped. The great value of such investigations was that even though they went to extremes a just equilibrium was finally established, and as a result not only were the greater evils corrected, but the minor abuses as well, many of which had long been patiently tolerated and had persisted in spite of spasmodic attempts at correction. The medical profession had been greatly benefited by the pure food and drug investigations, in which both the medical and lay press, but especially the latter, had been so actively engaged. The lay press had been much more active in this matter than the medical press, the latter not having acted as a unit. The careless and venal exploitation of proprietary preparations by physicians had caused editors to regard all contributions on drug studies with suspicion and to refuse them space. As a consequence of this readers of medical journals had been deprived of much useful information concerning the newer drugs. The remedies proposed to correct this evil were better preliminary training of medical students in therapeutics, and the recommendation that the list of drugs prepared by the Council on Pharmacy and Chemistry of the American Medical Association be used as a standard for the publication of occasional papers on drugs; or, the regular publication of reviews, in which the newer preparations were briefly presented. Special stress was laid upon the prohibition of the reprinting by manufacturers for commercial purposes of any article appearing in a medical jounal. A plea was made for honesty on the part of physicians who wrote papers of this kind. The result of the restriction of advertisements would be fewer medical journals. The weaker ones should either lessen the frequency of their appearance, raise their subscription price, consolidate with some stronger journal, or cease to exist. Physicians should do their share in improving the journals by not insisting that every paper which they write should be published. The numerous papers which form part of symposia and were mere reviews should not be printed. Physicians should cultivate brevity in their writings and should study the classics for style and conciseness, a plea being made for a closer study of the classics than was now possible on account of the enormous volume of current medical literature. Finally, it was urged that the press was a mirror of the times, and that if they were to have a

better medical press the doctors must first better themselves.

When and When Not to Operate in Ruptured Ectopic Pregnancy.—Dr. J. S. Baer of Camden read this paper. He said the best time to operate was before rupture had taken place, but unfortunately the condition was but seldom recognized before this occurred. Therefore, when should operation be done after rupture had taken place? He believed it was the time as soon as a diagnosis had been made in nearly, but not all, the cases. He illustrated his opinion by citing a few cases that had occurred in his practice.

Dr. B. F. Baer of Philadelphia endorsed what the reader of the paper had stated, that was, to operate before rupture took place. The time to operate was even before a positive diagnosis was made. Nature's distress sign was written in blood.

Dr. Edward Ill of Newark said that when these patients had severe hemorrhages was not the time to transfer them to the hospital. They should be at once operated upon. By the time they were taken to the hospital they might have lost such an amount of blood as to cause death. Cases that did not need operation were those that for one week, or ten days, or even two weeks, had very little pain; here at the outer end of the tube one would find a mass the size of a hen's egg; if the patient was quiet for a few days that case would not require operation.

Dr. Philander A. Harris of Paterson said he had only one fault to find with the remarks made, and they might possibly mislead unintentionally some general practitioner. If the general practitioner was to perform such an operation he must be competent to judge whether operation was indicated or not. Anyone who had had 130 cases of tubal abortion to care for must have gone through a variety of experiences, and personally he felt that delay would bring them to the tragic stage of the disease, which would be disastrous. He could not honestly lend himself to delay in these cases. In 140 cases he had analyzed he found that ninety per cent. had already consulted a physician in the non-tragic stage of the disease. Only three out of that number, 130, had consulted him as the first physician. Consequently upon the shoulders of the general practitioner must rest a greater responsibility in this matter. Generally patients were not very sick in the non-tragic stage. There were two things which enabled one to make a diagnosis of ectopic gestation, atypical menstruation, and pains. They were atypical because they were out of type in certain particulars. More than twenty per cent. of the cases were curetted for metrorrhagia. When the diagnosis was made, operate.

Dr. G. K. Dickinson of Jersey City said that operation should be done so soon as the diagnosis was made. The two things that led to death in these cases were, first, delay, and, second, the anesthetic.

Dr. Emory Marvel of Atlantic City said that there was probably no one disease so fatal in its results as an untreated extrauterine pregnancy. If the diagnosis was made before rupture the mortality was next to nil. The paper read, however, dealt with cases after rupture had taken place. After rupture had occurred they had then to deal with the blood and blood-vessels, and what surgical principle could be applied except to catch the bleeding points and stop the bleeding. He agreed that the time to operate was immediately after the diagnosis was made. He preferred the abdominal rather than the vaginal route in operating.

Dr. J. M. Rector of Jersey City said that in the tragic cases they were aided by a study of the blood pressure to determine how much shock the patients were suffering from; it showed the condition of the vasomotor apparatus and the cardiac condition. Such a study would enable them to lessen their mortality rate. The indiscriminate use of stimulants was to be deplored.

Dr. J. W. Martindale of Camden referred to two cases of ectopic gestation. One was seen in collapse and fainting. Fainting was nature's way of controlling hemorrhage; if such a patient were stimulated, it would start the bleeding again. It seemed to him that stimulation under these circumstances was prohibitive, and more harm was done than good. In the tragic stage it was best to operate.

Dr. J. S. Baer closed the discussion.

Diet in Pulmonary Tuberculosis.—Dr. Theodore Senseman of Atlantic City read this paper. He concluded that (1) it was not the amount of food ingested that counted, but the amount assimilated. (2) One should improve digestion and allow appetite to follow of its own accord. (3) There was a pivotal point in each patient's digestive ability which should be ascertained. (4) This pivotal point was capable of being raised. (5) All tuberculous individuals showed evidences of digestive derangement; it was folly to attempt to make them do more work when in this condition than when in a healthy state; therefore, stuffing patients with solid food was a mistake. (6) Diet which gave the greatest amount of nourishment and made least demand upon digestive organs was the diet of choice. Raw eggs and milk met these requirements. (7) Each patient had a normal weight beyond which one should not endeavor to force him. (8) This normal weight attained, the smallest quantity of food which would enable him to maintain it was sufficient. (9) So long as this normal weight could be maintained, the patient had nothing to fear from tuberculosis.

Dr. D. E. English of Millburn discussed this paper.

(*To be continued.*)

ILLINOIS STATE MEDICAL SOCIETY.

Fifty-seventh Annual Session, Held at Rockford, May 21, 22, and 23, 1907.

(Special Report to the Medical Record.)

The President, Dr. J. F. Percy of Galesburg, in the Chair.

The scientific work was divided into two sections, medicine and surgery, but all of the papers were read before the general body. One day was set aside for the reading and discussion of papers on medicine, one for papers and discussions on surgery, while the third day was devoted to the discussion of borderline cases.

Symposium on Tuberculosis.—Dr. Robert H. Babcock, Chicago, discussed the early diagnosis of pulmonary tuberculosis. He submitted two propositions: "(1) Pulmonary tuberculosis is curable. (2) Its curability stands in direct relation to the stage of the disease." He pointed out the difficulties in the way of an early recognition of the affection, and mentioned some of the mistakes that are likely to arise. He considered the methods of diagnosis and the data on which the physical diagnosis must rest. As aids to diagnosis, he mentioned tuberculin and the *x*-ray. Tuberculin, when properly used, was safe, and in the majority of cases its reaction denoted tuberculosis. The *x*-ray was not of as much value to the average general practitioner as to the expert; nevertheless, in the hands of the skilled, the fluoroscope or skiagraph would detect lesions which had not developed to such an extent as to cause the manifestation of physical singns in the dungs.

Social Aspects of Tuberculosis.—Dr. Henry B. Favill of Chicago said the technique of the treatment of tuberculosis, both prophylactic and curative, was reasonably well established. Thus far, however, the procedure was complex in its most perfect form, and in this form it was inaccessihle to the enormous majority of those who were, and those likely to become, tuberculous. The move of first importance was to simplify the necessary régimé. This involved the determination of doubtful questions as to climate and the present unnecessary expensiveness of

food. For those not yet ill it involved a practicable plan of hygienic life. The foregoing being determined, the question still remained how to bring into relationship effective means and the individuals needing them. The whole question became, consequently, in a minor degree a medical and hygienic one, and in a chief degree a sociological problem. He offered some suggestions as to the methods to be pursued.

Tuberculosis of the Ocular Structures.—Dr. Casey A. Wood of Chicago divided ocular tuberculosis into extraocular and intraocular. Tubercle of the conjunctiva was probably much more common than was generally believed. Although primary tubercle of the sclerotic was practically unknown, it was often, like the cornea, invaded by uveal tuberculosis. The most important contribution to intraocular tuberculosis in recent years was the monograph by Treacher Collins, based on histological examinations of eighteen eyeballs preserved in the laboratory of the Royal London Ophthalmic Hospital. Tubercle of the iris generally appeared in the miliary form as discrete, disseminated, yellowish nodules, two to three millimeters in diameter. They were associated with keratitis punctata, some pain, and a mild degree of ciliary injection. He described a form of iritic tubercle in which the iritis was the principal clinical factor, and resembled the same disease produced by syphilis. Tuberculosis of the choroid occurred, first, as discrete, miliary nodules scattered over the fundus, and were seen with the ophthalmoscope as gray patches; or, second, as a mass of caseating tissue, formed beneath the detached retina. Tuberculosis of the ciliary body began most frequently in the ciliary processes on the inner surface of the ciliary muscle, where its ciliary plexus was finest. Tubercle of the retina was much rarer than choroidal tuberculosis. Tuberculosis of the optic nerve, originating in its pial sheath as discrete nodules, might become confluent and surround the nerve with a diseased ring.

Dr. Frank P. Norbury, Jacksonville, discussed the nervous and mental phases of tuberculosis, as gleaned from current literature, as well as from his own experience in the detailed study of the neurological and psychological phases of the malady.

Diagnosis and Treatment of Laryngeal Tuberculosis.—Dr. William E. Casselberry of Chicago said that while the diagnosis of tuberculosis of the larynx ordinarily was not difficult, in exceptional cases its substantiation or exclusion was beset with uncertainty. As a basis of comparison, the usual diagnostic data were formulated; the hyperplasia of the interarytenoid fold and vocal processes, of the arytenoids and ventricular bands, sooner or later of the vocal cords, and, lastly, of the epiglottis; the "mouse-nibbled" ulcers which early supervened amid the tumefaction being not conspicuously interblended with cicatrices. The first type, which was described and represented by a case in detail, introduced as fairly typical of a considerable group of cases, was not at all of an unusual sort, being intended to exemplify the familiar preconception of the course of tuberculosis of the larynx, that is, of speedy development, persistent progress, and a rapidly fatal termination. It was named the galloping type, in order further to emphasize the contrasts between it and the one next described, which was named from its salient characteristics, the chronic hyperplastic type. The next case detailed, as fairly typical of this group, presented perplexing uncertainties in regard to the diagnosis, but in the end was well substantiated. Other cases of this type were briefly mentioned in support of the opinion that it was not so very unusual as the scarcity of special mention of it in literature would indicate. Among the other unusual types which were apt to involve uncertainty in diagnosis were those in which the larynx was affected only on one side—the unilateral type, the verrucous type, the so-called conjoined syphilitic and tuberculous type, and the condition of arrest of the disease. Well-authenticated, convincing instances of the latter fortunate termination were discouragingly rare in literature, yet they certainly occurred. He considered the treatment principally in connection with the methods employed in the particular cases detailed rather than in a general way, except to confirm the growing conviction that the treatment of the laryngeal complication was bound up in that of the pulmonary and general state, which, however, did not imply that local measures were without avail, for they certainly were helpful, but only that the general condition should not be subordinated to the local measures.

Management of Tuberculosis.—Dr. Clarence L. Wheaton of Chicago said this subject was of interest to the profession from a medical and humanitarian aspect, and to the public and laity from a social and economic point of view. Much good had been derived from the old teachings, and that which was irrational had been eliminated from the new. He thought there was less experimentation in the attempt to exploit so-called cures. He pointed out the importance of early recognition of tuberculosis, and what clinically constituted early involvement. Twenty and one-third months was the average period of delay following recognition of symptoms referable to the disease up to the time of the patient's arrival in Colorado. He referred to the value of the sanitarium in the management of tuberculosis at home. He submitted a form of ordinance which may be used as a basis for legislation of municipalities regarding tuberculosis, which was practically the same as that drafted by the committee appointed by the Section on Hygiene and Sanitary Science of the American Medical Association. Lastly, he emphasized the importance of reducing the opportunities for infection, promoting the individual powers of resistance, and utilizing all educational influences at our disposal in the management of tuberculosis.

Sanatorium Treatment of Tuberculosis.—Dr. E. H. Butterfield of Ottawa said it was important to consider the construction and location of sanatoria, as essential in the successful treatment. He spoke of the necessity for early diagnosis and prompt treatment both from a humanitarian and economic standpoint. The principles of treatment were not easy of application, and it was necessary to individualize. The public was dangerously educated as to the curability of consumption and the popular misconception as to time limit. The word cure should be used with caution. Climate was not an essential in the treatment.

Dr. J. W. Pettit of Ottawa said it should be repeatedly emphasized that tuberculosis was curable only in the incipient stages, although in exceptional instances some very remarkable results were obtained in far-advanced cases, but the ultimate results in the treatment of the far-advanced cases were not very promising.

These papers were further discussed by Drs. Gray, Brown, Gamble, Marcy, Moyer, Quine, Preble, and Ochsner.

Ulcerative Endocarditis.—Dr James B. Herrick of Chicago said that a complicating nephritis might cause one to overlook primary infectious endocarditis. If one lived up to the rule of trying to find a cause in every case of acute nephritis, and of careful examination of the heart, he would seldom be in doubt as to the existence of endocarditis and an acute infection. We must hope that the antitoxin serums or vaccines for the causal organisms of this serious disease would soon be discovered. If they were discovered, the duty of early recognition of ulcerative endocarditis, together with the microorganisms producing it, would be still more urgent than it was to-day.

Hyperthyroidism.—Dr. Arthur R. Elliott of Chicago considered the forms of thyroid toxemia that were less intense and clinically less distinct than Graves' disease, and due to transient disturbance of the thyroid functions. He cited illustrative cases, after which he discussed the etiology, frequency, and clinical value of the condition.

Nephrolithiasis Urica.—Dr. Alfred C. Croftan of

Chicago discussed some of the newer points in the treatment of this condition. He emphasized the importance of proper diet, the use of alkalies, notably calcium carbonate, and the use of urinary antiseptics. He pointed out how essential it was to remove uratic concretions after they had once formed. He spoke of the remedies that could be employed, and enumerated the fallacies of so-called uric acid solvents. He likewise spoke of the indications for and against the surgical removal of uratic concretions.

Treatment of Polyneuritis.—Dr. JULIUS GRINKER of Chicago said the development and course of this disease may be either acute, subacute, or chronic. The symptoms may refer to motor, sensory, or coordinative disorders, singly or in combination. Early diagnosis must be based upon (1) a proper recognition of disturbances of motion, sensation, or coordination; (2) the state of nutrition of muscles and nerves as evidenced by atrophy, flaccidity, and changed response to electric stimulation; (3) the state of the reflexes was seldom exaggerated, most often reduced or absent. Early treatment should aim to remove the cause or causes; to relieve symptoms; to prevent deformities; to maintain the muscles in a high state of nutrition until normal nerve conduction shall have been reestablished.

Hysteria and Neurasthenia.—Dr. L. HARRISON METTLER of Chicago said that these were distinct clinical entities. They were often observed together in the same patient. When so associated each was fairly distinguishable from the other. Hysteria was primarily a psychosis, a disorder of personality; while neurasthenia was primarily a neurosis, a neurotic inadequacy. Hysteria was a psychophysiological functional defect; neurasthenia was a neurohistological anatomical defect. The cardinal characteristic of hysteria was psychic changeability, while that of neurasthenia was an elemental failure or weakness. All the symptoms of either disease, even when observed together in the same patient, should be analyzed in the light of these respective characteristics. Rational treatment was dependent upon a clear recognition of this distinction between the two diseases. For hysteria the treatment should be psychotherapeutic; for neurasthenia, physical reconstruction.

Septic Tank System.—Dr. E. F. BAKER of Jacksonville said that although the practical working of the septic tank had been known for several years, and in practical operation in a large number of cities throughout the United States and in Europe, still its value was not yet fully realized. From his observations he believed it was the coming method of sewage disposal under the conditions found to exist in many of our populous sections of this and other States.

Operation for Cystocele.—Dr. ARCHIBALD ROBERTSON SMALL of Chicago pointed out the inadequacy of the older methods to produce permanent results. He reviewed some of the work done by other operators during the past five years. The main principle of the operation recommended was to split the anterior vaginal wall from near the meatus to the cervix; widely separate the bladder from the vagina; remove the redundant vaginal wall, and join the cut edges of the vagina by interrupted sutures. In cases of prolapsus of the uterus, he spoke of the necessity of suspending the uterus either by the Kelly method or by means of the round ligaments, in order to give permanent results. He reported a typical case and the result two years and a half after the operation.

Malaria as a Surgical Complication.—Dr. THOMAS M. ADERHOLD of Ziegler presented a paper on this subject, in which he said that patients who harbor the parasite of malaria in their blood, but who show no acute symptoms of malaria, can be operated on without delay and later treated for malaria when the symptoms appear. No temperature either before or after operation could be called malarial unless the parasite was found in the blood. If the temperature arose after an operation, and no parasites could be found in the blood, it should be considered as due to sepsis, and the proper procedures taken. In our present stage of diagnostic science, malaria was a positive finding, and therefore a diagnosis by exclusion was no longer permissible. Malaria was a curable disease, and quinine was the specific.

Puerperal Infection.—Dr. ROBERT T. GILLMORE of Chicago cited the history of a normal case of labor, which was complicated with a severe puerperal infection which manifested itself on the eleventh day. He gave a report of the blood count, and described the convalescent period. He discussed the predisposing and exciting causes of puerperal infection. There was no evidence of autoinfection in this case. As to the predisposing causes, there was no traumatism of the vagina or peritoneum. The patient's labor was ideal, eighteen hours in length, and she was not exhausted. The placenta was intact. The details of her sanitary surroundings were all that could be asked for. After mentioning the exciting causes, he concluded by saying that the streptococci coming from the interior of the uterus had not been carried there by the blood from some focus of infection localized in a remote portion of the body. He gave the reasons why he traced the time of invasion of the streptococci in this particular case to the seventh, eighth, or ninth day after delivery; also why it seemed probable that the douches which were given on the initiative of the nurse about this time were the direct cause of the infection.

Rapid Osteoclasis Versus Osteotomy.—Dr. FRANK B. LUCAS of Peoria dealt with operative procedures for the correction of bow-legs, anterior bent tibias, and knock-knees in children. He took an account of the lack of technique given by orthopedic authors on the use of the Grattan osteoclast, and Blanchard was freely quoted as an authority on account of over seven hundred operative cases by the above bloodless method. Cuneiform osteotomy was particularly decried as producing shortening in the tibia, whereas osteoclasis produces lengthening, thereby increasing stature. Manual correction of bow-legs in the early period, followed by repeated casts, was given as the best method of correction in infants just beginning to walk. Braces were slow, tiresome, and were apt to produce loose knee-joints as well as sores from pressure. The fracture, usually a four-fifths or green-stick, as produced by the Grattan osteoclast, could be completed manually, if necessary, and the in-or-out twisted tibial deformity corrected by hand, the cast being applied and the leg held in overcorrection until plaster was firm. About four weeks in plaster was sufficient, when the child might be allowed to walk without the aid of any appliance or brace. In correction of knock-knee there was usually only an osteokampsis or bending of the femur at its lower third, and legs were put up in overcorrection so they resembled bow-legs while in plaster. The technique of the above was given in full. The author cited three cases showing good results, and presented illustrations of the method as advised. The advantages of osteoclasis were set forth, and an appeal made for adoption of the improved method for correction of these "brace-ridden" deformities, and the hope expressed that orthopedic authors may cease to give the profession a wrong impression of the value of osteoclasis.

Paralytic Deformities of the Legs.—Dr. E. W. RYERSON of Chicago discussed two varieties of paralytic deformities of the leg, namely, the cerebral or spastic paralysis, and anterior poliomyelitis. He said medical treatment was of little value. Mechanical treatment was described. Operative treatment was of several kinds, such as tenotomy, nerve grafting, and tendon transplantation. These procedures were described in detail.

President's Address.—Dr. J. F. PERCY of Galesburg, in his presidential address, said, among other things, that the medicine of the future would find the physician recognizing his need for dependence upon his colleagues. Medicine of the future would understand and correct the loss

that was sustained in our day by failure to recognize that back of every physician were ambition, hope, aspirations, good fellowship, and the sincere desire to be well thought of by his fellows. The days of radicalism in medicine were gone, never to return. The day of schools in medicine was also gone, never to return. The statement of a brilliant writer recently made that "Medicine is an art that sometimes cures, often relieves, and always comforts," would, in the light of the forward movements of the pointer on the dial of Time, be revised so as to read, "Medicine is the science that always comforts, always relieves, and always cures." At present the laboratories and hospitals were furnishing valuable knowledge for the prevention and cure of disease faster than it could be given to or made practical use of by the physician in his everyday work. This was one of the problems for future medicine. Medicine of the future would require that the physician begin his work with a more than adequate preliminary literary and scientific education. "Clothed with character, robed in the mantle of ceaseless toil for the sick, underpaid, often unappreciated, frequently legislated against, carrying the rod of science with an altruism that knows no limits, the physician of to-day, of yesterday, and of to-morrow is only among his peers when in the company of the earth's most exalted."

Dr. Robert B. Preble of Chicago delivered the Address in Medicine. He selected for his subject, "The Rôle of Gross Parasites in the Diffusion of Infectious Diseases."

Dr. Charles H. Mayo of Rochester, Minn., delivered the Address in Surgery, in which he discussed the surgical treatment of hyperthyroidism or exophthalmic goiter.

Acute Mastoiditis.—Dr. L. R. Ryan of Galesburg pointed out the frequency of acute otitis media purulenta in our climate affecting all ages and classes. The most dangerous complication was mastoid abscess. He described the methods of prevention, and said that if abscess occurred an operation was almost imperative. The Stacke-Schwartz operation was seldom necessary. Wilde's incision was adequate in that it seemed to meet all the indications, if properly done. This operation should be performed early. He cited a series of cases ranging in age from two years to seventy years, all of which were cured, without complications or recurrence of the disease, by the Wilde incision alone.

Plastic Surgery of the Urethra.—Dr. G. Frank Lydston of Chicago demonstrated his method of reconstructing the penile urethra and closing urethral fistula by flaps from the scrotum and penis, making a double-layered floor. By his new method the new urethral tube was entirely lined with skin epithelium, hence it could not undergo cicatricial contraction and closure. He reported a number of cases operated on successfully by this method. The author claimed that the ordinary methods were failures, or worse.

Scopolamine and Morphine as a Preliminary to General Anesthesia.—Dr. Clifford U. Collins of Peoria said the advantages derived from this method were: *First*, the tranquil drowsy state of mind which it produces in the patient before the general anesthetic is administered. If it does nothing else, this should be sufficient to give it a permanent place in the anesthesias of the future. The patient feels an irresistible tendency to close his eyes and sleep. *Second*, by the preliminary use of scopolamine and morphine the tranquil condition of sleep is produced in any patient, regardless of age, with the same desirable results. *Third*, a great deal less of the general anesthetic is required. Chloroform and ether have distinct dangers, and it is probable that with the administration of a lessened amount, the dangers will be correspondingly lessened. For this reason a patient is safer in the hands of an inexperienced anesthetist with the preliminary injection than without it, although an experienced anesthetist should always be obtained when possible. *Fourth*, scopolamine produces a dryness of the throat which is very desirable when ether is administered, because it prevents the flow of mucus usually produced by the ether and lessens the dangers of aspiration of this mucus into the respiratory tracts. *Fifth*, the patient usually sleeps for three or four hours after the operation. The smarting, burning pain of the incision has usually ceased before the patient awakes. *Sixth*, the postoperative vomiting is markedly lessened. About one patient in twenty will vomit several times afterwards, but the remainder will be spared this painful, distressing complication. The only disadvantage is the varying effect of the single dose on the patients. A few patients will not get the full beneficent effects of the preliminary dose, although all are benefited to some degree.

Varicose Veins and Ulcers of the Leg.—Dr. W. S. Royce of Chicago described briefly the pathology and etiology of these conditions, and mentioned the unsatisfactory results as well as the various forms of treatment. He spoke of the class of patients that were affected as well as the large number. He described the abmulatory treatment which, he said, gave great relief, and sometimes effected a permanent cure, requiring no loss of time on part of the patient. He illustrated his method of treatment on models, and gave a short comparison of it with other treatment.

Gall-Bladder Surgery.—Dr. J. E. Allaben of Rockford described three unusual cases. The first was one of exophthalmic goiter, with large solitary stone in the gall-bladder, with adhesions about the gall-bladder and pylorus causing symptoms which simulated benign pyloric stenosis. A cholecystotomy was done, with death on the third day from pulmonary edema. Case II was one of cholelithiasis in which a cholecystotomy was performed, with death on the third day. Although a post mortem was made, the cause of death was obscure, but it was probably due to autointoxication. Case III was one of cholecystitis which complicated pregnancy, and was mistaken for pernicious vomiting of pregnancy. The gall-bladder symptoms simulated gallstone colic. The woman was delivered of a healthy full-term child. Four months later return of symptoms necessitated a cholecystotomy. She was relieved for one year, when the symptoms returned. Examination revealed a displacement of the right kidney of second degree; the kidney was held in place by a Dunning kidney pad and abdominal supporter. The woman had relief for one year, when her symptoms returned. It was found that adhesions caused a partial obstruction of the pylorus. Operation was done, and the numerous adhesions about the pylorus were released. Cholecystectomy, with E. W. Andrews' operation, colohepatopexy (colon substitution), was performed. Death occurred on the third day from hemorrhage of the liver.

Otitic Brain Abscesses.—Dr. Frederick K. Sidley of Peoria reported three cases, and said that surgical interference in brain complications due to ear disease was unsatisfactory in a large percentage of cases. This was chiefly due to the fact that the symptoms and serious condition was not recognized until the focal symptoms had become established and the meninges were involved. Brain abscesses had an unknown beginning and many developed from diseases of the tympanic cavity that were regarded as simple and not serious. All discharging ears should be considered serious and the first step in the treatment of any brain complication from ear disease was the prompt diagnosis and treatment of the first discharge.

Practical Venereal Prophylaxis.—Dr. Denslow Lewis of Chicago said that professional opinion now endorsed publicity and advocated instruction of the laity. He described the methods that were favored by State and national societies. He criticised the attitude of the lay press, and pointed out the difficulties to be overcome in reaching the public. He pointed out the objections to obscenity

laws which he said were shown to be unjust and uncertain. He considered the prostitute as a purveyor of infection, and said there should be recommendations for more consistent appreciation of her position in society. He advocated judicious care and quarantine as a factor in venereal prophylaxis.

Indications for Cesarean Section.—Dr. E. C. Franing of Galesburg read a paper in which he presented the following conclusions: (1) Practise pelvimetry on all primiparæ. (2) Do pelvimetry on all multiparæ who have given a history of difficult labors. (3) In all cases of flat rachitic pelvis, with true conjugate of 8.5 cm., or less, prepare for and do cesarean section. (4) All cases with true conjugate between 8 and 8.5 cm. must be looked upon as probable cesarean sections. Allow patient to go to term and into labor. Prepare patient thoroughly as for surgical operations, and make vaginal examination for correct position, etc. Make no more examinations until patient has been in actual labor four hours, when, unless the head has made a decided attempt to enter the pelvis, do a cesarean section. If the head enters the pelvis, but is later arrested, choose between forceps, symphyseotomy and cesarean section. (5) All cases with a true conjugate between 8.5 cm. and 9.5 cm. should be considered as possible cesarean sections, and the same procedure may be instituted as in conclusion four. (6) The fetal mortality is so high in prematurely induced labors that it is totally unwarranted as compared with cesarean section, unless the latter is especially contraindicated. (7) In face of the fact that the maternal mortality in cesarean section is not greater than by any other method of treatment, and that of the child mortality is much reduced by the former, the interest of the child will force us to honor cesarean section more often in the treatment of placenta prævia than at present. (8) In all cases of placenta prævia centralis or with rigid os, unless special indications to the contrary should be absolute, indications for cesarean section in favor of the child. (9) In all cases of placenta prævia have the patient under the best conditions and ready for any operation. Begin the treatment by the expectant method, and the moment the conditions arise which threaten either the mother's or the child's life, which cannot be controlled by any other method, do abdominal section, unless the mother is in a weakened condition, and she can be saved by extracting a live or dead child by forceps or version. (10) Never do abdominal cesarean section on an eclamptic unless she has a considerably contracted or obstructed pelvis, or to save a live child from a dying woman. (11) The classic Saenger operation should be done in all cases, except in tuberculosis, malignancy, tumors, or sepsis, in which hysterectomy is the operation of choice.

Opsonins, Opsonic Index, and Vaccine Therapy.—Dr. John C. Hollister of Chicago said that to aid a patient in his struggle against infection we should strengthen his phagocytic power. If this phagocytic power depended on white blood cells and opsonins, we must have a method of determining what was the condition of such factors, and, if they were insufficient, we must be able to cause an increase in their number. We could increase the number of leucocytes, but we knew that this was not the same as increasing phagocytosis. Wright had not only perfected a method of determining the strength of the opsonic power, but also of increasing it if it was low; the first by what was known as the opsonic index, the latter by vaccine therapy, and by Wright's methods we could not only estimate the patient's phagocytic resisting power to individual infections, but we could help him to get well by raising that power. We must aid phagocytosis in order to strengthen resistance. Phagocytosis had two factors, leucocytes and opsonins. We could increase the number of leucocytes, but that was of limited value. We could estimate the opsonic strength of the infected patient, and we could be of marked assistance if we were able to raise and maintain his opsonic index. The presence of invading bacteria stimulated further elaboration of opsonins in the serum. This was not only so if live pathogenic germs gained access, but it had been found to be true if one took the same germs and sterilized them by heating, thus destroying their pathogenic power, and then injecting them into the tissues of the body. This was what was meant by vaccine therapy. We injected into a patient whose opsonic, and therefore phagocytic, power was low a sterilized culture of the very germ that was causing his individual disease, and when this was done by a definite careful method, it was found that his opsonic index could be raised, and that when so raised his tendency was toward recovery. In what infections could we say vaccine therapy was of definite value? *First*, in staphylococcus infections; acne, furunculosis, carbuncles, and the more generalized forms of staphylococcus invasion. *Second*, in infections by the colon bacillus; pyelitis, cystitis, pleuritis. *Third*, in infections by the tubercle bacillus, especially in localized tuberculosis of the skin, bones, joints, and genitourinary tract. The author had not yet had sufficient experience in the treatment of pulmonary tuberculosis to draw conclusions. *Fourth*, as to infections by the gonococcus. Here he could say, judging from about twenty cases, that a person infected by that organism acutely or chronically usually had a low index, and that this low index could invariably be raised and maintained at a higher level. After a sufficient number of cases had been treated by the gonococcus vaccine without other measures, he thought we would be able to estimate the actual results. The outlook was promising in spite of the fact that the technique was difficult.

The Treatment of Pelvic Infections.— Dr. Channing W. Barrett of Chicago discussed this subject with special reference to the technique of pus tube operations. His conclusions were: (1) Pelvic infection is a destructive process, sometimes causing only mild disturbances, sometimes causing death with or without provoking a marked inflammatory reaction. (2) Pelvic inflammation is a protective process which may or may not save the life of the patient, according to the virulence of the infection, and the completeness of the inflammatory reaction. (3) A pelvic inflammation has no power of self-extension, but tends rather toward repair. (4) Puerperal infections are usually due to the introduction of bacteria during or after delivery, but may be caused by the presence of germs in the vagina, cervix, pus tube, or ovary, appendix, bowel, or peritoneum during delivery or the puerperium. (5) With the onset of puerperal infection all stitches should usually be removed and vagina and uterus determined free from foreign material with as little damage to the linings of these organs as possible. (6) During the acutely active stage of a pelvic infection the patient should usually receive nonoperative treatment until it may be determined that drainage or removal of some organ will remove or decidedly lessen the source of infection. Then drainage, removal of the uterus, tube, or ovary may be indicated. (7) The removal of acutely inflamed pelvic organs is not indicated for this inflammation *per se*. (8) Nonpuerperal, nonoperative acute infection is usually, but not necessarily, of gonorrheal origin. (9) An acute primary infection of the tubes and ovaries should be treated conservatively in the beginning to save these organs. (10) During an acute attack of infection, if the patient is not doing well, drainage may be instituted to hasten convalescence or save the life of the patient. (11) Chronic pus tubes should be removed. (12) Immediately upon the lighting up of an acute infection in old pus tubes a radical operation may be advised, but should this be delayed until infection is distributed through the pelvis, drainage is more desirable if operation becomes necessary. (13) Two safe operations are always preferable to one

dangerous one. (14) A radical operation should aim to do the least possible traumatism to tissues that are to be left and cause the least possible distribution of infected material. (15) To that end he commends the technique he described of severing the tube before a forcible effort is made to lift it out of the cul-de-sac.

The following papers were also read: "When Should Gastric Ulcer Be Treated Surgically and When Medically?" by Dr. Bertram W. Sippy, Chicago; "Achylia Gastrica in Its Relation to Intestinal Function," by Dr. Frank Billings, Chicago; "Progressive Infective Gangrene and Allied Affections," by Dr. L. Ryan, Chicago; "Indications for, Technique of, and Results in Surgery of the Peripheral Nerves," by Dr. John B. Murphy, Chicago; "A New Modification of the Primary Position in the Bloodless Treatment of Congenital Hip-Joint Dislocation," by Dr. Frederick Mueller, Chicago; "Post-Operative Gall-Bladder and Gall Duct Fistulæ," by Dr. M. R. Barker, Chicago; 'Emesis During Period of Gestation," by Dr. Edwin M. Minnick, Moline; "Feigned Eruptions," by Dr. Frank Hugh Montgomery, Chicago; "A Report of Two Unusual Cases," by Dr. David Lockie, Pontia; "Exophthalmic Goiter," by Dr. O. M. Steffenson, Chicago; "Partial Thyroidectomy as the Treatment of Exophthalmic Goiter," by Dr. A. P. Heineck, Chicago; "Interstate Medical Reciprocity, and Our Degraded Certificate," by Dr. C. T. Robinson, Edwardsville.

Officers for the Ensuing Year.—*President,* Dr. William L. Baum, Chicago; *First Vice-President,* Dr. C. W. Lillie, East St. Louis; *Second Vice-President,* Dr. T. H. Culhane, Rockford; *Secretary,* Dr. E. W. Weis, Ottawa, reelected; *Treasurer,* Dr. E. J. Brown, Decatur, reelected. *Delegates to the American Medical Association,* Drs. Frank Billings, Chicago; J. R. Hollowbush, Rock Island, and C. S. Bacon, Chicago; *Alternates,* Dr. G. D. Smith, Elizabeth; Chas. B. Horrell, Galesburg; Dr. Robert T. Gillmore, Chicago; Dr. E. B. Montgomery, Quincy; Dr. C. M. Jack, Decatur; Dr. Wm. L. Ballenger, Chicago, and Dr. S. C. Stremmel, McComb.

Peoria was selected as the place for holding the next annual meeting.

Philadelphia County Medical Society.

At a stated meeting held April 24, Dr. T. H. Evans presented a paper entitled "Status of the Question of Sugar in Cases of Cancer." Dr. James E. Talley read a paper entitled "Report of a Case of Intermittent Claudication." The patient was a man about sixty years old who had been exposed to poisoning by lead, antimony, and mercury, and had indulged excessively in alcohol and tobacco. He presented redness, and at times cyanosis, with a sense of heat and swelling in the lower extremities, when the feet were held in a dependent posture, the members losing their color and becoming almost white when elevated. There was difficulty in walking, locomotion being interfered with during exercise. Trophic ulcers had formed on the feet, and amputation of one of the toes became necessary for gangrene. The circulation through the arteries of the lower extremities was greatly diminished, no pulse being distinguishable in the popliteal and dorsalis pedis arteries. Dr. Walker S. Cornell read a paper entitled "Eyestrain in School-children, Based upon a Routine Study of 1,000 Cases." Observations made in the capacity of Medical Inspector of the Bureau of Health showed that almost one-third of the children in the public schools have defects of refraction, interfering with their comfort and scholarship. The failure to make the necessary corrections lies in part and largely at the door of indifferent or uninformed parents, but is due in small degree also to the negligence of physicians. Dr. E. J. G. Bearsley read a paper entitled "Report of Three Cases of Splenomedullary Leukemia, with Blood-findings." One of the cases was of six years' standing and had exhibited numerous remissions and exacerbations, sometimes in conjunction with, at other times independently of, therapeutic procedures. The exact nature of the affection is not known, although it is supposed to be due to some disorder of the hemopoietic system. Therapeutically, the best results appear to have been brought about by the administration of Fowler's solution of potassium arsenite in ascending doses, and the use of the x-ray, preferably applied over the long bones.

Therapeutic Hints.

Coryza.—Waxham says that if given early the following acts almost as a specific:

℞ Quin. salicyl. . . . . gr. iss
Acid arsenos. . . . . gr. 1-120
Ext. belladon. . . . . gr. 1-20
Capsici. . . . . gr. 1-4

Two capsules of this composition every hour for three hours, and then one every three hours.

—*Denver Medical Times.*

Tape Worm.—

℞ Oleoresinæ aspid. . . . . ʒi
Ol. terebinth rect. . . . . gutt. xx
Chloroformi. . . . . gutt. xv
Mucilag. acaciæ. . . . . q. ad. ʒi

M. S.: One-half at night and the other half the following morning.

Dysmenorrhea.—

℞ Morph. hydrochlor. 0.02
Extr. hyoscyam. 0.1
Butyr. cacao. 2.0

M. ft. suppositor.

—Kantorowicz.

Diarrhea.—

℞ Resorcini. . . . . gr. xii
Glycerini. . . . . ʒiv
Tr. opii. . . . . ℥x
Aq. cinnamomi. . . . . ad. ʒiv

M. S.: One tablespoonful for an adult; one to two teaspoonfuls for a child.

—Burney Yeo.

Atonic Dyspepsia.—

℞ Tr. card. co. . . . . ʒss
Tr. rhei. co. . . . . ʒss
Sodii bicarb. . . . . gr. xv
Inf. columb. . . . . ad. ʒi

S.: Take three times a day.

—Lucas.

Sea Sickness.—

℞ Cerii oxalatis. . . . . gr. ii
Tr. valerian co. . . . . ʒi
Aquæ. . . . . ʒi

S.: Take every one-half hour till relieved.

—Walsh.

Orchitis.—For first six days:

℞ Guaiacol. . . . . ʒiiiss
Adipis. . . . . ʒii

S.: Rub in gently and apply on lint. Envelop testicle in cotton and apply snug suspensory bandage. After the first week:

℞ Ung. hydrarg. . . . . .
Ung. belladon. . . . . .
Ichthyol . . . . . .
Lanolini. . . . . āā ʒii

S.: Apply locally.

—Christian.

Asthma.—A. R. Edwards recommends the following combination in the treatment of bronchial asthma:

℞ Ext. grindeliæ robustæ fl. . . . . fʒj
Tinct. lobeliæ. . . . . āā fʒij.
Tinct. belladonnæ. . . . . āā fʒij.
Potassii iodidi. . . . . ʒiss.
Syrupi. . . . . fʒj.
Aquæ, q. s. ad. . . . . fʒiv.

Misce. S.: One teaspoonful four times a day.

H. C. Brown recommends the following:

℞ Sodii arsenatis. . . . . gr. iss.
Aquæ. . . . . fʒx.

Misce. S.: One tablespoonful before breakfast and supper. Or—

℞ Antimonii et potassii tart. . . . . gr. j.
Potassii chloratis. . . . . gr. v.
Aquæ, q. s. . . . . fʒiv.

Misce. S.: One teaspoonful every two hours.

—*Denver Medical Times.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Minnesota State Board of Medical Examiners.

January, 1907.

ANATOMY AND HISTOLOGY.

1. Describe the membranes covering the brain, in their order, from without, inward, giving the number of and peculiarities of each.
2. Describe the mammary glands and give the blood and nerve supply.
3. Describe the stomach, fully, giving blood and nerve supply and its anatomical relations to surrounding parts.
4. Give the fetal circulation.
5. Describe the shoulder joint and name the muscles covering it and their relation to it.
6. Define Histology.
7. Name the four fundamental elementary tissues.
8. Define Metabolism.
9. Describe lung tissue (a terminal bronchiole and pyramidal mass that it leads to) fully.
10. A hair is composed of how many strata? Name them in their order.

PHYSIOLOGY.

1. Give, somewhat in detail, the physiology of the kidney, with a sufficient anatomical description (preferably with diagram), to make your meaning plain.
2. The same of the liver.
3. Of what does the sympathetic nervous system consist, and where is it located, and how divided as regards location, and what is its function?
4. What centers are located and arranged alongside the fissure of Rolando?
5. Describe human blood, giving reaction, specific gravity, constituents, etc.
6. What are the functions of epithelial tissue?
7. In a lesion involving the third frontal convolution on the left side (in a right handed person), what function would be interfered with?
8. Describe the pulmonary circulation, and the changes which are produced in the blood by aëration.
9. Trace the different steps in the digestion of a bolus of food consisting of proteids, fats, starches, and sugars.
10. What is the composition, reaction and function of the pancreatic juice?

CHEMISTRY, TOXOLOGY, AND URINALYSIS.

1. How would you determine the presence of mercury in a solution? In a solid or powder?
2. How would you determine the presence of silver in a solution? In a solid?
3. Give test of iodine.
4. Give test for the presence of hydrocyanic acid.
5. Give test for the presence of morphia.
6. Give test for the presence of strychnia.
7. How determine if urea or the urates are present in excess?
8. How determine the presence of acetone?
9. How determine the existence of oxaluria?
10. Give symptoms and treatment of acute poisoning by salicylic acid or the salicylates.

MEDICAL JURISPRUDENCE.

1. Define illusion, hallucination, and delusion, and give example of each.
2. What are the post mortem signs found after asphyxia in the new born? After strangulation?
3. How is criminal abortion commonly produced? How detected in the living and dead?
4. What are the effects of prolonged exposure to cold, and the post mortem appearances which follow?
5. Upon what does the poisonous action of coal gas depend?

PREVENTIVE MEDICINE.

1. A case of small-pox is discovered in a lodging house; what steps should be taken to prevent the spread of the disease?
2. What are the dangerous impurities in the air of crowded and unventilated rooms?
3. Describe sand filtration of water on large scale, construction of filter; and explain action in purifying water.
4. Give some simple precautions for the conduct of the tuberculous patient to prevent the spread of the disease.
5. In a system of house plumbing, what is a trap, give construction, location and use.

MATERIA MEDICA AND THERAPEUTICS.

1. Name the official soluble Salts of Iron.
2. Opium:
   (a) Give action on man of *Therapeutic* and of *Toxic* doses.
   (b) Name chief preparations of (not alkaloids), with dose of each.
   (c) Contraindications for use.
3. You wish to prescribe Ammonium Salicylate, but find your druggist out of stock; write an extemporaneous prescription which will give the required drug in solution in proper dosage for a case of acute inflammatory rheumatism.
4. Give the average adult dose of the following:
   (a) Arsenous Acid.
   (b) Fl. Ext. Cannabis Indica.
   (c) Ext. Hyoscyamus.
   (d) Heroin Hydrochlorid.
   (e) Hydrocyanic Acid dilute.
   (f) Tr. Aconite, U. S. P.
   (g) Lead Acetate.
   (h) Guaiacol Carbonate.
   (i) Sulphonal.
   (j) Acetanilid.
5. Criticise the following prescription:

   R Tr. ferri Chloridi dr. ij.
   Acid Acetic dil. dr. iij.
   Liq. Ammon. Acetatis. oz. iij.
   Liq. Potas. Arsenitis dr. ss.
   Glycerin } aa dr. vi.
   Elix. Aromat. }
   Aquæ pur. q. s. ad oz. vi.
   Misce et sig. A tablespoonful in a little water three times a day after eating.

6. What is the action of strychnia upon the sympathetic nervous system?
7. Give directions and write a prescription for the treatment of chronic dry eczema of the hands.
8. Outline treatment for a case of hemoptysis, and give your reasons for the treatment you advocate.
9. Discuss the use of the nitrite group of drugs in *shock*.
10. Give directions and write a prescription for the treatment of scabies.

PATHOLOGY.

1. Describe the morbid anatomy of the various forms of cystitis.
2. What are the three main factors recognized as causing hemopholis?
3. Describe the pathology of myxedema and cretinism.
4. Describe the pathological changes of the vermiform appendix in the different forms of appendicitis.
5. Give the pathology of chronic interstitial hepatitis.

BACTERIOLOGY.

1. What are the five nutrient media generally employed in the culture of pathogenic bacteria?
2. Give a brief history of the method of immunization against three infectious diseases where causative agents are known.
3. What bacteria may we expect to find in a phlegmon? What in a so-called "cold abcess?"
4. What are the microscopic findings in actinomycosis in the human being?
5. Give method of staining tubercle bacillus.

MEDICINE.

1. From what conditions must apoplexy (cerebral hemorrhage) be differentiated?
2. Compare the physical signs of pericardial effusion and of an enlarged heart.
3. What is leukemia?
4. Pneumothorax: definition, cause, symptoms.
5. Give the symptoms and prognosis of peripheral facial paralysis.
6. Give the symptoms and dietetic treatment of infantile scurvy.
7. Define impetigo.
8. Contrast the period of incubation, stage of invasion and character of the eruption in measles and scarlet fever.
9. How does syphilis affect the bones?
10. Name a common form of tape worm and describe its life history.

SURGERY.

1. Normal or physiologic salt solution, its composition, preparation and uses in surgery.
2. Forward luxation of head of radius; symptoms, signs, and treatment.
3. Describe briefly a compound comminuted fracture of the long bones, prognosis and treatment.

4. Acute osteomyelitis, pathology, and differential diagnosis.
5. Prostatic enlargement, pathologic varieties, symptoms and treatment.
6. Differential diagnosis between gastric and duodenal ulcer.
7. Differential diagnosis between nephrophthisis and nephrolithiasis, and how do you determine on which side the lesion exists?
8. Carbuncle, description and treatment.
9. Pterygium; describe in detail. Operation for its successful removal.
10. Traumatic cataract, treatment.

OBSTETRICS.

1. Bound the true pelvis? Define brim? False pelvis?
2. Give etiology, prognosis and general management of puerperal insanity?
3. Name and define five of the most important signs of pregnancy at four months.
4. Give early symptoms of placenta prævia; also, your management of a case including active treatment.
5. Case: primipara in labor at term—pains have continued six hours—os rigid and undilated. Give your method of procedure.

DISEASES OF WOMEN.

1. Name three varieties of vaginitis with causes and symptoms of each?
2. Give causes and treatment of chronic non-specific endometritis?
3. What is the significance of uterine hemorrhage independent of menstruation or pregnancy?
4. What are the indications for tracheolorrhaphy? Describe the operation fully?
5. In what gynecological diseases and conditions do we find painful defecation a prominent symptom? Bearing down feeling? Leucorrheal discharge?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS.
January, 1907.

ANATOMY AND HISTOLOGY.

10. The layers of a hair, in order, from without inwards, are:
Dermal sheath.
Hyaline layer.
External epidermic coat.
Internal epidermic coat. { Henle's layer. Huxley's layer. Cuticular layer.
Cortex.
Medulla.

PHYSIOLOGY.

3. "The sympathetic nervous system consists of (1) a series of ganglia connected together by a great ganglionic cord, the gangliated cord, extending from the base of the skull to the coccyx, one gangliated cord on each side of the middle line of the body, partly in front and partly on each side of the vertebral column; (2) of three great gangliated plexuses or aggregations of nerves and ganglia, situated in front of the spine in the thoracic, abdominal, and pelvic cavities respectively; (3) of smaller or terminal ganglia, situated in relation with the abdominal viscera; and (4) of numerous fibers." (Gray's *Anatomy*.)

Its *functions*: "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to such extent that, for instance, in certain mammalians the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or less extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence*." (*Reference Handbook of the Medical Sciences*.)

4. The *motor* centers are located and arranged alongside the fissure of Rolando. At the upper part of the convolutions on each side of this fissure are areas connected with the movements of the lower extremities; then from above downwards are located the centers for movements of the shoulders, arms, wrists, fingers, face, lips, tongue, and larynx and pharynx.

6. The functions of epithelial tissue are: (1) Protection, (2) secretion, (3) motion (ciliary), (4) special sensation, (5) absorption.

7. The lesion described would produce motor aphasia.

10. *Pancreatic juice. Composition*: Water and solids, the latter consisting of three enzymes (trypsin, amylopsin, and steapsin), proteid material, soaps, fats, lecithin, and inorganic salts (carbonate of sodium, chloride of sodium, and phosphates of sodium, calcium, and magnesium).

The *reaction* is alkaline, due to sodium carbonate.

The *functions*: (1) It changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; (2) it converts starch into maltose; (3) it emulsifies and saponifies fats; and (4) it causes milk to curdle.

CHEMISTRY, TOXICOLOGY, AND URINALYSIS.

1. To determine the presence of *mercury* in a *solution*: Add sulphuretted hydrogen; a black precipitate results, which is insoluble in hot nitric acid.

To determine the presence of *mercury* in a *solid or powder*: Heat in a glass tube with sodium carbonate; a gray sublimate of metallic mercury will be deposited on the cold part of the tube.

2. To determine the presence of *silver* in a *solution*: Add hydrochloric acid; a white, curdy precipitate results, which is soluble in ammonia, insoluble in acids, and becomes dark on exposure to the light.

To determine the presence of *silver* in a *solid*: Fuse on charcoal; a silver globule results.

3. Test for *iodine*: Add starch paste; a deep blue color results.

4. Test for presence of *hydrocyanic acid*: Add ammonium sulphydrate and evaporate to dryness; then add solution of ferric chloride; a red color results.

5. Test for presence of *morphia*: Add solution of neutral ferric chloride; a blue color results.

6. Test for presence of *strychnia*: Add concentrated sulphuric acid; a colorless solution is formed. If a crystal of potassium bichromate be drawn through this solution, it is followed by a track of color which is first (for an instant) blue, then violet, then rose-colored, and finally yellow.

8. To determine the presence of *acetone*: Add a few drops of freshly prepared solution of sodium nitroprusside, and then some potassium hydroxide solution; the fluid is colored ruby red, and on supersaturation with acetic acid becomes purple.

9. To determine the presence of *oxaluria*: Microscopically examine the sediment of the urine; note the presence of dumb-bell shaped crystals, or highly refracting octahedral crystals.

10. *Symptoms* of acute poisoning by salicylic acid or the salicylates: "Profuse sweating, roaring in the ears, dimness of vision, headache, partial or total deafness, and a decided fall in temperature. The pulse becomes weak and relaxed, and finally ptosis, strabismus, and general paralysis ensue. The urine and feces are passed involuntarily, and the urine is olive-green in color. The respirations at first are quickened and deepened, but finally become shallow and feeble, death ensuing from respiratory failure. If the dose is sufficiently large, the blood is involved and the corpuscles rapidly break down." (Hare's *Therapeutics*.)

Treatment: Lavage, purgatives, milk, and white of egg.

MEDICAL JURISPRUDENCE.

1. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion*. If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion*. If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination*.

4. *Prolonged exposure to cold* causes first a lividity and then a whiteness of the extremities, ears, nose, and cheeks; this may be followed by gangrene. Pain, depression, stiffness, and congestion follow; stupor, coma, and death may supervene.

Post-mortem appearances: The skin is pale and waxy, with irregular dusky, reddish patches; the superficial parts are bloodless, while the viscera, including the brain, are congested; the heart and large vessels leading from it are

full of blood, and the blood is of a brighter red color than usual.

5. The poisonous action of coal gas depends upon the presence and action of carbon monoxide. This carbon monoxide unites with the hemoglobin of the blood, forming a very stable compound, which is not oxidized in the lungs; thus internal asphyxiation is produced.

MATERIA MEDICA AND THERAPEUTICS.

1. The official soluble salts of iron are: Ferri sulphas, ferri chloridum, ferri et ammonii sulphas, ferri phosphas solubilis, ferri et potassii tartras, ferri et ammonii citras, ferri et strychninæ citras, ferri et ammonii tartras, ferri citras, ferri et quininæ citras, ferri et quininæ citras solubilis, ferri pyrophosphas solubilis.

3. R. Acidi salicylici, ʒiijss.
Ammonii carbonatis, gr. lxxij.
Spiritus menthæ piperitæ, ♏v.
Glycerin, ʒiv.
Aquæ distillatæ, q.s. ad ʒiij. M.
Sig: One teaspoonful every three hours.

4. The average adult dose of the following:
(a) Arsenous acid, gr. 1/30.
(b) Fl. ext. Cannabis Indica, ♏ jss.
(c) Ext. hyoscyamus, gr. j.
(d) Heroin hydrochlorid, gr. 1/10.
(e) Hydrocyanic acid dilute, ♏ jss.
(f) Tr. aconite, U. S. P., ♏ x.
(g) Lead acetate, gr. jss.
(h) Guaiacol carbonate, gr. xv.
(i) Sulphonal, gr. xv.
(j) Acetanilid, gr. iv.

PATHOLOGY.

2. The three main factors recognized as causing hemophilia are: (1) Hereditary predisposition transmitted through the female line, (2) male sex, and (3) early life. Of course, there must be a trauma as the exciting cause.

BACTERIOLOGY.

1. The five nutrient media commonly employed in the culture of pathogenic bacteria are: Bouillon, gelatin, agar-agar, blood-serum, and potatoes.

3. The bacteria that may be found in a *phlegmon* are: *Streptococcus pyogenes*, and sometimes some of the following: *Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Micrococcus tetragenus, Bacillus pyocyaneus.*

In a *cold abscess* there may be the *Bacillus tuberculosis*, and occasionally a few of those just named.

4. In *actinomycosis* the microscopical findings include the actinomyces, round cell infiltration with granulation tissue, and cicatricial bands; much connective tissue is produced. There are small granulation tumors consisting of giant cells, epitheloid cells, and small round cells.

5. Take a small particle from the sputum or other material and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

MEDICINE.

1. Apoplexy (cerebral hemorrhage) must be differentiated from the coma of opium, of alcoholism, of uremia, of epilepsy, of hysteria, of diabetes.

2.

PERICARDIAL EFFUSION.	ENLARGED HEART.
Area of dullness is pear-shaped and the enlargement is chiefly upward.	Area of dullness is not pear-shaped, and the enlargement is chiefly downward.
Dullness may extend to left of apex-beat.	Dullness does not extend to left of apex-beat.
Generally rapid development.	Usually slow development.
Apex-beat is feeble or lost.	Apex-beat is generally apparent, and may be powerful.
The heart sounds are not clearly heard.	The heart sounds are generally clearly heard.

3. *Leukemia* is a condition in which the white blood corpuscles are increased in number, and is accompanied by pathological changes in the spleen, lymphatic glands, and bone marrow.

8. *Measles.* Period of incubation, ten to twelve days. Stage of invasion, four days. Character of eruption, small dark red papules with crescentic borders, beginning on face and rapidly spreading over entire body; desquamation is branny.

Scarlet fever. Period of incubation, from a few hours to seven days. Stage of invasion, twenty-four hours. Character of eruption, a scarlet punctate rash, beginning on neck and chest, then covering face and body; desquamation is scaly or in flakes.

9. There may be periostitis, osteitis, gummata, necrosis, tenderness, osteoscopic pains, and sometimes ulceration.

SURGERY.

1. *Normal salt solution. Composition*: 0.7 per cent of sodium chloride in sterilized water. Chemically speaking, it is practically a decinormal solution.

Preparation: It is made by putting one and a half drachms of sterilized salt in a quart of distilled water in a glass flask. The mouth of the flask should be plugged with sterilized cotton.

Uses: Intravenous injection or infusion, irrigation of fresh wounds, removal of blood or foreign bodies, cleansing of mucous or serous surfaces.

4. *Pathology of acute osteomyclitis*: "When exposed to septic infection the marrow in long bones is only too favorably placed for the diffusion of violent inflammation. Confined within a rigid shell, and in free communication from end to end by its abundant blood and lymph vessels, the medullary tissue, when inflamed, suffers double disaster from the rapidity of the spread of the inflammation, and the impossibility of relief by swelling. Its soft sensitive tissues are strangulated by their own proliferation, and the bone, cut off from its most important blood supply, suffers death. In the compact bone the incompressible veins may serve to carry infection to the system, and fatty embolism from a similar source is not unknown.

"The naked-eye appearances of a bone affected with acute osteomyelitis are striking and characteristic. The compact tissue is pink generally, or in patches; the cancellous bone is of a bright or dusky red color, and the marrow is transformed into a semifluid, often stinking material, made up of pus and diffluent fat, and exhibiting red streaks and patches representing injected vessels and extravasated blood. In some cases, especially in the non-traumatic variety, a subperiosteal abscess forms. This is usually found where the compact bone is thinnest, and its foramina most numerous; that is to say, above the epiphyses, near the joint. In this situation suppurative inflammation of the epiphysial cartilage is peculiarly liable to take place, leading to disjunction of the epiphysis from the shaft, and producing the condition known as 'acute epiphysitis.'

"The usual termination of those cases which do not rapidly prove fatal from general septic infection, is in necrosis of the whole bone, or, more frequently, of the shaft between the epiphyses. The further history of the disease is then simply that of necrosis of bone.

"The minute anatomy is a compound of cellular proliferation, vascular blocking, diffluence of fatty tissue, and general infiltration with microorganisms. The bony tissue proper, suddenly cut off from its nutritive supply and rapidly dying, has had no opportunity of exhibiting the signs of inflammation and is essentially unchanged." (Treves' *Manual of Surgery.*)

6. In the great majority of cases no differential diagnosis can be made between *gastric* and *duodenal ulcer.* But (1) sudden and recurring intestinal hemorrhage of sufficient severity to produce anemia, (2) pain in the right hypochondriac region, coming on two or three hours after eating and (3) violent gastric crisis of pain, are supposed to be indicative of *duodenal* ulcer.

7. In *nephrolithiasis* there is more likely to be hemorrhage.

In *nephrophthisis* the tubercle bacilli will be found in the urinary sediment, and a focus of tuberculosis will be found somewhere.

Catheterization of the ureters will determine on which side the lesion exists.

9. "The pterygium may be dissected away with a sharp scalpel or Beer's knife, and cut off, the conjunctival defect being closed by uniting the upper and lower borders, undermining the conjunctiva if necessary to bring the edges together. The apex of the pterygium must be thoroughly excised from the cornea, and its attachment in this situation scraped or cauterized with the actual cautery, to prevent recurrence. Instead of cutting off the pterygium, it may be dissected up and stitched underneath the detached conjunctiva, either above or below; or it may be divided into two halves, of which one is transplanted above and the other below, being held in the conjunctival pocket by a stitch." (May's *Diseases of the Eye.*)

10. "Immediately after the injury, absolute rest, iced compresses, and atropine are to be employed. If the rapid swelling of the lens causes inflammation or much increase of tension, the cataract should be removed by extraction. But if such complication do not arise, it is wiser to allow absorption to proceed, and to defer operative intervention until there is no irritation or inflammation, and spontaneous improvement has come to a standstill." (May's *Diseases of the Eye.*)

OBSTETRICS.

1. The true pelvis is bounded *above* by a plane passing through the iliopectineal line; in *front* by the pubic bones and the obturator membrane; *behind* by the concavity of the sacrum; *laterally* by the obturator membrane, the sacrosciatic ligaments and the internal surface of the acetabulum.

The *brim* is the edge of the superior strait of the pelvis. The *false pelvis* is that part of the pelvis situated above the superior strait.

DISEASES OF WOMEN.

3. Uterine hemorrhage, independent of menstruation or pregnancy, generally denotes some form of new growth (polypus, fibroid, sarcoma, or carcinoma) of the uterus or cervix; it may also be due to some injury, either during coitus or as the result of some accident.

4. Trachelorrhaphy is indicated in cases of lacerated cervix in which the loss of tissue is but slight, and there is no cystic degeneration or induration.

5. *Painful defecation* is a prominent symptom in: Prolapsed and cystic ovary, pelvic cellulitis or abscess, inflammation of tubes or ovaries, and retroflexion or retroversion of the uterus.

Bearing-down feeling is a prominent symptom in: Prolapsed uterus, badly lacerated perineum, cystocele, rectocele, hyperplasia of cervix, inversion of the uterus, foreign body in the vagina.

Leucorrheal discharge is a prominent symptom in: Pelvic congestion, endometritis, retroversion of uterus, vulvitis, vaginitis, gonorrhea, benign and malignant growths.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery.	Montgomery	August 1–6
Arizona*	Ancil Martin, Phoenix	Phoenix	Oct. 7
Arkansas*	F. T. Murphy, Brinkley	Little Rock	October 8
California	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	August 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	October 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 12
Delaware	J. H. Wilson, Dover	Dover	Dec. 10
Dis. of Col. bia	W. C. Woodward, Washington	Washington	October 10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 20
Georgia	E. R. Anthony, Griffin	Atlanta	October 8
Idaho	J. L. Conant, Jr., Genesee	Boise	October 1
Illinois	J. A. Egan, Springfield	Chicago	July 25
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	October 22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept. —
Kansas	T. E. Raines, Concordia	Topeka	October 8
Kentucky*	J. N. McCormack, Bowling Green	Louisville	October 2
Louisiana	F. A. La Rue, 211 Camp Street, New Orleans	New Orleans	October 15
Maine	Wm. J. Maybury, Saco	Portland	Nov. 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept. 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	October 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	October 1
Mississippi	J. F. Hunter, Jackson	Jackson	October 8
Missouri	J. A. B. Adcock, Warrensb'g.	St. Louis	Sept. 10
Montana*	Wm. C. Riddell, Helena	Helena	October 1
Nebraska	Geo. H. Brash, Beatrice	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	August 5
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	
New Jersey	J. W. Bennett, Long Branch	Trenton	October 22
New Mexico	B. D. Black, Las Vegas	Santa Fe	December 2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	October 1
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May, 1908
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	October 1
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 10
Oklahoma*	J. W. Baker, Enid	Guthrie	Sept. 24
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec. —
Rhode Island	G. T. Swarts, Providence	Providence	October 3
S. Carolina	W. M. Lester, Columbia	Columbia	June 9, '08
S. Dakota	H. E. McNutt, Aberdeen	Sioux Falls	January 8
Tennessee*	T. J. Happel, Trenton	Memphis Nashville Knoxville	May, 1908
Texas	T. T. Jackson, San Antonio	Austin	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	October 7
Vermont	W. Scott Nay, Underhill	Montpelier	January 14
Virginia	R. S. Martin, Stuart	Staunton	Dec. 10
Washington*	C. W. Sharples, Seattle	Spokane	January 7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg	Nov. 12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	January 14
Wyoming	S. B. Miller, Laramie	Cheyenne	

*No Reciprocity recognized by these States.

†Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious disease reported to the Sanitary Bureau, Health Department, New York City, for the week ending, July 13, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	413	170
Diphtheria	361	31
Measles	514	29
Scarlet Fever	274	15
Smallpox	..	..
Varicella	37	..
Typhoid Fever	49	12
Whooping Cough	35	5
Cerebrospinal Meningitis	16	9
Malarial Fever	..	..
Totals	1699	271

Health Reports.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended July 12, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Illinois, Chicago	June 29–July 6	2	..
Galesburg	June 22–29	1	..
Indiana, Indianapolis	June 23–30	1	..
La Fayette	June 29–July 1	2	..
Marion	June 1–30	1	..
South Bend	June 22–29	2	..
Iowa, Cedar Rapids	June 1–30	..	..
Davenport	June 16–30	2	..
Kansas, Kansas City	June 22–29	3	..
Louisiana, New Orleans	June 22–29	4	..
Mississippi, Gulf Quarantine	May 1–31	1	..
Missouri, St. Joseph	June 1–8	2	..
	June 22–29	2	..
New Jersey, Newark	June 29–July 6	1	..
New York, New York	June 22–29	..	1
North Carolina, Greensboro	June 22–29	1	..
Ohio, Cincinnati	June 28–July 5	2	..
Cleveland	June 21–28	4	..
Pennsylvania, Homestead	June 7–14	1	..
New Castle	June 1–30	3	..
Tennessee, Memphis	June 22–29	4	..
Nashville	June 30–July 6	4	..
Texas, Galveston	June 21–28	1	..
Virginia, Richmond	June 22–27	4	..
Washington, Fort Steilacom	June 1–June 7	2	2 imported
Spokane	June 22–29	18	14
Tacoma	June 22–29	1	..
Wisconsin, Milwaukee	June 22–29	3	..

SMALLPOX—FOREIGN.

Brazil, Para	June 8–15	12 — 3
	June 15–22	10 — 7
Canada, Halifax	June 1–29	6 — ..
China, Hongkong	May 11–25	20 — 14
Neiuchwang	May 4–18	3 — ..
Shangbai	May 18–June 1	5 Among foreigners, among natives, 83 deaths. 4 cases on S. S. *Wimington.*
Tientsin	May 18–25	2 — 2
Ecuador, Guayaquil	June 8–15	.. — 1
France, Lyon	June 11–18	.. — 1
Paris	June 15–22	.. — 1
Germany, Konigsberg	June 8–15	1 — ..
Greece, Piraeus	June 15–22	1 — ..
Italy, General	June 13–20	34 — ..
Naples	June 13–22	3 Among emigrants. 1 case removed from S. S. *Perugio* June 22 2 fresh cases.
Java, Batavia	May 18–25	3 — ..
Mexico, City of Mexico	June 1–8	.. — 7
Monterey	June 16–23	.. — 1
Russia, Moscow	June 8–15	12 — 2
Odessa	June 8–15	4 — 3
Riga	June 8–15	10 — ..
St. Petersburg	May 25–June 1	9 — 1
Straits Settlements, Penang	May 18–25	1 — ..
Turkey, Bagdad	May 18–25	.. — Present.
Smyrna	Apr. 15–May 30	.. — 17
India, Bombay	May 28–June 4	.. — 1
Calcutta	May 18–25	.. — 32

YELLOW FEVER.

Brazil, Para	June 8–22	3 — 3
Cuba, Santiago	July 8	1 Removed from S. S. *Puerto Rico,* embarked at Habana.
Union de Reyes	July 0	1 — ..
Ecuador, Guayaquil	June 8–15	.. — 1
West Indies, Port of Spain, Trinidad	May 25–June 15	6 — 2

CHOLERA.

India, Bombay	May 28–June 4	.. — 1
Calcutta	May 18–25	.. — 40
Kashmir Province	May 20–27	1,447 — 782

PLAGUE.

Africa, King Williams Town	May 24	1 — ..
China, Hongkong	May 11–25	10 — 17
Egypt, Alexandria	June 6–13	2 — 1
Assiout Province	June 6–13	7 — 7
Behera Province	June 6–13	2 — 2
Beni Souef Province	June 6–13	1 — 2
Garbieh Province	June 6–13	1 — 1
Kench Province	June 6–13	15 — 15
Minieh Province	June 6–13	1 — 2
French Cochin China, Saigon	May 21	.. — Present.
India, Bombay	May 28–June 4	.. — 40
Calcutta	May 18–25	.. — 141
Rangoon	May 18–25	.. — 43
Straits Settlements, Singapore	May 12–25	.. — 3

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Original Articles.

INOPERABLE SARCOMA. A FURTHER REPORT OF CASES SUCCESSFULLY TREATED WITH THE MIXED TOXINS OF ERYSIPELAS AND BACILLUS PRODIGIOSUS.

By WILLIAM B. COLEY, M.D.,

NEW YORK.

ATTENDING SURGEON TO THE GENERAL MEMORIAL HOSPITAL; ASSOCIATE SURGEON TO THE HOSPITAL FOR RUPTURED AND CRIPPLED.

At the meeting of the Surgical Section of the New York Academy of Medicine on May 3, 1907, I presented six patients who had been successfully treated with the mixed toxins of erysipelas and bacillus prodigiosus for inoperable sarcoma. All of these cases were practically hopeless, as far as cure by any other known method of treatment was concerned. Three of these patients were well from five to eleven and a half years after treatment. In every case a careful microscopical examination had been made by the highest authorities in pathology in America.

In addition to the histories of these six cases it seemed not out of place to give a very brief summary of the present status of the treatment of inoperable sarcoma with the mixed toxins of erysipelas and bacillus prodigiosus.

Although the final results of my work with the toxins were published in the *American Journal of the Medical Sciences*, in March, 1906, the great majority of medical men are still uninformed of what the mixed toxins of erysipelas and bacillus prodigiosus really are, and ignorant of the results that have been obtained by their use in the treatment of hopeless, inoperable cases of sarcoma. For a detailed account of the development of the early method, the reader is referred to the paper above mentioned.

My original experiments, carried out in 1891 and 1892, with the cooperation of Dr. William T. Bull (*Amer. Jour. Med. Science*, 1893), with twelve cases of inoperable sarcoma and carcinoma, in which I used the living cultures of erysipelas, form the inspiration and basis of the toxin method. From these twelve cases I learned two things: (1) That it is most difficult to produce erysipelas when desired; (2) that when produced there is considerable danger of the patient's dying of the attack, two of the twelve cases having succumbed to the artificially-produced erysipelas. In four cases I was unable to produce an attack, although I made many attempts. Repeated injections with the living cultures of erysipelas, however, showed a distinct inhibitory action upon the growth of the tumor, but this action was never sufficient to cause entire disappearance of the tumor, and was usually but temporary in character. This experience led me to try sterilizing the cultures by heat, which, of course, eliminated the risks associated with the actual attack of erysipelas. I found that the inhibitory action was apparently equally marked whether the cultures were living or dead, yet insufficient to completely control the tumor growth. At about this time I read of Roger's experiments in Paris, in which he stated that by growing Bacillus prodigiosus with the streptococcus of erysipelas, the virulence of the latter was greatly increased. Roger's experiments were confined entirely to rabbits, and, as far as I know, the use of the prodigiosus had never been suggested as a therapeutic measure in the human being. In the latter part of 1892 I began using the mixed toxins, first prepared by Dr. Alexander Lambert, but since 1893, by Dr. B. H. Buxton, now professor of experimental pathology at Cornell University. At first the erysipelas streptococcus was grown alone in bouillon for about twelve days; then the Bacillus prodigiosus was added, and the two cultures were grown together for ten days longer, at the end of which time they were sterilized by heat of 60° C. and preserved by the addition of thymol crystals. Efforts were made to secure streptococcus from either a fatal case or some very virulent source. The toxins which I have used up to a year ago were prepared by Dr. Buxton in the way described; none of my successful cases were treated with the erysipelas toxins alone. In the beginning I used filtered cultures for a few months, but the reactions following the injections were so weak that I soon decided to use the entire cultures, only sterilized by heat, thus utilizing the toxins contained in the dead bodies of the bacilli as well as those that were soluble. The results at once showed a striking improvement over those obtained with the toxins prepared from the streptococcus alone. During the last few years I have reached the conclusion that the bacillus prodigiosus plays a far more important part than I had hitherto believed. I had often noted that in the preparation in which the red color of the bacillus prodigiosus was nearly absent, or quite faint, the strength of the toxins was much inferior, and the destructive effect upon the tumor was correspondingly diminished. From the very red toxins, showing a large amount of bacillus prodigiosus I had the best results.

The truth of my conclusions that the bacillus prodigiosus has an actual, curative value of its own, aside from the effect it may have in increasing the virulence of the streptococci of erysipelas, has recently been verified by Dr. Martha Tracy, of the Laboratory of the Huntington Cancer Research Fund. (*Journal of Med. Research*, Vol. XVI., No. 2, 1907.) She has been conducting, during most of last year, a series of investigations into the chemical and biological nature of the bacillus prodigiosus and the mixed toxins, and has found the toxins of the bacillus prodigiosus to be one of the most powerful known in bacteriology. This opinion has already been expressed by Prof. Vaughan of Ann Arbor, Mich. Dr. Tracy has studied the effect of the toxins of the streptococcus alone, of the bacil-

*Read before the Hartford Medical Society, May 27, 1907; with reports of cases presented to the Surgical Section of the New York Academy of Medicine, May 3, 1907.

lus prodigiosus alone and of the combined toxins, upon sarcoma in dogs, and she has established the most important fact, that the bacillus prodigiosus alone has the power of causing the entire disappearance of rapidly growing sarcomas in dogs and their apparent cure. She has, furthermore, found that the mixed toxins of erysipelas and bacillus prodigiosus caused even a more rapid disappearance of the tumors than the bacillus prodigiosus alone.

Thus, we have experimental proof of the curative action of the bacillus prodigiosus alone upon sarcoma, entirely confirming my own clinical observations of sarcoma in man.

Furthermore, Dr. Tracy has found that the curative action of the toxins is brought about by increased leucocytosis and coagulation necrosis—precisely the explanation of the action of the toxins which I published nearly fourteen years ago. Dr. Tracy has seen a sarcoma, half the size of a hen's egg, in a dog, become necrotic and entirely disappear under one or two injections with the mixed toxins, exactly as happened with an inoperable metastatic sarcoma of the iliolumbar region, the size of a child's head, in the case of a periosteal sarcoma of the femur which I presented to the Surgical Section of the Academy, well five years, and the history of which is here appended.

(The results of Dr. Tracy's experiments were reported before the Section on Pathology at the recent meeting of the American Medical Association.)

In view of Dr. Tracy's experimental demonstration of the important and independent part played by the bacillus prodigiosus in the curative process it occurred to her that the way to standardize the preparation and make it possible to estimate more accurately its strength and dosage, would be, to grow the two organisms separately, reduce the bacillus prodigiosus to a dry powder, add so many milligrams by weight per cubic centimeter to the sterilized streptococcus broth. Her process in detail is as follows:

Streptococcus culture in broth—three weeks' growth	100 c.c.
Prodigiosus suspension, containing 750 milligrams of prodigiosus proteid	30 c.c.
Glycerin	20 c.c.

Each cubic centimeter of the mixture then contains 5 milligrams of the prodigiosus proteid. Considering 1 oz. to be equal to 29.57 c.c., it contains 147.85 milligrams prodigiosus proteid; 1 c.c. equals about 17 minims, so 1 minim contains about 3 milligrams of prodigiosus.

The prodigiosus suspension used is made and measured in the following way: Prodigiosus is grown on agar for ten days. There is then a thick red growth, which is scraped off with glass rods and rubbed up with a mortar and pestle to a smooth, rather thick suspension, using physiological salt solution as diluent. This suspension is sterilized by heat—one hour at 75°. The total nitrogen per c.c. is determined and the weight of nitrogen per c.c. multiplied by the factor 6.25 gives the weight of proteid present. Thus the weight of prodigiosus proteid in each c.c is known and the suspension is diluted to the required strength before mixing with the streptococcus culture. After mixing and bottling the toxins, the mixture is again sterilized two hours at 75°.

The toxins made in this way I have used almost exclusively during the past six months, and I believe that they are not only more powerful than the eosin preparations but more efficient.

A word of warning should be said in regard to the dangers attending the use of such a powerful preparation as the mixed toxins. If proper precautions are observed, I believe the toxins may be used with almost perfect safety. In about 400 cases in which I have used the mixed toxins during the last fifteen years there have been only three cases in which death could, possibly, be attributed to the injections. All three of these cases were in the last stages of the disease, suffering from extensive metastases, associated with very feeble heart action. Two of the cases presented extensive involvement of the mediastinal glands. In both of these cases the treatment had only just been begun for two or three days and sufficient doses had not been given to produce any marked reaction. The patients died suddenly, apparently as a result of an embolus. There has been a recent doubt in the case of an enormous sarcoma of the thigh. Within ten days after beginning the treatment the patient died of acute infection with the gas bacillus (aërogenes capsulatus) from some unknown source. The preparation of toxins was perfectly sterile I had seen the patient but did not personally treat him.

It is most important to begin in every case with a very small dose, not over ¼ minim (diluted with a little boiled water to insure accuracy of dosage). If the tumor in question is highly vascular, it is wiser to begin the injections remote from the same, until the susceptibility of the patient to the toxins has been ascertained. This varies considerably in different individuals. After a few doses it is safe, in most cases, to inject into the tumor itself.

As a rule, when giving injections into the tumor, only about one-fifth of the dose used for injections remote from the tumor is required to produce the same reaction. The dose should be increased by ¼ minim when given into the tumor; by ½ minim when injected remote from the tumor, until the desired reaction is obtained. The best results are obtained by doses sufficiently large to produce severe reactions, say a temperature of 102° to 105°.

The frequency of the injections must depend entirely upon the strength of the patient, some being able to bear daily injections, while in others it may be unwise to push the treatment beyond three or four injections a week.

In the successful cases the effect is usually very promptly noticeable. The tumor becomes smaller in size, much more movable, and very much less vascular. These changes appear very quickly, often within two to three days.

The action of the toxins is both local and systemic. Sometimes the best results are obtained by giving the injections alternately into the tumor and remote from the same. In tumors in inaccessible regions, *e.g.* intraabdominal sarcoma, or sarcoma of the tonsil, a perfect cure may be obtained entirely by systemic injections.

Some twelve years ago, when I published my early cases successfully treated with the toxins (Transactions of the Amer. Surg. Assoc., 1894), it was but natural that there should be attempts made to explain these successes by every possible means, rather than admit that a new agent had been discovered that actually caused the disappearance and apparent cure of an inoperable malignant tumor. In view of the innumerable claims that have been and are still being constantly put forth in behalf of new remedies for the cure of cancer, it is well that there exists such deep-rooted skepticism on the part of the medical profession, and unless a new remedy can overcome this skepticism and can successfully meet every test known to scientific medicine, it should be allowed to die a natural death and take its place among the

other remedies that have had their ephemeral existence and are now resting in quiet oblivion. For this reason, a considerable period of time—several years at least—must necessarily elapse as a trying-out period of any new remedy for malignant tumors, in order that every chance for error of diagnosis may be eliminated and that the after-history of patients supposed to have been cured, may be carefully traced to determine whether the cure has been temporary or permanent.

In the case of the mixed toxins, which I have now been using since 1892, it would seem that the testing period had been sufficiently long for us to be able to determine in an impartial and judicial way the value of the method. The early successes were explained away on the ground that there must have been an error in the diagnosis; and if only one or two or three successes had been obtained such explanation would be right and proper, but, as time has gone on, other successes have followed, and these have now reached such numbers (I have had 42 personal successes and there have been nearly 100 in the hands of other surgeons) that, to explain them as errors of diagnosis or as cases of spontaneous disappearance would be neither a judicial nor a scientific disposition of the problem. These cases have in nearly every instance been diagnosticated as sarcoma by the leading surgeons of America, they have not been cases seen in the early stage of the disease, in which the diagnosis is often difficult, but were all far-advanced, inoperable cases, entirely hopeless from any other method of treatment. In nearly every case careful microscopical examination was made by the most expert pathologists of the land, including Professors Wm. H. Welch of Johns Hopkins, W. T. Whitney of the Massachusetts General Hospital, James Ewing of Cornell, Hy. T. Brooks of the Post-Graduate Hospital, T. Mitchell Prudden of Columbia, and John T. Caven of the University of Toronto.

Furthermore, in many cases a history of local or general recurrence following a previous operation has rendered the diagnosis as nearly absolute as would seem possible; and yet there is one other fact that carries us a step further and establishes the diagnosis beyond any possible doubt, and that is the fact that in several of these cases in which the tumor disappeared under the toxin treatment and the patient remained well for several years, there followed a recurrence of the trouble which finally caused death. We must admit in these cases that the toxins caused the entire disappearance of an inoperable tumor, clinically and microscopically sarcoma, which finally returned and caused the death of the patient. Is it not much more rational, then, and more scientific to grant that in the other cases in which the tumors, clinically and microscopically sarcoma, disappeared under the influence of the mixed toxins, were likewise actually and truly sarcoma, rather than to attempt to explain them away as errors in diagnosis?

There are some men who attempt to explain the successful cases on the ground that they were syphilitic tumors, rather than sarcoma. But a careful study of these cases, the clinical features of the tumors, the history of local or general recurrence after operation, combined with the microscopical examinations by the highest authorities in pathology, would seem to leave such explanation without any reasonable basis. If the cases of cures were confined to round-celled sarcoma, which, on microscopical examination, does sometimes closely resemble syphilitic lesions, there would be some slight ground for this opinion, but the type of sarcoma that has shown the best results from the treatment has been the spindle-celled, which is practically never confounded with syphilitic growths. The history of one of my cases has an important bearing in this connection:

Case I.* *Inoperable Spindle-celled Sarcoma of the Abdominal Wall and Pelvis Treated with the Mixed Toxins of Erysipelas and Bacillus Prodigiosus from December, 1892, to June, 1893; Entire Disappearance, Patient Well at Present, Fourteen Years Later.*—J. F., aged sixteen years (at the time the treatment was begun), suffering from a large tumor involving the lower portion of the abdominal wall, attached to the bladder and pelvis. The patient, who was confined to his bed and had lost considerable weight, was referred to me by Dr. L. Bolton Bangs, in December, 1892, as a totally hopeless, inoperable case. A portion of the tumor was removed for microscopical examination, and was pronounced spindle-celled sarcoma by Dr. H. T. Brooks, pathologist at the Post-Graduate Hospital. He received injections with the mixed toxins of erysipelas and bacillus prodigiosus from December, 1892, to June, 1893. At the end of this time the tumor had entirely disappeared. The patient received no further treatment and has remained perfectly well up to the present time. I presented him before the meeting of the New York Surgical Society in November, 1906.

This case, in addition to representing my oldest cure (well fourteen years) is of peculiar interest from another standpoint, *i.e.* the theory of possible syphilitic origin. The age of this patient was sixteen years at the time the treatment was begun; there was absolutely no history nor evidence of congenital syphilis. Six to seven years after the tumor had disappeared in this case and the boy had grown up into manhood, he contracted a typical primary lesion of syphilis, for which I treated him and which ran the usual course, practically proving that his original tumor of the abdominal wall and pelvis which had disappeared six years before under the toxin treatment, was really spindle-celled sarcoma, as shown by the microscope, and not a syphilitic growth. If we are to explain away the toxin cures in this way, it is clearly only fair to apply the same rule to the cures following operations.

Aside from the criticism and skepticism that any new method must undergo and should be glad to meet, there is another kind of skepticism that has long been characteristic of the medical profession, and which still exists, though perhaps in a less pronounced degree than in former years. As one of the most striking examples of this type, I will cite the early experience of Oliver Wendell Holmes in his attempt to prove the contagiousness of puerperal fever, in 1843. With a great deal of labor Holmes had collected from original sources here and abroad such a mass of evidence in support of the opinion that puerperal fever was a contagious, communicable disease, that it seemed impossible that any man capable of simple thinking and of sufficient independence to have an opinion of his own could fail to be convinced. And yet, what was the result? Nine years after the publication of Holmes' elaborate paper, we find two of the leading professors of obstetrics in America, Hodge and Meigs of Philadelphia, do their utmost to controvert the proven thesis of Holmes. To quote from their own words: "The result of the whole discussion will, I trust, serve not only to exalt your views of the value and dignity of our profession, but to divest your minds of the overpowering dread that you can ever become, especially to woman,

*This patient was to have been presented at the meeting on May 3, 1907, of the Academy of Medicine, but was detained by business matters.

under the extremely interesting circumstances of gestation and parturition, the minister of evil; that you can ever convey, in any possible manner, a horrible virus, so destructive in its effects, and so mysterious in its operations as that attributed to puerperal fever." (Prof. Hodge, 1852.)

"I prefer to attribute them to accident, or Providence, of which I can form a conception, rather than to contagion of which I cannot form any clear idea, at least as to this particular malady." (Prof. Meigs, 1852.)

As in the times of Holmes, there are still many medical men who "are not satisfied with proof. They cannot believe a point is settled so long as everybody is not silenced."

Such has been the type of skepticism the toxins have had to meet. Yet there is increasing evidence within the last two years that the end of such skepticism is drawing near, and the profession are beginning to appreciate the fact that the method has an important place in the treatment or sarcoma. This method is not a substitute for operation, and there is no stronger advocate than I, of early and thorough surgical treatment of every type of malignant tumor that is not too far advanced for operation. But after all that has been done that surgery can offer, there remains at least 75 per cent. of malignant tumors in which the disease is either too far advanced for operation when first seen by the physician, or which have recurred after operation and are no longer removable by surgical means. It is in this class of cases, the most pitiable of all that come to us for aid, that we must look beyond surgery for means to help. That we cannot cure all such cases is no reason we should refuse to save the few that it has been shown possible to save by the use of the mixed toxins. That we can save from 10 to 15 per cent. of such otherwise hopeless cases of inoperable sarcoma, has been demonstrated, and there is reason to hope that further investigation along the lines of preparing the toxins, together with greater experience in their administration, will enable us to obtain far better results.

In addition to employing the mixed toxins in cases of strictly inoperable sarcoma, I have, recently, advocated their preliminary use in sarcoma of the long bones, before sacrificing the limb, and the limb has been saved in a sufficient number of such cases, I think, to justify the wisdom of this course. (Sarcoma of the Long Bones, with a Report of 68 Cases. *Annals of Surg.*, March, 1907.)

Up to the present time I have been able to collect twelve cases of sarcoma of the long bones, three personal cases and nine reported by other physicians, in which the use of the toxins has rendered amputation unnecessary. In eight of these cases the sarcoma was of the round-celled variety, in two spindle-celled, and in the remaining two no microscopical examination was made, but amputation had seemed the only means of saving the patient's life.

Eight of these cases remained alive and well and free from recurrence from three to eight years; one for two years; one for one year; two for less than six months.

The seat of the disease in these cases were as follows: Tibia, six; fibula, one; femur, three; radius, one; humerus, one.

There is a new field for the use of the toxins in which, I believe, the results will far surpass anything that has hitherto been accomplished in inoperable sarcoma; that is, their employment after all primary operations for sarcoma, and possibly carcinoma, as a prophylactic against recurrence. While up to the present time the data are not sufficient to amount to absolute proof of the wisdom of such a course, they certainly furnish very strong reasons in its favor. Theoretically it would seem rational to assume that, if the toxins exert an inhibitory or destructive action systemic in character sufficient to cause the disappearance and permanent cure of large, inoperable tumors, they would be much more likely, when given after primary operations, to destroy the few cells that were left behind after such an operation, and which form the basis of recurrence which follow in at least two-thirds of all cases.

The practical grounds in favor of adopting this plan are that in about twenty-five cases in which I have myself carried out such prophylactic treatment the number of recurrences has been extremely small. A number of other surgeons are already using the toxins in this way.

When used as a prophylactic measure, it is unnecessary to give the large doses that one must use in cases of inoperable sarcoma; the patient need not be confined to the bed and may pursue the regular routine of life; only sufficiently large doses should be used to cause a slight rise of temperature, say 99° to 100°, repeated three or four times a week. It is impossible to state how long such treatment should be carried out. My own plan has been to give two or three periods of treatment from four to six weeks in duration. I believe the treatment given in this way is devoid of danger, and think it will cut down the number of recurrences by more than one-half.

The following histories include those of patients presented before the New York Academy of Medicine, Surgical Section, May 3, 1907. Cases II. to VIII. were shown at this time.

Case II. *Sarcoma of the Pectoral Region (Breast and Axilla) Cured by the Mixed Toxins; Well Eleven Years.*—Miss E. F., aged forty-two years. Grandmother died of cancer of the breast. Has always been well. She first noticed a lump in the outer border of the left axilla, extending upwards to the supraclavicular region, in October, 1895. This grew very rapidly until it reached the size of a small orange; it was firmly adherent to the deep parts and extended around into the axilla and involved a portion of the breast. By December 15, 1895, it had become so firmly adherent to the axillary fascia that on consultation, Drs. Storrs and Knight of the Hartford Hospital decided it to be entirely inoperable. An exploratory incision was made and a portion of the tumor removed by Dr. R. H. Griswold, who pronounced it a spindle-celled sarcoma. A section was sent to me and I had the diagnosis verified by Drs. E. K. Dunham and Buxton, pathologists to the New York Cancer Hospital, and finally by Dr. W. H. Welch of Johns Hopkins, all of whom agreed that it was spindle-celled sarcoma. The treatment with the mixed toxins was immediately begun under my direction by Dr. R. H. Griswold, the associate of Dr. Storrs. The tumor immediately began to show improvement and the patient soon began to gain weight which had fallen off twenty-four pounds since the tumor was discovered. The injections were given four or five times a week in the neighborhood of the tumor and the treatment was continued until seventy-eight injections had been given. At the end of this period the tumor had entirely disappeared and the patient had recovered her normal health. I presented her before the New York Surgical Society eleven months later, in 1896, and she has remained well up to the present time eleven and one-half years after the disappearance of the growth.

Case III. *Round-celled Sarcoma of the Tonsil and Nasopharynx with Metastases in the Neck; Disappearance under the Mixed Toxin Treatment; Re-*

currence a Year Later.—W. C. C., forty-two years of age, shoemaker, born in New Hampshire. Father died of cancer of the liver. In January, 1906, the patient noticed a lump on the right side of the neck, under the angle of the jaw; at about the same time he noticed a swelling in the right side of the pharynx, behind the tonsil. Both tumors increased in size rapidly. Two months later a similar tumor appeared in the left side of the neck. He never had any pain. The patient soon began to lose weight rather rapidly. He also began to notice difficulty in talking clearly. This was apparently due to an obstruction in the nasopharynx. He was referred to me on May 29, 1906, by Dr. T. J. Reardon, a throat specialist of Boston. Physical examination at this time shows a tumor the size of a goose egg, extending from the angle of the jaw on the right side to the mastoid process. The tumor is smooth in outline, not infiltrating the surrounding tissues, skin not adherent, and of about the consistence of a round-celled sarcoma. A similar tumor is present on the left side, though not quite so large. On the right side of the throat anteriorly to the tonsil is a mass extending up to the uvula and nasopharynx, moderately firm in consistence and not ulcerated. Clinical diagnosis: Round-celled sarcoma. The patient's general condition showed considerable loss of weight and beginning emaciation. My prognosis was so bad that I did not think it worth while even to take a specimen for microscopical examination, although I had a photograph taken. He entered the General Memorial Hospital on May 29, 1906, and was discharged on July 9. He was immediately put upon the mixed toxins of erysipelas and bacillus prodigiosus, the injections being made alternately into the tumors of the neck and the pectoral region. The initial dose was ½ minim; this was gradually increased until he received 14 minims in the neck and 22 minims in the pectoral region. Very severe reactions resulted, the temperature ranging between 103° and 105°. After two weeks' treatment there was marked softening and decrease, both in the tumors of the neck and tonsil. The treatment was pushed to the utmost limits that his strength would endure and, naturally, his loss of weight continued. On July 9, after he had had thirty-one injections in all, I advised his going home for a period of recuperation. At the time he left the hospital, although there had been considerable decrease in the size of the tumors and marked softening, I did not believe there was any reasonable hope of final success. After his return to Boston the softening continued, especially in the nasopharyngeal tumor, and he had several very severe hemorrhages, losing as much as a pint of blood at a time. He saw a surgeon in Boston, who first recommended ligation of the external carotids, but finally decided that his general condition was too low to warrant the operation. Aside from prayer treatment and some patent medicines which he took internally and which may have contained iodide of potassium, nothing further was done until the latter part of September, 1906, when he again consulted Dr. Reardon, after which the latter wrote me as follows: "You probably remember the patient I sent to you some four or five months ago, Mr. C. I have seen him to-day and the result is simply miraculous. He presents no glandular swelling at all on the left side; on the right side there is some swelling about the subcutaneous tissues over the sternocleidomastoid muscle where you injected the toxins. The punctures are still surrounded by a slight bluish-red area. The throat is practically free from all swelling, except on the right side the mucous membrane posterior to the posterior pillar of the fauces presents a whitish, flabby appearance, but there is no mass behind it. The roof of the pharynx is absolutely free from all signs of the growth." A few weeks later all evidence of the swelling, even on the left side, disappeared and the patient has remained well up to a few weeks ago.

Although when seen by Dr. Reardon as well as myself and my colleagues at the hospital, Drs. Dowd and Downes, there was absolutely no doubt in our minds that the tumors were sarcoma, we still regretted the fact that no microscopical examination had been made to establish absolutely the character of the growths. Unfortunately for the patient, but fortunately for the scientific value of the case, a few weeks ago, there was a recurrence on the left side of the neck, a little above the tumor that had disappeared under the toxin treatment. This slowly increased in size, and the patient came to me about two weeks ago, presenting a tumor about the size of a hen's egg under the left angle of the jaw, smooth in outline, not adherent to the skin, semi-fluctuating in consistence. There was absolutely no return of the disease on the right side or in the pharynx. He was admitted to the General Memorial Hospital and Dr. Downes made an incision over the tumor and found it had broken down in the center and more or less infiltrated the periosteum of the jaw. The tumor was removed as far as possible, although there was considerable left behind. Microscopical examination showed it to be *small round-celled sarcoma.* The patient has again been put upon the mixed toxins and the treatment will be continued for a number of weeks.

In view of the recurrence and microscopical examination there can be no longer any doubt that the primary growth was sarcoma, and, considering the extensive involvement of the same with large metastases in both sides of the neck, it certainly represents one of the most remarkable cases that have yet been recorded.

Case IV. *Round-celled Sarcoma of the Ulna.*—J. D. S., twenty-five years. Family history good. On December 8, 1898, Dr. Geo. Tully Vaughan amputated the right arm in the lower third for sarcoma of the ulna. The patient at that time gave a history of having a "greenstick" fracture of the right ulna three years before, from which he recovered. This case I have reported fully in a recent paper on Sarcoma of the Long Bones (*Annals of Surgery*, March, 1907) and will give only a brief résumé.

After the amputation the patient made a good recovery and remained well until February, 1906, when he noticed an increase in the size of his abdomen, but had no pain and paid no attention to it. In the beginning of October, pain developing, he consulted Dr. J. W. Perkins of Kansas City, Mo., who referred him to me. Physical examination, October 29, showed the right arm absent, no local recurrence nor evidence of a return of the disease in the axilla. Examination of the abdomen showed the same markedly protuberant, but symmetrically enlarged. Palpation showed the abdomen filled with an enormous tumor, extending from the ensiform cartilage nearly to the symphysis pubis; the intestines being pushed over to the left side. Several large masses, each the size of a child's head, more or less independent from one another, could be made out. They seemed to start in the retroperitoneal glands, involving the mesentery and omentum; no ascites.

The patient was put upon the mixed toxins in November, 1906, with little hope of doing him much good, but at the end of one month's treatment there was a marked decrease in the size of the tumors and the circumference of the abdomen had steadily di-

minished. The treatment has been continued up to the present time, with several periods of rest from three to four weeks in duration. The patient has regained his normal health and the circumference of his abdomen has decreased over five inches. The masses in the abdomen are much more discreet and more movable.

Case V. *Small Round-celled Sarcoma of the Neck and Tonsil; Entire Disappearance in Seven Weeks under Treatment with the Mixed Toxins.*—H. M., aged thirty-two years; harness-maker by occupation; family history good. The patient was referred to me on October 17, 1905, by Dr. Arpad G. Gerster of New York as an inoperable case of recurrent, small round-celled sarcoma. The patient gave the following history: In about the middle of August, 1905, he noticed a swelling on the left side of the neck, just behind the sternomastoid muscle. At about the same time he also noticed an enlargement of his left tonsil; there was no pain at first, but as both tumors increased rapidly in size they soon became painful. In the latter part of August, 1905, the patient was operated upon at St. Mark's Hospital by Dr. Carl Beck, who made an attempt to remove the tonsil tumor, as well as that of the neck; he found it impossible, however, to make a complete excision. The patient was immediately put upon the *x*-ray treatment every other day, and also received radium treatment externally and internally; the latter, however, had little, if any, influence in checking the rapid growth of the tumor. On October 13, while under the care of Dr. Goldwater at the New York Polyclinic, a portion of the tonsil tumor was removed and examined by Dr. F. M. Jeffries, director of the Pathological Laboratory of the New York Polyclinic, and also by the Pathologist of the Practitioners' Laboratory, both of whom reported the tumor to be a small round-celled sarcoma. On October 17, the time that I first saw the patient, physical examination showed the following condition: The left side of the neck was occupied by a globular tumor, about the size of half an orange; it extended from the angle of the jaw in front to the mastoid process behind and downwards nearly to the clavicle. Its consistence was about the same as that ordinarily found in round-celled sarcoma; the skin was not adherent. Examination of the left tonsil showed it enlarged to two to three times its normal size. The patient's general health had been but little affected. He was admitted to the General Memorial Hospital on October 17, 1905, and immediately put upon the mixed toxins of erysipelas and bacillus prodigiosus without any other treatment. Daily injections were given, alternating, one day into the tumor direct, the other, into the pectoral region. The highest dose given was seven minims; his temperature ranged between 99.5 and 103°. In less than a week there was decided decrease in the size of the tumor and increase in mobility. The diminution continued steadily until, at the end of six weeks, both the cervical and tonsil tumors had apparently entirely disappeared. The patient was shown before a meeting of the Harvard Medical Society on November 25, 1905, and before the New York Surgical Society in January, 1906. He left the hospital at the end of seven weeks, and, although there were no visible remains of the tumor, the toxins were kept up twice a week in the pectoral region for about three months as a prophylactic against further recurrence.

It is interesting to note that the toxins used in this case, prepared by Dr. B. H. Buxton of the Lederle Laboratory, were eight months old.

Case VI. *Round-celled Sarcoma of the Dorsal Spine.*—Mr. G., aged twenty years. Diagnosis confirmed by Dr. Harlow Brooks, pathologist of the Bellevue Hospital. The tumor was of enormous size, involving the lower dorsal and upper lumbar vertebræ. The patient had lost about fifty pounds in weight, and there was so much pressure upon the spinal cord that there was total paralysis of the lower extremities, bladder, and rectum, and he was so weak that he was unable to turn over in bed. Seen in consultation with Dr. V. P. Gibney of the Montefiore Home, in February, 1902. The mixed toxins of erysipelas and bacillus prodigiosus were begun and continued by the house staff under my direction; daily injections were given up to the following May, and severe reactions, temperature of 103° to 104°, followed most of the injections. Patient began to show improvement, local as well as general, almost at once. By September he was able to get out on crutches. In November he was shown before the New York Surgical Society by Dr. John Rogers. At that time he had regained nearly his normal weight and got about very well with the aid of a cane. In February, 1903, one year after treatment, he was able to walk perfectly well without support of any kind, and his general health had become perfect. He was able to resume his former occupation.

This I believe to be the most remarkable result ever obtained from the use of the toxins. Fortunately, there can be no doubt as to the diagnosis, since the tumor was not only examined by well-known pathologists, but specimens of the tumor have been preserved. I have shown this patient before various medical societies the past two years. He remained in perfect health five years after treatment.

Case VII. *Round-celled Sarcoma of Femur Involving the Lower Two-thirds of Shaft.*—A. G., aged nineteen years. A swelling was first noticed in the lower portion of the femur in November, 1901. This gradually increased in size, being accompanied by loss of weight and deterioration of general health. Physical examination on February 5, 1902, showed a large tumor extending from the condyles of the left femur to the junction of the middle and upper thirds. There was a fusiform enlargement of the entire lower two-thirds of the femur. On the outer aspect of the thigh, about one and one-half inches above the joint, there was a soft, fluctuating area just covered by thin and reddened skin. There was slight impairment of the functions of the joint itself. An incision was made under ether into the fluctuating area, and two or three ounces of clear serum, similar to that which is found in cystic degeneration of sarcomatous tissue, were evacuated. A curette was passed into the cavity of the bone and typically sarcomatous tissue removed. Microscopic examination by Dr. E. K. Dunham and Dr. B. H. Buxton showed it to be a round-celled sarcoma. The patient absolutely refused amputation at the hip, which I strongly advised.

The *x*-ray treatment was tried entirely as an experiment, four exposures a week being given for a month, at the end of which time the circumference of the tumor had decreased one inch. The treatment was discontinued for two weeks, during which interval the tumor had again increased nearly an inch. The treatment was resumed, and at the end of another month the circumference of the thigh over the center of the tumor was one inch less than the original measurement. The treatment was continued the entire summer to December, 1902. At this time the measurement of the left leg was the

same as that of the right. There was still some thickening in the lower part of the femur. The old sinus, which had never healed after the exploratory incision, was enlarged under ether and carefully curetted. Examination of the tissues failed to show any trace of sarcoma. The patient had gained twenty pounds in weight, but towards the end of December, 1902, began to show signs of a metastatic tumor in the left pectoral region; this grew rapidly until it became about the size of a hand, when it was partially removed under ether anesthesia; it was found to be very soft and highly vascular. Shortly after this a large tumor, the size of a child's head, developed in the right iliac fossa, extending from the costal cartilages down to the pelvis; it could be easily felt in the lumbar region. The local treatments with the *x*-ray in the femur and pectoral regions were continued, and in addition the mixed toxins of erysipelas and bacillus prodigiosus were begun. After a few weeks the large tumor in the iliolumbar region began to soften and break down, and on becoming completely fluctuating was opened posteriorly. A very large amount of necrotic tumor tissue was evacuated and the sinus was drained for about a year. While the tumor in the leg had apparently disappeared, there remained a marked thickening of the bone, and the sinus leading to the broken-down area persisted. Examination of several curettings failed to show any longer evidence of sarcoma. At the present time, four years after beginning of treatment, aside from the sinus in the leg, the boy appears to be in perfect health. There is at present no evidence of sarcoma to be found.

Case VIII. *Periosteal Round-celled Sarcoma of the Femur; Mixed Toxins Used before Amputation with the Result of the Apparent Saving of the limb.*—H. K., male, aged 10 years. Admitted to Dr. Gibney's service at the Hospital for Ruptured and Crippled on November 12, 1906, with the history of sporadic and severe pain in the left femur since July, gradually increasing to such an extent that the child was often awakened at night and cried during the day. His general condition was much impaired. He was treated for rheumatism for a time; a fusiform swelling of the central portion of the left femur was noticed shortly prior to his admission to the hospital.

Examination on admission showed a fusiform swelling of the central two-thirds of the shaft of the left femur six and a half inches long, extending to within two and a half inches of either extremity of the bone. There was irregular temperature of 101° to 102° and some local heat. The tumor extended entirely around the femur and was apparently about one-quarter to one-half inch in thickness. I saw the case in consultation with Dr. Gibney, and we believed the condition to be periosteal sarcoma. The diagnosis was confirmed by an exploratory operation which I made the following week. A periosteal tumor was found with tissues typically like sarcoma, and the diagnosis of round-celled sarcoma was made by Dr. Jeffries, the Pathologist of the Hospital for Ruptured and Crippled, and also by Dr. James Ewing of Cornell. Under my advice Dr. Gibney agreed to place the boy under the toxin treatment before amputating the limb, which in this case would have been a hip-joint amputation. The pain subsided almost immediately and the tumor showed a decrease in size. On two different occasions the doses were diminished and given only once or twice a week, instead of every day, and on both occasions the tumor at once began to grow rapidly, each time subsiding under increased doses and more frequent injections. In March he received five *x*-ray treatments. He is now getting the mixed toxins only once a week and there has been no further tendency to increase; the tumor has apparently nearly, if not entirely disappeared, the slight thickening that still persists being probably new bone formation which may never be entirely absorbed. The leg measures almost exactly the same as the other. The patient received in all eighty-three treatments.

The case is not shown as a cure; but to have been able to check and cause to practically disappear a rapidly growing round-celled periosteal sarcoma of the femur with the toxins, without sacrificing the limb, and to show the boy nearly six months later, is certainly worthy of report. This case, together with the similar one of round-celled sarcoma of the femur, with extensive metastasis cured by the toxins and well five years, goes far toward proving the wisdom of using the toxins as a preliminary treatment in sarcoma of the long bones before sacrificing the limb.

Case IX. *Inoperable Sarcoma of the Ilium* (no microscopical examination).—M. G., male, aged 13 years, referred to me by Dr. La Ferté of Detroit, Mich., in August, 1906. Family history good. Personal history: Two years before had fallen downstairs, striking on the left side of the pelvis; in bed two weeks; slightly lame ever since. The patient fell again a year later, striking on the same side; was laid up in bed for three weeks. Not long after the second injury there was noticed some diffuse swelling in the upper portion of the left ilium, near the crest and outer surface. This continued to increase steadily in size, accompanied during the last six months with some loss of flesh.

Physical examination in August, 1906, showed a tumor involving almost the entire left ilium, extending below and partially surrounding the trochanter. The tumor was of somewhat variable consistence, being hard in some places and soft in others; there was some limitation of motion in the left leg, especially on flexion of the thigh; there had been a good deal of pain during the last year, coming on in paroxysms. The patient was admitted to the General Memorial Hospital and immediately placed upon the mixed toxins of erysipelas and bacillus prodigiosus. Most of the injections were made into the gluteal region, some few into the tumor itself. The treatment was continued with three intervals of rest until March, 1906, since which time he has had no further injections. The tumor has nearly disappeared, although there is still some bony thickening of the ilium, which has materially diminished since the treatment was discontinued. He has nearly recovered from his lameness and has more than regained his lost weight, and is apparently in perfect health at the present time. The last examination was made on May 25, 1907.

I have had one other recent case, a sarcoma of the lower jaw, which disappeared under two months' treatment with the mixed toxins. The patient is still well at the present time, but the case is too recent to be considered a cure.

Case X.* *Inoperable Round-celled Sarcoma of the Tonsil and Neck Successfully Treated with the Mixed Toxins.*—A. L., age 11 years, Hartford, Conn. The patient was referred to me by Dr. William R. Porter of Hartford on November 8, 1906. The patient had always been in good health, except that she had had frequent attacks of tonsillitis. A year ago she had a small swelling in one of the glands on the right side of the neck. The mother does not know whether it entirely subsided or not.

*Cases X, XI, and XII presented before the Hartford Medical Society, May 27, 1907.

Two months ago she noticed considerable enlargement in this region, which increased rather rapidly. When examined by Dr. Porter in the latter part of October he discovered a large tumor, apparently originating in the right tonsil and nearly blocking up the pharynx. She was examined by Dr. McKnight and a number of other physicians in Hartford, and all considered the tumor inoperable. The patient was referred to me by Dr. Porter on November 8, 1906. Physical examination at this time showed a growth the size of half a hen's egg, on the right side of the neck, involving the pharynx wall and tonsil, nearly blocking up the passage. On the opposite side of the neck, just below the angle of the jaw, there is a tumor about the size of a small hen's egg, fairly movable, smooth in outline, fairly firm in consistence, skin not adherent. Diagnosis: Round-celled sarcoma of tonsil and neck. The toxins were begun November 9, 1906, and continued with two or three intervals of rest, one to three weeks in duration, up to the middle of May, 1907, the patient receiving in all between eighty and ninety injections, nearly all of which were given in the pectoral region; a few were given into the tumor of the neck, but none into the tonsil. After two or three weeks' treatment there was a marked softening of both neck and tonsil tumor. Examination in consultation with Dr. W. L. Culbert; the latter removed a portion of the tumor of the tonsil, and it was found that the central portion of the same had become entirely necrotic, and several drams of broken-down tumor tissue were curetted out. I also removed some tissues from the tumor of the neck, which also proved softened and necrotic in the center. Both specimens were examined at the Loomis Laboratory by Drs. Tracy and Buxton, and both proved to be round-celled sarcoma.

This patient was rather susceptible to the toxins, and was rarely able to stand more than two or three minims without a severe chill, followed by a temperature of 103° to 105°. The highest temperature was 106°.

In two months the tumor of the tonsil and the neck had entirely disappeared. Shortly afterward a new swelling developed in the neck, about one inch higher up. This swelling persisted for a long time in spite of continued and severe treatment. She also developed a small glandular tumor on the other side of the neck beneath the sternomastoid muscle. In February, while taking the treatment, she had a severe attack of herpes, involving the right pectoral region and entire right arm. This was extremely painful, and she was unable to take the treatment for about three weeks. In the early part of May there still remained some swelling in both sides of the neck, rather deeply seated, underneath the sternomastoid muscle, and I decided to explore under ether. I found the swelling consisted entirely of broken-down necrotic material which had not found an easy exit. Some of the tissues from both sides were sent to Dr. Tracy of the Loomis Laboratory, and microscopical examination showed no evidence of sarcoma remaining. The wound quickly healed. The patient was shown before the Hartford Medical Society on May 27, apparently perfectly cured.

Case XI.* *Recurrent Inoperable Round-celled Sarcoma of the Neck. Successfully Treated with the Mixed Toxins of Erysipelas and Bacillus Prodigiosus; Patient Well Five Years* (treatment carried out by Dr. McKnight of Hartford).—A. P., age 2 years 10 months. Family history good. The child had a small spot three-quarter inch in size in the right supraclavicular region, which was at first supposed to be a nevus. This gradually disappeared, but there soon followed a swelling above the right clavicle, which was first noticed in January, 1902. This increased very rapidly in size, and was operated upon on January 27 by Dr. William R. McKnight at the Hartford Hospital, two weeks after its first appearance. It was then about the size of a hen's egg. No microscopical examination was made of the tissues removed at the first operation. Dr. McKnight states that it appeared to be a series of cysts. The wound did not heal and the growth apparently returned. A second operation was done a few weeks later. The specimen removed at this time was examined by Dr. W. R. Steiner, Pathologist to the Hartford Hospital, who made the diagnosis of small round-celled sarcoma. It was impossible to make a complete removal, as at this time the disease involved most of the glands on that side of the neck. The patient was referred to me by Dr. McKnight for my opinion as to the wisdom of trying the mixed toxins of erysipelas. I saw the patient on March 8, 1902. Physical examination at this time showed a series of tumors just above the right clavicle and extending up to the mastoid region, occupying almost the entire supraclavicular and cervical region. Clinically, the tumors had every appearance of a rapidly growing, round-celled sarcoma, which coincided with the pathological diagnosis made by Dr. Steiner. Dr. S.'s report was as follows: "The growth on the side of A. P.'s neck was operated on twice at the Hartford Hospital. I did not see the portion of tissue removed at the first operation. A portion of the tissue removed at the second operation was hardened and sectioned. I first saw it when it was cut and stained. From a specimen then seen I made the diagnosis of small round-celled sarcoma."

Although with such a rapidly growing tumor, primary in the glands of the neck, I considered the prognosis extremely bad. I advised a trial with the toxins. The toxin treatment was carried out under my direction by Dr. McKnight of Hartford, and the injections were continued for about six weeks. At the end of this time the tumors had softened considerably and become much smaller in size. After the treatment was left off they continued to disappear by absorption and the child entirely recovered her health. She is well at present, five and a quarter years since the treatment was begun.

Case XII. *Very Large, Inoperable, Spindle-celled Sarcoma of the Gluteal Region, Recurrent; Disappearance Gradual; Three Months' Treatment with the Mixed Toxins at the Post-Graduate Hospital, 1893; Well at Present, Nearly Fourteen Years after Treatment.*—M. S., female, 30 years. Original tumor removed by Dr. McBurney at the Roosevelt Hospital. Within two years the tumor had recurred and reached an enormous size, occupying the whole gluteal region, apparently attached to, but not involving the bone. Under the toxin treatment the tumor disappeared slowly by absorption, without breaking down or sloughing. Examination five years later showed two small masses remaining at the site of the former very large tumor. These I excised, and careful microscopical examination showed them to be made up entirely of fibrous tissue. The patient has been in perfect health ever since.

Lack of space prevents my reporting in detail the other successful cases. Those who desire further information in regard to them will find a complete report in the March issue of the *American Journal of the Medical Sciences*, 1906, comprising 36 personal cases and 60 successfully treated by other men.

* Not previously reported.

Since the publication of this paper, I have had six other successful cases, making a total of 42 cases. Of these 17 were round-celled sarcoma, 17 spindle-celled sarcoma, 2 mixed-celled sarcoma, 1 chondrosarcoma, 1 epithelioma.

In 4 no microscopical examination was made; yet the clinical features of the cases, such as recurrence after operation, rapidity of growth, size, and inoperability of the tumors, left hardly any doubt as to the diagnosis.

The late results in these cases are as follows: 21 well from 5 to 14 years, 26 well from 3 to 14 years, 10 well from 10 to 14 years.

The successful cases treated by other surgeons, brief histories of which I have given in the article referred to above (loc. cit.) show: 22 round-celled sarcoma, 14 spindle-celled sarcoma, 3 mixed-celled sarcoma, 3 endothelioma, 2 epithelioma, 16 in which no microscopical examination was made.

If the successful cases which have been reported to me since the publication of the paper mentioned were added, the number would, I believe, reach nearly one hundred.

THROUGH PHYSIOLOGY TO PATHOLOGY IN COMPLICATIONS OF GALL-BLADDER DISEASE.*

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Until recent times pathology as written was terminal. As a sequence various conditions discovered from time to time in conjunction with disease states were considered as in part independent of the same, and given a specific term, "complication." Recent betterment of knowledge, obtained through experimentation on animals, through minor lesions existing without symptoms, discovered by the surgeon, and through advances in our knowledge of biochemistry, has demonstrated that these so-called complications are but an extension of the primary disease to other structures through channels of least resistance. Intensity of focal action and negative resistance on the part of the organism are the reasons for numerous lesions existent, but more or less quiescent in demonstration, while the original lesion, through its intensity, develops a train of symptoms masking all others.

Conditions leading up to an extension of disease processes of the region under discussion are (1) receptive nerve states; (2) obstruction of the flow of bile, on the one hand depriving the intestine of its accustomed fluid, and on the other the physiological and dynamic conditions induced by its failure to be discharged; (3) conditions of tension; (4) bacterial invasion, either ascending from the duodenum or transmitted through the blood; (5) inflammatory states in surrounding structures and their concomitants; (6) ulcerations through calculi; (7) hyperplasia of regular or irregular development.

1. When we consider that the gall-bladder region is supplied by filaments from the three divisions of the nervous system, the cerebral through the pneumogastric, the spinal, and the sympathetic, it is not to be wondered that a person in great pain should, through defect of nerve tone, have some disturbance in parts innervated by one or the other of these same nerves.

It is a matter of common observation that intense pain long continued produces a condition analogous to shock, viz., high tension, cold extremities, pallid and moist skin, etc. It is further observed that heart murmurs may develop at this time, persisting for one or more days after the pain has ceased. The plausible inference is that a paretic condition of the auriculoventricular ring has been induced, preventing a proper approximation of the valves. This, in degenerate hearts, may be sufficient to lead to death.

Reflexly through the sympathetic and pneumogastric, in interstitial pancreato-choledochitis, the parotid may be affected, characterized by excessive flow of saliva. Through the splanchnic, which has a continuity of neuron (differing from the spinal in that respect), we frequently obtain acute dilatation of the stomach or of portions of the intestinal tract, and may even find volvulus induced as a result of irregular intestinal peristalsis.

If appendicitis be preexistent without complete resolution, the lowered nerve tone may express itself there in pain and tenderness, substituting, as it were, the receding colic.

2. To state correctly the defects in digestion and intestinal tone due to the more or less complete suppression of bile flow, one should know the physiological value of the head of the pancreas as distinguished from the body and tail, as the former embryologically might be considered as an accessory to the liver, being an evagination from the common bile duct, whereas the latter is developed from a separated part of the duodenum. Later they seemingly become amalgamated, the ducts coalescing, nevertheless, by careful dissection the head may be cleaved from the body.

An important property of the bile, perhaps not fully appreciated, is its high surface tension. As oil thrown on water spreads out broadly, becoming iridescent on account of its tenuity, so bile entering the intestines drop by drop will disseminate over a large surface, invigorating the intestinal epithelia, so that, through their contained antienzymes protection ensues against both the acid stomach contents and the trypsin of the pancreatic juice, and also organic iron is more readily absorbed.

Defective elimination of bile, whether from obstruction or physiological causes, is often attended by a costive habit and a production of intestinal gases, probably due to absence of the cholates in the upper intestinal tract, Nature's physiological cholegogue.

If the bile be shut off from the intestinal tract largely or completely, we have, unless the hormones of appetite cut down fat-hunger, a putrefaction of fats coming on higher up in the intestinal tract, inviting the gas and colon bacilli to ascend higher than normal in their destructive work; the pepsin and hydrochloric acid from the stomach are not as promptly neutralized, and the pancreatic juice loses its physiological stimulus. As a result of these perversions we have increased tendency to epithelial degeneration, duodenal ulceration, diminished absorption of the products of digestion, and increased absorption of the products of putrefaction with their diverse effects and constipation.

If the obstruction be in the common duct and be persistent, bile will yet be secreted, only to be reabsorbed through the lymphatics, rendered patent by distention and rupture, leading to icteric conditions and cholate toxemia, with its depression of the central nervous system and terminal coma. This toxemia affects tissue cells of all types, injuring the capillary endothelia leading to spontaneous hemorrhages, the renal cells producing nephritis, the liver

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and pancreas causing glycosuria, the blood retarding coagulation and inducing hemolysis.

If the obstruction be to the cystic duct, the bladder gradually enlarges from accumulation of secreted fluid containing large quantities of mucus. The coloring matter of the bile is first absorbed, and the bile salts next, the remaining fluid possessing none of its original characters.

If the obstruction be at the common orifice of the bile and pancreatic ducts, bile may pass into the substance of the pancreas and induce thereby the several types of pancreatitis—the interstitial and even the acute with hemorrhage.

3. Bile is secreted under low tension as compared with the product of some other glands. As a consequence, alteration in structure of the bile tract and liver induced through this condition will naturally be slow of progress. According as to whether the obstruction be steadily maintained or intermittent we shall have two distinct pathological results. Intermittent tension acts as an irritant, stimulating interstitial hyperplasia, which is followed by subsequent contraction. This gives interstitial choledochitis, the small contracted gall-bladder, and hypertrophic cirrhosis of the liver, occasionally associated with interstitial pancreatitis. On the other hand, when stasis is constant, the focus being on the gall-bladder, particularly when the obstruction is in the cystic duct, we obtain first, through compression, retardation of flow in the veins, then tissue degeneration, with or without preceding hyperplasia, terminating in the large and thick or fatty gall-bladders.

4. Through bacterial invasion, either ascending from the duodenum or migrating through the portal vein, local resistance being diminished, we have an extension and continuance of disease processes of a diverse inflammatory type. Bile not being bactericidal, and to a certain degree a culture medium, will harbor germs for an indefinite time. The gall-bladder without macroscopic evidences may be infested with *B. coli* or *B. typhosi* for many years, making the party an unconscious disseminator of typhoid fever. Suppurative cholangitis induces the intermittent fevers characterized by regularity of chills, and may produce multiple pyogenic foci in the liver. In the gall-bladder, particularly with impacted stones and tension, we may obtain acute cholecystitis and phlegmonous conditions leading to local or generalized gangrene.

5. By extension of inflammation surrounding structures become implicated—protective adhesions form with the omentum, which, if the inflammation be not too intense, may bring about resolution through the enzymes of the leucocytes and phagocytic action.

If adhesions attach the gall-bladder to the stomach, near the pyloric end or the duodenum, changes in position of the liver may produce traction on the same, inducing gastric dilatation, or evidences of irritation in the neighborhood of the adhesion. Massive adhesions to the transverse colon may inhibit its action, producing a similitude of cancerous invasion. A heavy pendant gall-bladder can in time drag downward the liver margin, so that thereby adhesions occur between it and the appendix, and even the pelvic organs.

If the gall-bladder be in any of its anomalous positions posteriorly or in the substance of the liver, conditions similating abscess formation in those parts may follow.

6. The pressure of calculi in inflamed or degenerate gall-bladders or ducts will, through pressure necrosis, cause ulceration; if adhesions form, calculi may pass through them to adjoining viscera, such as the stomach, intestinal tract, or urinary bladder; and if no adhesions occur peritonitis ensues. If a stone should slough out of the ampulla of Vater its sphincter muscle will be obliterated, and microorganisms and acid gastric juices before being neutralized by the alkaline juices of the duodenum will gain entrance to the pancreatic duct, particularly if Ochsner's ring be spastic, and set up some type of pancreatic disease.

7. Calculi often become impacted in the cystic duct, and after a process of time produce hyperplasia of the mucosa, which may take on adenomatous changes and eventually become a true adenocarcinoma, spreading by dissemination peripherally.

280 Montgomery Street.

REINFECTION WITH SYPHILIS;

REPORT OF A CASE WITH HEREDITARY SYPHILIS IN THE CHILD.*

By JAMES BREW, M.D.,

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On August 15, 1905, Mr. G. S., white, male, age 37 years, occupation saloonkeeper, consulted me at my office for a sore upon his penis. The chancre, which was situated in the fossa glandis, was first noticed July 14. The patient was of good physique, with no scars or blemishes on his body, except a scar on the glans penis, which he claims followed a *coitus ab oro*, and an abdominal scar as result of celiotomy. There were no deformities.

The father was dead, the mother was living and in good health. She was subsequently treated by me for passive congestion of the brain. She made a good recovery from this, and when last seen was in good health. Two brothers and one sister were living and in good health. The man was married to a widow five years ago, she having a living child by a previous marriage. There were no children from this marriage. The wife enjoyed excellent health up to about two months before her death, when she was operated upon for sarcoma of the cervix uteri, attributed to a lacerated cervix occurring at her confinement, and which had received no treatment afterwards; her age at death was twenty-eight years.

The patient's occupation necessitates irregular hours; he takes only such exercise as his business demands, which is chiefly walking to and from his business. The appetite is usually good, but he eats irregularly and often immoderately; uses tobacco and alcohol. His sexual life is in accord with his other excesses, and he cohabits promiscuously and at frequent intervals.

During childhood he had measles and whooping-cough; no other diseases of childhood. About one year ago he had an acute attack of appendicitis, made a good recovery from first attack, but had several recurrences during the year, and was finally operated upon; from this he made an uneventful recovery.

At the age of 17 years (or twenty years ago) he was treated by his family physician at his home in Louisville, Ky., for a venereal ulcer, the nature of which was at first in doubt. He describes this ulcer as appearing on the foreskin, and looking at first like a fever blister; it did not extend very rapidly, but soon became very hard; he had no bubo, and

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does not remember having had very much discharge, but the ulcer was very slow to heal. He continued under the care of this physician for four or five weeks, when he consulted another physician, the latter a venereal specialist. At this time an eruption had made its appearance and a diagnosis made was of syphilis in its second stage. He was given syphilitic treatment for three years, and took medicine as prescribed every spring and autumn for two years afterwards. Since the eruption disappeared he has never had any syphilitic manifestations, except six years afterwards (or nearly fourteen years ago), when he had syphilitic rheumatism, which responded to mercury and iodides. Since that time he has never had even a reminder. I have treated the patient personally for specific urethritis, stricture, and chancroid. He has had herpes several times; for this he never consulted a physician, he himself being able to effect a cure.

On July 14, 1905, the day before he went to the hospital for an operation for appendicitis, he called the attention of his medical attendant to a sore which had appeared on his penis. After an examination he was told that it was inconsequential; it was touched with a solution of silver nitrate and a cotton pledget was applied as a dressing. During his stay at the hospital the ulceration remained, but gave very little trouble; he dressed it several times, applied some form of dusting powder furnished by the hospital attendant, but did not call the attention of his medical attendant, as he did not consider it a matter of any gravity.

On August 15, after his dismissal from the hospital, I saw him for the first time for his present trouble. Upon examination I found an inflamed, nonadherent, densely indurated mass about the size and shape of a half peanut; there was no ulceration or excoriation, but it was of a dark-red color and congested appearance, not tender to the touch, but slightly so under pressure; very slight discharge. The inguinal glands on both sides were palpable, each gland separate and distinct; the post-cervical and epitrochlear glands were also palpable and slightly tender.

He stated that three weeks before going to the hospital he had intercourse with a prostitute; he was positive that he had had no other intercourse during the interval, for a few days afterward he suffered from the attack of appendicitis, for which he had to be operated upon. This sore first appeared as a papule; there was no pain, no tendency to spread, and no discharge. I have described as clearly as possible the course it pursued until I first saw it. The chancre was treated locally by washing daily with 1-5,000 bichloride of mercury solution, calomel powder, and bichloride gauze. No internal treatment was given whatever. Under this treatment the inflammation subsided, but the induration continued, and was present to a degree for several months afterwards.

On August 25, at his daily visit to my office, he complained of a severe headache, frontal, and a general aching throughout the body. He had suffered so much the night before that he was unable to sleep. Still not wanting to give anything internally which would influence his condition one way or the other, I directed that he take a Turkish bath that evening and remain at the bathhouse overnight and report to me the next morning. This he did; was still complaining of the headache, feeling very badly in general, had eaten nothing since the day before, and complained in addition of a very sore throat.

Upon examination I found his chest and abdomen pretty well covered with an eruption. This consisted of rose-colored blotches, not elevated above the level of the skin. In a few days it became darker in color, and finally copper-colored. The eruption extended to the upper part of the thighs and onto the buttocks. It was diagnosed as erythema maculatum. Throat examination showed a general diffuse redness, no points of ulceration; some discomfort and difficulty on swallowing.

Mercurial ointment inunctions were made nightly, changing the site of application each treatment. Pills containing one-half grain protoiodide of mercury were ordered, one pill to be taken three times a day, the dose increasing by one pill every other day until symptoms of mercurialism began to manifest themselves. Precautions were enforced as to eating; all alcoholic drinks were interdicted; smoking was permitted in moderation, and the patient was ordered to refrain from sexual intercourse and avoid sexual excitement.

Two days after beginning treating my patient was called to Louisville, Ky., on business. While there the mercury began to show its effect, causing a diarrhea; he called me up on the telephone to report his condition. I advised him to see his former medical adviser and to have him make a thorough examination of him; this he did.

The induration following the chancre was still present, as was also the glandular involvement, the eruption sufficiently distinct to be recognizable. The diagnosis of syphilis was confirmed, and the physician remarked that "if he did not know that he had had syphilis before, he would say that it was a new attack." The question was then asked if there could have been any doubt as to his having had syphilis when he had waited upon him fifteen years ago, but he was assured that it was syphilis then and that it was syphilis now.

In April, 1906, the patient was again married, but it is hardly necessary for me to say that he entered this state without my consent or advice. He was warned in advance that any children would in all probability be syphilitic. This forecast proved only too true. From the time of his last infection up to the time of his marriage he remained under my care and treatment, and with the exception of two or three instances, when he drank to excess, was a very good patient.

In March, 1907, his wife gave birth to a girl baby, well developed, weighing eight and one-half pounds, and to all appearances a normal child. During the past month, the child's seventh week of life, I was called to see her for what the mother supposed was a cold. Temperature and pulse were normal, appetite good, the baby nursing at regular intervals and digesting food. The bowels were slightly constipated, but otherwise normal. The child slept well. The chief symptom of concern was a coryza and snuffling, worse at night. I prescribed calomel and soda, to be followed with castor oil to cleanse the alimentary tract; in addition I gave Dover's powders in suitable doses, and an inhalation of compound tincture benzoin and paregoric. After three days of this treatment it was very apparent that the baby was not improving, the snuffles, if anything, being worse. Convinced that it was a case of syphilitic inheritance, I then prescribed half a grain of calomel, bicarbonate of sodium twice daily, and inunctions of mercurial ointment. For the nose I prescribed nitrate of mercury ointment, to be heated and applied locally. After the first few days the child began to improve, and at the present writing the snuffles have disappeared and the child is in fairly good shape. No eruption has appeared. The

treatment will be continued along the same lines as here outlined.

All authorities recognize three immunities against syphilis: (1) In a person who has suffered from the acquired form of the disease; (2) in a person who has inherited the disease from one or both parents (Profeta's law); (3) in a woman who has borne a syphilitic child without showing in her own person any of the lesions of acquired syphilis (Colles's law).

There are several sources of fallacy in diagnosing a second attack of syphilis that must be remembered: (1) A nonspecific general eruption may accompany a chancroid. (2) Impetigo contagiosa, ecthyma, or some form of eczema may be mistaken for true syphilis, and, if it follows a genuine attack, be cited as a case of second infection, or the first attack may have been impetigo or eczema and the second true syphilis. (3) A chancroid or mucous patch may become the seat of such marked inflammatory induration that it is mistaken for the true chancre. (4) A tertiary gummatous ulcer may be mistaken for a hard chancre. (5) There may possibly be such a thing as recurrent chancre. (6) Not infrequently chancre almost entirely disappears, yet a slight induration remains, which at some subsequent period enlarges into a similitude of a new initial sore (Lydston[1]).

White and Martin say:[2] "Although, as already stated, syphilitic reinfection is exceedingly rare, it unquestionably occurs in some few cases. In the great majority of cases reported, the symptoms could be more satisfactorily explained by regarding them as recrudescences of the original attack. Fournier states that reinfection is certain only when the following conditions can be noted in their proper chronological order: An indurated chancre with indolent inguinal pleiades; some weeks later, a typical roscola or other syphilitic eruption, cephalalgia, alopecia, or mucous patches; a complete absence of tertiary accidents for some years; finally a new indurated chancre after a suspicious intercourse with characteristic adenopathies, followed, after some weeks, by incontestable secondary manifestations, such as headache, alopecia, mucous patches, typical eruptions of the macular or papular syphiloderma, or other syphilides."

Taylor says:[3] "As a general rule, syphilis, like smallpox, scarlet fever, measles, etc., etc., attacks the individual but once in a lifetime, but a sufficient number of well attested cases have been published to warrant the statement that in certain rare instances syphilis does attack the individual twice in his lifetime. There have been published up to date about one hundred and sixty cases of syphilitic reinfection, and it is safe to say, allowing much latitude, that not thirty of the whole number are authentic instances. When we carefully review the whole subject we may admit that genuine second attacks of syphilis occur, but they are very rare. all unsuspected and putative cases should be approached with caution and reserve rather than with a sanguine and credulous spirit. Before a given case shall be accepted as true, and beyond controversy, the following facts must be established as clearly as possible: In the first attack, the existence of a true hard chancre, followed by characteristic adenopathies, and a clear history of the secondary stage and its lesions, and perhaps a tertiary stage. Then a sufficient long period of time should elapse in order to show that the diathesis has become extinct. Many cases have been reported in which only one, two, or three years only have elapsed between the two so-called separate attacks of syphilis. Such cases are, without doubt, apocryphal. In the light of the cases already published, it is not too much to say that no case is worthy of consideration in which the interval between the cure, or apparent cessation, of the first attack and the onset of the second one is at least not under five or six years. The future requirements are that the history and characteristics of the second chancre shall be satisfactorily made clear, and the involvement of the ganglia established beyond a doubt. Then the clear clinical picture of the period of general manifestations must be given before we accept the case as one of second infection with syphilis. If these requirements are fulfilled it is safe to say that in the future we shall not be favored, as we have been of late, about once in two or three months, with a new case of syphilitic reinfection."

Keyes says:[4] "Syphilis once acquired stamps its impress upon the individuality of the patient and becomes a part of him, and no power on earth, in a given case, can say when the impress disappears. A half century may pass away and the trail of the serpent is still visible. This is a fact, and as such must be recognized. It is of vast importance, and to shut our eyes to it would be folly. That we do not shut our eyes, even those of us who believe in an early and radical cure of syphilis, is sufficiently shown by the avidity with which in doubtful cases of skin and bone disease the history of the patient is carefully inquired into for a record of a pre-existing syphilis, which, if found, no matter how far distant, makes a diagnosis, establishes the treatment, and often leads to a cure. Yet in spite of this assertion, who shall say that syphilis is not curable? Occasionally cases are seen where syphilitic chancre is acquired a second time, followed by crops of secondary eruptions, and surely in these cases the old syphilis must have been cured, or the new case could not have occurred. The possibility of the duration of the effects of syphilis must be recognized by every intelligent physician who wishes to accept facts and desires to view syphilis in a practical light. The probability of the disease in most cases, however, is that its manifestations will disappear finally after a few years, and this under the intelligent management becomes almost a certainty."

Taylor again says:[5] "Syphilis in healthy persons, male and female, as a rule, runs a mild course, and its poisons eliminated from the system if active treatment is instituted at the proper time. Much depends on the docility and intelligence of the patient, who, if he enjoys ordinary good health and will follow up energetic but very carefully directed treatment, may, I am confident, be cured. Thirty years' study and observation of the nature and treatment of syphilis has convinced me that in most cases a cure is possible, whereas, in years gone by, we groped in ignorance, pursued faulty, even harmful, methods, and never felt ourselves masters of this insidious and far-reaching disease."

Lydston,[1] in reviewing cases of reinfection with syphilis, says: "Such cases are especially interesting, both from their rarity and from the fact that they must conclusively prove the curability of syphilis."

Marshall[6] says the following: "The curability of syphilis would appear to be proven by the occurrence of reinfection, and it is probable that most attacks are cured. A recent publication of Tarnowski[7] is of great interest in connection with this subject. He has collected fifty cases which he has followed up to forty years. The conclusions he arrives at are as follows: (1) Syphilis is curable at all periods of its evolution. The disease may be limited to the initial lesion, but cure generally takes place in the

second stage. A complete cure may happen in the tertiary stage. (2) Medication by mercury and potassium iodide was employed in the cases under consideration, but this treatment was not the only factor employed in the cure of syphilis. (3) A robust constitution, absence of hereditary predisposition, and freedom from other diseases are important factors. (4) The curability of syphilis is influenced by the resistance opposed by the organism —an inherent resistance peculiar to each individual which cannot be well defined. (5) The danger of syphilis depends on the localization of the symptoms and the phenomena known as parasyphilis."

"The analysis of Tarnowski's fifty cases gives the following: The disease ceased on the average twenty-eight years after the infection. Patients treated during the first four years with mercury and iodide of potassium remained free from any symptoms for twenty years. In one case only the disease was limited to the initial lesion. In thirty-one cases out of the fifty there were no tertiary symptoms; the rest were cured after having suffered from gummata. Of the forty-eight men who had had syphilis, twenty-seven married. Two women also married after infection. Of these twenty-nine marriages, six were sterile, twenty-three gave birth to sixty-three children, of which fifty-six presented no signs of hereditary syphilis. All of the patients with one exception belonged to the educated classes. Treatment was prolonged and most of the patients were given iodide of potassium for several years after a cure with mercury. Few of us are able to trace the history of our syphilitic patients for many years. Tarnowski covers more ground than most specialists and the cases reported by him are, therefore, of much importance."

Tarnowski's opinion regarding the curability of syphilis, the length of time necessary to effect a cure, and the results obtained in the fifty cases under his observation and reported by him, are, to say the least, very unsatisfactory from a cure standpoint, inconsistent, and not in accordance with the results obtained by the syphilographers of this time and age and with whom we are now familiar.

In the case which I report, the patient was treated twenty years ago for a venereal ulcer, followed in about five weeks with an eruption; he had mucous patches, and later a rheumatism which responded to treatment by mercury and the iodides. For fifteen years he had never had any symptoms of syphilis, not even the "reminders." At the time of his first infection he was treated at first by his family physician; upon the appearance of the eruption he was seen by a venereal specialist, a gentleman of recognized ability, and his condition was diagnosed as syphilis. He was put on mercury and iodide of potassium and the treatment was continued for three years. For two years afterwards he was under the care of this same physician and took such remedies as were prescribed for the period mentioned. Five years ago the patient married, and while there were no children as a result of this marriage, there is still an absence of any history of abortions or miscarriages.

Before his marriage, and after the death of his first wife, the patient had contracted other venereal diseases, he had led a life of excesses, both sexual and alcoholic, but there never was any suspicion of his original syphilis during this interval of fifteen years.

Four weeks previous to the appearance of his last chancre he had an intercourse with a prostitute, followed by a sore upon the penis. The character of that sore I have described. Just four weeks after the appearance of this sore he complained of frontal headache, worse at night, general aching throughout the body, sore throat, and the next day an eruption made its appearance after he had taken a Turkish bath. The character of this eruption I have also described. While the eruption, the induration following the chancre, and the glandular involvement were still present he consulted the physician who had treated him for his first infection. This physician confirmed the diagnosis of syphilis and further stated that he was just as sure that the attack twenty years ago was syphilis as he was of his present trouble being syphilis. After several months' treatment he married again, the child born of this union is most positively syphilitic and is now under my treatment for the disease. The mother has never shown any symptoms of syphilis.

This is most certainly not a case of tertiary manifestation, for it does not present any of the features that would justify my so calling it. The case, I think, meets all the requirements as laid down by Fournier, Taylor, White and Martin, and others, to justify my claiming it as a case of reinfection with syphilis.

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THE LONG-WAISTED WOMAN AND HER MOVABLE KIDNEY.*

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NEW YORK.

In 1902, the writer after carefully studying several hundred cases of splanchnoptosia, in a clinical lecture before the New York School of Clinical Medicine,[1] gave expression to the "developmental theory" of that disorder in the following terms: "At puberty, when the girl is rapidly increasing in stature, and her menses begin to drain the system, relentless custom adds to the enormous strain by interdicting skipping, running, and jumping. Healthful exercise may no longer be indulged in; she must be compressed within a corset; her clothing no longer suspended from the shoulders, but hung from the waist by tightly drawn bands, and the light, short skirts are exchanged for long, heavy, trailing dresses; yet we wonder that the health of the young girl breaks down when thus hampered, haltered, and harnessed. Ere long the plump, rosy-cheeked, vivacious girl becomes the sedate miss—anemic, dyspeptic, constipated, nervous, restless, sleepless; and her parents wonder why, fearing that the heretofore lovely girl is about to be carried off by consumption."

This change we believe to be brought about in the following way: "As the spinal column at this age rapidly lengthens it should carry upward all the viscera attached thereto, but owing to the weight of clothing and compression at the waist-

*Read by invitation at the annual meeting of the Suffolk County Medical Society, held April 25, 1907, at Patchogue, L. I.

line this process cannot take place: stretching of the ligaments occur, the viscera are prevented from rising, and hang at a level much below normal."

Whenever a patient in this class applies for relief we notice that she is slender, with undersized hips, her clothing fails to hide the almost masculine figure, and lacking the graceful curves of a well nourished woman.

When rehearsing her history, she does so in a sing-song fashion, with the glibness of an oft-repeated tale; involving disorder of the stomach and intestines, irregular pains, headache, lassitude, loss of flesh and strength, inability to attend to her duties or pleasures, and, most characteristic of all, inability to tighten her clothing and corsets or to wear any corsets at all.

For the purposes of this paper we have reviewed fifty cases, and careful measurements of these patients constantly show definite abnormality in one or more of the following respects: (1) The length of the trunk, as shown by the distance between the suprasternal notch and the upper border of the symphysis pubic, varies from 19 to 23 inches, regardless of the individual height, which ranges from 5 feet 1 inch to 5 feet 11 inches, approximately 26 per cent. of the subjects measuring 19 and 20 inches, and 23 per cent. 21 and 22 inches. But one girl 5 feet 3 inches in height measured 18½ inches, and another 4 feet 10 inches measured 18 inches between the same points, and a weight of only 90 pounds. (2) A deviation from the normal relation between the circumference of the waist and the hips over the great trochanters, of from 2 to 12 inches, and averaging a loss of flesh of 5 pounds to the inch, or from 10 to 60 pounds underweight. These factors are so constantly present that those who come in contact with large numbers of this class of patients learn to recognize them at a glance, and make the diagnosis at sight.

Inspection of the abdominal wall shows a characteristic configuration. A hollowing of the epigastrium (Fig. 2x), and a bulging of the hypo-

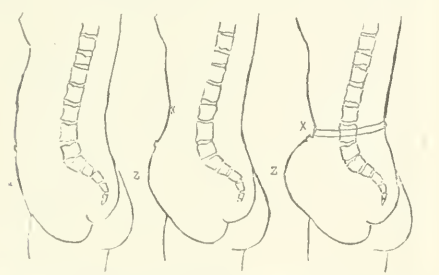

Fig. 1. Fig. 2. Fig. 3.

Fig. 1.—Contour of the anterior abdominal wall normal). Fig. 2 Lead tape in position, standing without clothes. Visceral ptoses. Fig. 3. Same patient with waistband tied. X shows point of greatest hollowing, Z point of greatest protrusion.

gastrium (Fig. 2z), the whole resembling an inverted interrogation mark. In thin walled individuals, a respiratory rise and fall of the greater curvature of the stomach can be distinctly seen.

In order to determine the real relation of the viscera, and show the excessive distortion when the woman has her garments on, it is our custom, when examining, to tie a piece of bandage around the waist just as tightly as the woman makes her waistbands, with the result shown in figure 3.

Careful measurement with a lead tape, from one anterior superior spine to the other shows (Fig. 4) the—

Abdominal Projection.

Inches	0	1	1½	2	2½	3	3½	4	5
Cases	3	3	10	0	5	5	5	4	1

with eight of the fifty cases unrecorded.

The location of the Greater Curvature of the Stomach was

Above the umbilicus	1 inch		3 cases
Above the umbilicus	2 "		1 "
At the umbilicus		5 cases	
Below the umbilicus	1 "	1 "	
Below the umbilicus	1½ "	1 "	
Below the umbilicus	2 "	2 "	
Below the umbilicus	2½ "	1 "	
Below the umbilicus	3 "	5 "	
Below the umbilicus	3½ "	3 "	
Below the umbilicus	4 "	2 "	
Below the umbilicus	4½ "	2 "	
Below the umbilicus	5 "	1 "	
In right iliac fossa		1 "	
Just above symphysis		2 "	
On symphysis		11 "	
Dips into pelvis		1 "	
Total		38 cases	4 cases
			42 cases

The Lesser Curvature was Palpable Below the Ensiform

Inches	¾	1	1½	2	2½	3	3½
Cases	1	2	1	5	1	1	1

all associated with more or less gastric dilatation.

The four cases with the greater curvature of the stomach *above* the umbilicus were considered in normal position, and the remaining 38, or about 90 per cent., as displaced. The 12 cases in which the lesser curvature was palpable (30 per cent.) were designated prolapsed stomach, as compared with the other 26 cases (60 per cent.) showing some degree of dilatation of the stomach.

Succussion, or the splashing sound, was more or less well marked in 7 cases, and was not difficult to elicit when there was fluid in the stomach, sometimes when the patient was lying down, in others when standing.

The appendix had been removed in 2 instances; was palpable in 12 cases, of which 1 was normal, 3 tender to touch, 1 behind the caput coli, 2 had had recurrent attacks, and in 13 that organ could not be defined.

Cancer of the pylorus was made out in one case, referred to Roosevelt Hospital; the pylorus was removed by the surgeon in charge, and the patient died a few days later.

The left kidney was prolapsed in but *one case*, the right kidney in 34 instances, the *lower pole being below the chondral border.*

Inches	½	1	1½	2	2½	3	3½	4	4½	5	6	7	8
Cases	1	2	2	4	5	10	2	4	1	2	2	1	1

In nine patients neither kidney was palpable, and no record in five. In one case the right kidney had been removed some years before, showing a total of 80 per cent. in which the kidney was involved. The kidney was replaceable by posture and manipulation in thirty-one instances, partially so in one, and adherent in three.

Transillumination of the stomach was practised but three times in this series of cases, as it can do little more than confirm what the practised eye, ear, and hand had already determined.

The history of splanchnoptosis usually dates from puberty, occasionally follows trauma, is very common in parous women, and in those who have had large abdominal tumors removed. The rapid loss of a large amount of flesh during severe illness is often followed by prolapse of one or more of the abdominal viscera. The various phases are best shown by the following illustrative cases.

Case I.—Dislocated right kidney in a child, simulating appendicitis. H. G., Jr., aged 10 years, granddaughter of Dr. J. J. B., Exeter, N. H., seen in consultation December 3, 1905. Four days be-

fore, illness began with vomiting and pain located in the right iliac fossa, without distention, or abdominal rigidity. Temperature had ranged from 97.8° to 98.4° F., pulse 100 to 120. Calomel was given for constipation, and she vomited everything taken by mouth, stools very small. Examination shows abdominal wall lax, intestines empty, stomach contracted; some soreness in the epigastrium, and tenderness on the inner side of McBurney point. Right kidney prolapsed two-thirds of its length; tender on pressure, easily replaceable. Treatment: The child was placed flat on her back, the foot of the bed elevated eight inches, and a snugly fitting abdominal binder applied. Measurements were taken for a special corset, which was put on two weeks later. She has worn this same style of corset ever since, and has not suffered since the kidney was replaced on the day of examination.

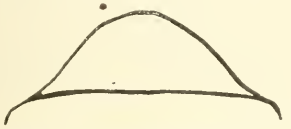

FIG. 4.—Abdominal projection; lead-tape outline between anterior superior spines; curved line, when standing; flat line when lying on back.

Nephroptosis of traumatic origin occurred twice in this series: CASE II.—Dislocation of the right kidney with hematuria, from a fall. Mrs. H. F. M., wife of a Toronto physician, who, recognizing the source of the lumbar pain, placed her in bed, and wrote for one of my corsets, which was put on December 27, 1903. April 5, 1905, the doctor wrote me, "My wife's corset, after the stiffness wore off, has been quite comfortable. A few weeks ago she got a second one. The range of mobility of the kidney in the anterior axillary line cannot be more than an inch and a half or two inches at the most, and is more painful. A false step occasionally causes a dull ache in the loin, which usually passes off in a few moments, especially if she is able to lie down." This pain was due to the fact that the corset was not laced tightly enough at the waist to immobilize the kidney and was easily remedied.

CASE III.—Miss L. M. R., sent to me by Dr. C. E. Shaw, of Hoosick Falls, N. Y. On October 18, 1906, she said that about a year ago, after tobogganing, there was swelling and pain in the right loin, which passed away in a few hours, but there has been more or less of the same discomfort ever since. Examination shows a well formed woman, of 23 years, 5 feet 8 inches in height, weighing 138½ pounds; waist measuring 26 inches, hips 39 inches (good proportions), suprasternal notch to symphysis, 20½ inches. The right kidney descends 2 inches, is replaceable; the greater curvature of the stomach lies just above the umbilicus. Abdominal projection 1½ inches. November 26, 1906, she complained that, while the corset gave relief, it would slip up when she sat down. Lacing more tightly at the waist overcame this difficulty, and she was relieved of all her symptoms, except an overanxious mother.

The stretching of the abdominal wall during pregnancy and the rapid emptying of the uterus during labor leaves the abdominal wall very lax, the ideal condition for the production of visceral ptoses, which will certainly follow if we fail to apply a snug abdominal binder, with exercises while the patient is in bed, and provide for abdominal support when the patient gets about.[2] I have already reported several cases of acute jaundice during the puerperium caused by traction of a prolapsed kidney on the common bile duct, promptly relieved by elevating the foot of the bed, and cured by a properly fitting corset.[3]

Hydronephrosis, due to kinking of the ureter, is the most common result of kidney prolapse, manifested by the syndrome known as Dietl's crises—sudden attacks of nausea, vomiting, pain, tenderness, and swelling along the right loin, sometimes to enormous proportions; which quickly subside when the patient is placed in bed with the foot raised 8 or 10 inches.

SYMPTOMATOLOGY: KIDNEY VS. THE GASTROINTESTINAL TRACT

	Kidney Group	Gastrointestinal Group
Onset	Acute attacks, intermittent from day to day, Dietl's crises more or less constant.	Chronic
Pain	Abdominal, hypochondriac, through to back, down loin, very intense in a few hours.	Epigastric, cardiac, to left shoulder and arm, after eating.
Abdomen	Distended on same side.	Bloating
Stomach	Nausea, vomiting, even when empty.	Regurgitation of gas, water-brash.
Bowels	Constipation-diarrhea, stools dark or clay color.	Seldom move without drugs, catarrhal colitis.
Urine	Scanty, dark, acid, with or without pus or albumin.	Usually frequent, small quantity, often dysuria.
Pulse	Small, rapid, high tension.	Small, rapid, low tension.
Corset and clothing	Must be loosened at once	Must be worn loosely all the time.
Associated with	Hydronephrosis, jaundice, or hematuria.	Autointoxication, malnutrition, loss of flesh and strength, headache, sleeplessness, nervousness, physical and mental malaise, uncertain temper, etc.
Response to treatment.	Early relief when placed in the inclined dorsal posture. Return of attack when resumes the upright posture.	All the usual remedies, bandages, and belts fail to afford permanent relief.

Referring to the table on symptomatology we note the striking difference between the clinical manifestations arising from the movable kidney which bobs up and down with every change of posture, and the doleful picture of the "hell on earth" experienced by those who suffer from gastrointestinal displacement, distortion, and disease, without any permanent relief from the ordinary methods of treatment—medicinal, mechanical, or surgical. This condition was present in varying degrees in all but three of the fifty cases, and was demonstrated to be due to dilatation of the stomach, prolapse of the stomach, or both, associated with dislocation of the colon, especially in its transverse portion; with consequent retention of food and feces, and autointoxication.

In 1893, the writer began using ready-made corset for the immobilization of mobile kidneys, and on April 18, 1901, before the College of Physicians, Philadelphia, gave the first description of the style and mode of application of a custom-made corset for this purpose.[4]

The new features brought into play by the writer's method involves (1) the replacement of the prolapsed viscera in the semiopisthotonos posture (Fig. 5); and (2) suprapubic support of the replaced organs by the wearing of a specially constructed corset,[5] made from measurements, taken by the physician, while the patient is lying on her back. Briefly, this garment is a simple modification of an ordinary corset, which reaches low down over the hips, and to the symphysis in front, of fashionable design, gracefully curving in at the waist and out over the hips (padded inside for

women with small hips). The front section is made V-shaped, narrow at the symphysis, broadening out toward the top, to provide ample room in the epigastrium for the replaced stomach.

When about to put the corset on, the patient loosens the lower lace (laced from the waistline down), the upper one being of thin hat elastic, wraps the corset around her waist, lies down upon her bed or a couch, raises her hips as in figure 5, rubs and strokes the stomach upwards toward the

Fig. 5.—Semiopisthotonos posture; hips raised, causing the viscera to gravitate toward the diaphragm, when fastening the corset, for the support of the organs replaced.

diaphragm, fastens the hooks from the lowest one up, and draws in the lower lace as tightly as possible, without lowering the hips until the lacing has been accomplished. No belts or buckles, straps, or airpads, except the ordinary garters, are required, and are only found on garments made by those who fail to grasp and apply the principles involved.

Before recommending a corset for splanchnoptosis it is necessary to determine: (*a*) Is the kidney replaceable, or safely fixed in the false pelvis, where it cannot be injured or compressed by the waistband? (*b*) Does the lower border of the stomach rise to or above the umbilicus when the patient is in the semiopisthotonos posture? The importance of this question was shown in Case 4, where it was necessary to open the abdomen and release the stomach from its attachment to the sigmoid flexure of the colon, caused by appendical peritonitis. Immediately after the adhesions were loosened the patient vomited, the stomach contracted, and with the wearing of a corset it never sank lower than the umbilicus. This class of cases is fairly frequent, and demands operation before adjusting the corset.

Case V.—This is an example of an unfortunately frequent and disagreeable result which has followed the epidemic of surgical enthusiasm for kidney fixation. The woman wore a ready-made corset with partial relief from October, 1901, to 1904. Her right kidney was then sutured by Dr. Goelet, August 20, 1904. The kidney had dropped three and one-half inches, November 25, 1904, and I fitted her with a corset. When last seen, April 9, 1905, she had been much relieved, was able to take long walks, but experienced soreness at the umbilicus, due to want of room in the upper part of the corset.

Three cases required the removal of fibroids, one of the appendix, one ectopic pregnancy, one ovarian hematoma before putting on the corset; while, on the other hand, the corset gave relief, most extraordinary, from suffering following ventrofixation; also in postoperative ventral hernia of large size, and resulted in saving both women from the necessity of secondary operations.

Prof. J. C. Da Costa, writing on "A Modified Operation for Movable Kidney,"[6] says: "In many cases of movable kidney, I believe that it is unwise to operate at all, the use of a properly applied corset being relied on to keep the patient comfortable and safe. The corset devised by Dr. Gallant accomplishes this purpose more successfully than any one of the so-called kidney supports." This substantiates my original claim that 95 per cent. of movable kidneys can be handled better without operation.

Results.—From the fact that thirty-two of these patients were sent to me by twenty-seven physicians, residing in nearly as many States and countries of North America, it is imposible to tabulate the actual results of this plan of treatment; but it can be honestly stated, and without exaggeration, that whenever a corset has been properly fitted and put on after this plan the woman at once realizes a sense of comfort and support to which she has heretofore been a stranger, with cessation of the so-called attacks. As time goes by her friends notice a well marked improvement in her general health, in temperament, in appearance, in weight, in ability to walk, work, sleep, eat, and enjoy the good things of life.

To me, personally, the most flattering evidence of the usefulness of this method of treating Glenard's disease has been the numerous attempts at improving the style of corset, by encumbering it with all sorts of "contraptions"; and its adoption by the editors of a well-known Genitourinary Surgery, who forgot to make mention of the paternity of the child. "Imitation is the sincerest flattery"—*Colton.*

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60 West Fifty-sixth Street.

APOMORPHINE IN ACUTE ALCOHOLISM;

A PLEA FOR ITS MORE EXTENSIVE EMPLOYMENT.*

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The acutely intoxicated individual, besides being a menace to himself, is usually such a great source of annoyance and distress to those about him, and is ordinarily so difficult to subdue, that any remedy which will promptly convert the state of pandemonium into one of calm, and effect a decided change for the better, is certainly deserving of recognition and ought to be extensively employed. Especially so if the remedy is an absolutely safe one and can be administered without the consent of the patient, for you all know how obstinate he is apt to be, and how great a task it often is to induce him to swallow medicine. In apomorphine we possess such a remedy.

Apomorphine is an artificial alkaloid prepared from morphine, usually by heating morphine in a

*Read at a meeting of the American Society for the Study of Alcohol and Drug Neurosis, June 6, 1907.

closed tube with an excess of hydrochloric acid. It was first discovered by accident by Matthiessen and Wright in 1869 as a by-product in the manufacture of morphine. Apomorphine hydrochlorate, the form almost exclusively used, results from the addition of a small quantity of hydrochloric acid to apomorphine in solution.

Exposed to the air, apomorphine soon decomposes. Solutions of the drug also rapidly decompose, and as they then may give rise to dangerous symptoms one should always use fresh solutions, preferably those made from hypodermic tablets obtained from some reliable source. It occurs in two forms: the crystalline and the amorphous. Hare[1] says that the amorphous form is dangerous and should never be used. Two of the largest and most reliable manufacturing chemists of this country take exception to this statement and sell both forms, and say that the indications for use and the dosage of both are identical, and that as the amorphous form is a more potent hypnotic it is to be preferred when the hypnotic effect is sought. Five equally responsible firms, in order to be on the safe side, make only the crystalline form, the form which I have used in all my cases. In the preparation of fine alkaloids the most effective method of purification is by submitting them to crystallization. Any impurities which may be present remain in the mother liquor. Hence I would strongly advise that only the crystalline form be used, and that in ordering the drug the physician specify the form desired, for when apomorphine is ordered, and neither form is specified, it is the usual custom of both wholesale druggists and apothecaries to supply the amorphous form, as it is much cheaper.

To Dr. Charles J. Douglas[2] of Boston belongs the credit of first calling the attention of the medical profession to the fact that apomorphine in non-emetic doses is an exceedingly valuable hypnotic. He said: "There is, however, one harmless remedy that will produce sleep in a few minutes, even when the patient is suffering with the wildest delirium. That remedy is apomorphine. . . . While its value has remained so long unrecognized by the profession, yet in point of fact there is no hypnotic in our materia medica that is at once so prompt, so safe, and so sure. . . . . It saves time; minutes as compared to hours."

About three years after this important announcement was made, Coleman and Polk,[3] acting upon Douglas's suggestion, conducted an interesting and highly instructive series of experiments with apomorphine in the alcoholic ward of Bellevue Hospital. They tried the drug in three hundred cases, and sum up their results as follows: "From our own observations we are convinced that apomorphine in small or moderate doses, given hypodermically, possesses definite sedative and hypnotic properties. . . . In 'ordinary drunks,' therefore, apomorphine hydrochlorate may be regarded as an efficient and safe hypnotic in doses of 1/30 to 1/10 grain hypodermically administered, producing a sleep which lasts from several hours to all night."

Several other observers, notably Quehl,[4] Reichert,[5] Bordier,[6] Routz,[7] Challand and Rabow,[8] Bourgeois,[9] Gellhorn,[10] Tompkins,[11] and Lewis,[12] have testified to the value of apomorphine as a sedative and hypnotic, and the consensus of opinion is that the sleep induced is calm, restful, and restorative, closely approaching that of normal sleep, and that the use of the drug is not attended by any unpleasant after effects.

While several cases of death following its use have been reported, Boyer and Guinard,[13] who have carefully investigated this phase of the subject, claim that the untoward results were always due to impure preparations.

In the treatment of acute alcoholism I have employed apomorphine hydrochlorate very largely and with such uniformly satisfactory results that I can most heartily indorse the statements of Douglas, Coleman, and Polk. In my hands it has proven to be a prompt, powerful, and safe hypnotic, second to none in securing quiet and sleep in acute alcoholism.

In moderate doses apomorphine stimulates the heart and slightly raises the blood pressure, while in large doses it is somewhat depressant. The depressant effect is not by any means as marked as that following the use of most powerful hypnotics, especially chloral, and it soon passes off.

A very few minutes after administering an emetic dose by hypodermic injection, vomiting occurs, due to the action of the drug upon the vomiting center in the medulla. Just before vomiting the pulse is weakened and increased in frequency, and after vomiting ceases it becomes stronger and slower, often stronger and slower than it was before the injection was given. Vomiting is preceded by salivation and slight nausea. It may occur only once, or be repeated several times. Very soon after the vomiting subsides, a matter of a few minutes in most cases, the patient falls into an apparently natural sleep, and may sleep for from two to eight hours, awakening refreshed, sober, and rational in most cases. Douglas says: "This remedy shuts off the 'stream of consciousness' with valuable precision, and when this is once done the patient will usually continue to sleep without further assistance until the demands of tired Nature are satisfied."

In treating periodical dipsomaniacs in all stages of the attack I have found apomorphine in full dose of inestimable value, and am convinced that it has been the means of ending the attack in many instances. During the attack this class of patients, as you well know, have but one thought, one aim, one desire—liquor. The demand for the so-called stimulant is a veritable imperative conception. Apomorphine compels sleep, and when the patient awakens his chain of thought has been broken and the attack is over in many cases.

In all acute cases I have found the action of an emetic of some value in sobering the patient and diminishing or abolishing the desire for more drink, and therefore the dose of apomorphine I usually give is 1/10 grain by hypodermic injection, adding 1/30 grain strychnine if the heart is acting poorly. Whenever possible, when giving the injection, I have the patient lying down in bed and have basins in readiness, as the action of the drug is so rapid.

I have never failed to secure the hypnotic effect in alcoholics, and only once failed to secure the emetic effect from 1/10 grain administered hypodermically. This occurred in a young man who had studied medicine, and in whom I used apomorphine with the desired result in a previous attack. From the action of the drug he knew that apomorphine had been given, and when I injected the drug in a subsequent attack he insisted that he would not vomit, and was successful in fighting off the desire to do so. He was unable to remain awake, however.

I have had one case—not alcoholic—in which vomiting did not occur, though 1/5 grain was injected in two 1/10 grain doses within about twenty minutes. The patient was a strong young man, in previous good health, who suddenly became stuporous. I was summoned and reached him within

a few minutes. There being a suspicion of poisoning, I promptly injected 1/10 grain. Vomiting did not occur and the stupor deepened. After waiting about twenty minutes, I again injected 1/10 grain, and, obtaining no result, had him removed to the hospital. He awakened after several hours and went home. While no positive diagnosis was made, I am inclined to believe that the case was one of *grand mal*.

One need not give emetic doses in order to secure the hypnotic effect. In many cases 1/30 grain given hypodermically will be found sufficient to induce sleep. If the general condition of the patient is fair the dose may safely be repeated in about three hours if necessary, as the drug is not cumulative in its action. A non-emetic dose (1/30-1/20 grain) may also be given a few hours after a full dose, if it be desired to prolong sleep or keep the patient quiet. Occasionally vomiting follows the use of doses as small as 1/30 grain; more frequently slight nausea is experienced.

If it be deemed advisable to prolong the sedative effect by bromides, chloral, or similar drugs, it will be found that smaller doses will suffice than are ordinarily required. This is a point of no little importance considering that all such drugs depress the heart.

When administered by mouth the drug cannot be relied upon. Vomiting does not follow the taking of a full dose, and sleep is but rarely secured. A sedative effect, however, is sometimes obtained.

As a hypnotic in acute alcoholism, apomorphine possesses a decided advantage over such drugs as bromides, chloral, sulphonal, trional, and paraldehyde in being available for hypodermic use and insuring prompt action. Valuable time is saved and the wishes of the patient can be disregarded. It is especially of value in enabling one to dispense with the use of hyoscine, a drug which we have often been compelled to use when it became imperative to subdue a patient who would not swallow other remedies, or having swallowed them would promptly eject them. I say especially of value in enabling one to dispense with hyoscine because Hicks[14] of Newark, N. J., whose opinion I value, says "hyoscine is a dangerous drug and should never be used; the symptoms following its use are those of insanity. A patient on the border line of insanity can be made insane by hyoscine."

You all know that many alcoholics are "borderliners," in the treatment of whom more than ordinary caution must be exercised.

Eight years have elapsed since Douglas made his announcement, and it is five years since Coleman and Polk published the results of their investigations. Apomorphine has not received the recognition it deserves. On inquiring among my medical friends I have been astonished to find that scarcely any one of them ever heard that apomorphine possesses hypnotic powers, and I have encountered no one who has ever used it as such. Hence this little reminder and plea for its more extensive employment.

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214 SOUTH SIXTH STREET.

Pneumonia—Its Successful Treatment.—J. R. Landers declares that the first thing to do in treating pneumonia is to stimulate the glands and absorbents. At the same time the alimentary tract should be cleaned and kept so, in order that it may readily take up the required medicines. The vasomotor system should be balanced, the circulation equalized and balanced, the body tension brought up, and the emunctories opened and kept in this condition. The writer then describes his method. First, one-tenth grain of calomel is given every hour till one grain has been administered. A saline laxative, sufficient to thoroughly wash out the alimentary tract, follows. In order to keep this system clean an efficient intestinal antiseptic is given, such as the sulphocarbolates. Digitalin is given to strengthen the weakened capillaries and to restore their contractile power in order to force the excess of blood out into the general circulation. It is possible that this remedy alone may prevent later stages. Aconitin is given to relax, that is, to overcome vasomotor spasm outside of the diseased lung. Together with digitalin, this restores the tone and contractile power of the capillaries, balancing up the circulation. As a local application, the writer rarely uses anything except the cotton "batten" jacket to cover the entire thorax. He declares that this method will lessen the mortality of pneumonia 80 or 90 per cent.—*The Medical Summary.*

Physiological Action of Tea as a Beverage.—Lauder Brunton believes that tea, when properly prepared and taken in moderation, is both useful and agreeable. The avoidance of danger from impure water is not the only advantage to be gained by drinking vegetable infusions. Tea is a stimulant, and the use of stimulants is almost universal. The effect of tea, coffee, or cocoa seems to be threefold—on the circulation, on the spinal cord, and on the brain. When these substances reach the circulation, the flow of blood through the brain is increased, the brain cells are supplied with extra nutriment, and thought is quickened. It is probable that the brain cells themselves are affected by tea or coffee, so that communication between them becomes more rapid, more complete, and more permanent, than under ordinary circumstances. But it must not be forgotten that these substances tend to keep up mental action when it is not needed. Thus sleep, which restores the tired brain, is prevented. These beverages lessen the sense of fatigue and give a sense of wellbeing and of power, and actually add to the power of endurance. Tea is liable to abuse, and may then bring about most disastrous results. Tea may interfere with nutrition by lessening the feeling of hunger, by rendering food less digestible, and by interfering with the digestive power of the stomach. The different kinds of tea vary in the amount of tannin which they contain. The leaves should never be boiled or stewed. Boiling water should be poured on the leaves, and after standing for a few minutes should again be poured off. Taken with meat, it toughens the fiber. Hard water and water containing iron do not make good tea. A pinch of bicarbonate of soda, when hard water is used, improves the infusion. Tea, when taken in excess, may produce the most serious nervous symptoms and facilitate, if it does not actually produce, mental degeneration.—*The Practitioner.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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AN OBJECT LESSON IN CAMP SANITATION.

THERE has been a good deal of adverse comment on the Jamestown Exhibition, and the press reports have in general not been of a character to attract visitors to the show. There is one exhibit, however, outside of the Exhibition proper, yet a part of it, which is well worth a long journey and the attendant expense to see and to study, at least for sanitarians, military officers, and physicians. This is Camp John Smith, where the United States troops are quartered. Here, says a correspondent of the *New York Times* of July 21, upon what a few months ago were peanut fields interpenetrated by marshes lying only a few feet above tide level and half a mile or so from the shore of the Chesapeake Bay, are encamped in the open and in the full glare of the sun a regiment of regular infantry, a battery of artillery, and a squadron of cavalry. A better place could hardly be selected for a midsummer camp, for the encouragement of malaria, typhoid fever, and dysentery, for flies and mosquitos, the carriers of two at least of these infections, love nothing better than such a place. But these pests are conspicuously absent from the camp, although they swarm in the adjoining militia camp and the kitchens of the restaurants within the grounds hard by, and this in spite of the fact that the horses of the cavalry and artillery are stabled not fifty yards from the quarters of the men. The mess shelters and kitchens are all screened with wire netting (a precaution which excited the risibles of Mr. Poultney Bigelow when he was inspecting the Panama Canal in thirty-three minutes more or less), the tents are also screened, and over each bed is hung a mosquito bar under which each man and officer must sleep under pain of court-martial. The absence of flies in any number is due to the fact that there is nothing about for them to feed upon or breed in. Just outside the camp is a crematory in which every particle of garbage and refuse is consumed twice a day. There are some mosquitos, hence the necessity of mosquito bars over all the beds, but their number is kept down partly by draining every part of the adjacent swamp which can be drained, and partly by oiling at frequent intervals all the pools and puddles that cannot be drained away. All the water used by the soldiers is boiled, and appliances for this purpose form a part of the furniture of each kitchen.

The proof of the effectiveness of these sanitary precautions, the minuteness of which might be ridiculed by the uninstructed, is to be found in the fact that the morbidity of the troops is only about three per cent., and this in a military camp pitched in a malarious swamp in a region which is no stranger to typhoid fever. As yet there has been not a single case of this disease among the troops in Camp John Smith. The admirable condition of this camp, the *Times* correspondent very justly says, is directly attributable to the energy, activity, and foresight of the Chief Surgeon, Major Charles E. Woodruff, though he is disposed to give the credit to Dr. Jones, his assistant, upon whom much of the routine executive work has fallen.

Major Woodruff has evidently been given a free rein as regards the sanitation of this camp, and what he has accomplished is worthy of the attention of military authorities everywhere. Only nine years ago the country was horrified to learn that the greatest mortality in the Spanish war was at Chickamauga, a thousand miles beyond the reach of Spanish bullets, where patriots who had volunteered to defend their country died by scores from a preventable disease, simply in consequence of neglect of the most elementary sanitary precautions. Who was responsible for this fearful loss of life has never been officially revealed, and it is not necessary now that it should be, but if the object lesson furnished by Major Woodruff at Camp John Smith is taken to heart by our military authorities, and the recommendations of the medical officers of the army are in future heeded, the chief mortality in our next war will be from bullets and not from microbes.

MEDICAL SCIENCE AND THE DEATH-RATE.

MODERN sanitary methods combined with increased medical and surgical knowledge and skill have lengthened human life to a very appreciable extent, and in all civilized countries the population is largely swelling. In some countries a greatly diminished birth-rate has assisted to keep the numbers within reasonable bounds, while in other lands the population is growing to such a degree as to be almost an economic menace.

Great Britain is an excellent example of the former conditions and Germany of the latter. Recently the decennial report of the Registrar-General for England of births, deaths, and marriages has been issued dealing with the mortality in that country in the ten years 1891-1900. Dr. Tatham, the Registrar-General, has shown in this report that the congratulations which have been expended on the decreasing death-rate of England are not altogether justified if the matter be thoroughly considered. He has pointed out that there is an interdependence between the birth-rate and the death-rate which has an important bearing on the figures. The age distribution of the sexes has been materially altered with the decline in the birth-rate, the proportion of people of the more robust ages among the total living has increased, while the percentage of children has become less. Thus the mortality rate for England of 22.28 for the ten years 1841-1850 falls to 21.74 per 1,000 if it be calculated on the age distribution of the present day.

When, however, all these facts have been taken into consideration, there is a very considerable bal-

ance which must be credited to medical and sanitary science. The report of Dr. Tatham makes clear that the past forty years have witnessed an indubitable fall in the mortality of both sexes in England, this decline amounting to 3.55 per 1,000 population. The death-rate among females is less than that among males in every case. It is in regard to infant mortality that medical science has, so far, exhibited the greatest inability to effect marked improvement. The Registrar-General, referring to this point, said: "The health of the adolescent, as well as of the adult portion of the community, has shown a steady improvement in 1891-1900 as compared with preceding years. When, however, the mortality of infants in their first year of life is considered, we are met by the sad reflection that the improved conditions affecting adult life have not been shared by this most sensitive portion of the community." Many of the English agricultural counties contain extensive areas in which the deaths of infants under one year average less than 10 per cent. of the births. There are other and chiefly industrial counties, such as Lancashire, that contain large areas in which the waste of human life is twice as great as it is in the rural areas. In short, urban residence is immensely more deadly to infants than is rural life.

One of the most interesting features of the report is that which discusses the mortality from tuberculosis. It is pointed out that in the past forty years there has been a remarkable fall in the deaths from the various forms of tuberculosis. In the ten years 1851-1860, 3,457 deaths were set down to this cause for every million people living; in 1891-1900 the figures had fallen to 2,010, a decline of 42 per cent. Cancer, on the other hand, though a less frequent cause of death, has shown in England an alarming increase. In forty years the death-rate from this disease among males has trebled, and among females it has doubled.

In the United States medical science and sanitary methods have shown just as great improvement as in England, with equally gratifying results. Here as there, however, infant mortality in the cities is still very large, and must be met by better conditions of living, chief of which is more nourishing food, signifying an improved milk supply.

Tuberculosis in America has decreased to as great an extent as in England, and cancer has increased in a like degree. On the whole, this country is in a far better condition as regards healthy living than is England, on account of its size and because urban life is not nearly so general, but at the same time the situation in this respect is susceptible of much improvement, and especially in the big cities. Medical science in all civilized countries has lengthened human life, and bids fair to ward off death to a yet great[er] extent. It is probable, indeed, that we are on the threshold of some remarkable discoveries tending in this direction.

SYPHILIS AS A CAUSE OF STOMACH DISEASE.

In the study of diseases of the alimentary canal, excepting those of a restricted portion at either end, the importance of syphilis as an etiological factor has received but scant attention. In a recent communication, F. D. Bird (*Surgery, Gynecology, and Obstetrics*, May, 1907) states that a more careful study of the subject will show that syphilitic lesions in the hidden portions of the alimentary canal occur to a greater extent than is ordinarily believed. A syphiloma of the stomach may or may not be combined with ulcer and there may or may not be infiltration of the surrounding tissues. But if a tumor can be felt and an exploratory laparotomy is made, a search should always be made for other evidences of syphilis in the abdominal cavity. The liver, the spleen, and the peritoneum afford confirmatory lesions if the growth is specific in character, and the exploratory incision should be made large enough to permit of examining the abdominal contents by sight as well as by palpation. The cancer-mimicking propensities of syphilis may lead to a radical operation in a given case because the numerical chances are believed to be against specific disease in this region. Gastrectomy may even be performed and then, if the tumor prove to be a syphiloma, an unnecessary operation will have been performed in a subject whose long continued toxic condition constitutes a bar to normal healing.

Bird has personally noted a number of instances in which this has occurred and in doubtful cases, where the involvement of the stomach is extensive and only a gastrectomy would suffice, he advises a microscopical examination of a portion of the growth as the only rational procedure. He considers that the possibility of a second operation, in case cancer is present, does not offer a worse prospect to the patient than cutting out his stomach when medicine would have effected a cure. The fact that supposed cancerous cases often improve to a marked degree after a gastroenterostomy, performed because the tumor precluded a satisfactory gastrectomy, is due in the writer's opinion to the syphilitic character of the lesion. There are a number of other features connected with these cases to be considered. A cancer or other malignant growth may easily be engrafted upon a previous syphilitic base in the stomach or intestine, just as in the mouth, of which a number of undoubted instances have been noted. The writer strongly urges that syphilis be taken into consideration as a possible cause of stomach disease, not as a curiosity, but as the explanation of many cases of obscure gastric disturbances.

Successful Removal of a Tumor of the Hypophysis Through the Nose.

By reason of their situation and anatomical relations tumors of the hypophysis are especially destructive in their effects and also difficult of removal. Nevertheless, operative relief, principally of a palliative character it is true, has been attempted in a small number of cases, with varying results. The usual mode of approach is from the cranial convexity, but a case in which access to the growth was obtained and successful removal accomplished through the nasal cavity has been reported by Professor Schloffer in the *Lancet* of June 1, 1907. The patient was a man thirty years old, suffering from constant headache, with bitemporal hemianopsia and rapid loss of hair from all

parts of the body. *X*-ray examination disclosed enlargement of the hypophysis. Speedy relief without extensive operation being indicated, the nose was freed from its attachments and turned to the right. Next the turbinated bones were removed and the septum excised, hemorrhage being checked by plugging. An opening was made in the inner wall of the orbit and the optic foramen exposed. The inner wall of the maxillary antrum and the nasal process of the upper jaw were broken away. The ethmoidal sinus was then cleared out and the sphenoidal cavity opened. After a lamina of bone that now came into view had been perforated, a soft, friable, bluish tumor could be seen. This was in great part carefully removed, but a portion had to be left in order to avoid injury to the dura mater. A large quantity of cerebrospinal fluid escaped. The cavity in the sella turcica was plugged with gauze dipped in balsam of Peru and a similar gauze drain was packed in the opening at the base of the skull. Both drains were brought out toward the nose, which was replaced and carefully fixed in position with sutures. They were left in place for nine days and were not renewed. Cerebrospinal fluid continued to escape at the tip of the nose every few minutes for several days. The headache vanished completely, but the hemianopsia persisted. In other respects recovery was complete five weeks after the operation and the hair began to grow again. Histological examination of the removed parts disclosed the structure of an enlarged hypophysis. The ease with which the gland was reached, the small amount of hemorrhage, and the absence of postoperative meningitis are pointed out as noteworthy features of the operation. The case is unique in the character of the growth, in the mode of approach, and in the result of the operation.

The Nature of Heat Stroke.

An interesting suggestion in regard to the nature of heat stroke, or at least that form of the condition accompanied by hyperpyrexia, is made by Senftleben, a staff surgeon in the German army, in the *Berliner klinische Wochenschrift* of June 24 and July 1, 1907. As the result of his observations on numerous cases of insolation and heat prostration among the troops he offers the following theory as to the manner in which the various phenomena of the affection are brought about. Owing to the excessive cutaneous and respiratory elimination of water attending prolonged exertion at high temperatures a condition of hemoglobinemia is induced, and the presence of hemoglobin in the blood plasma causes destruction of leucocytes with the liberation of great quantities of fibrin ferment—a sequence of events that has been demonstrated by experiments on animals reported by numerous authors. The sudden setting free of the fibrin in the circulating blood leads to abrupt rises of temperature, while at the same time through the occurrence of more or less extensive coagulation, especially in the pulmonary capillaries, the circulation is greatly impeded. Less and less blood traverses the lungs and the arterial system is insufficiently filled; the vascular tonus falls until finally all of the organs, including the brain, cease functionating and death ensues, not so much through heart failure, as is often alleged, but through cerebral failure. In mild cases the train of destructive changes does not proceed far enough to exceed the body's powers of adaptation. The view that heat prostration is a form of autointoxication is not altogether new, though the present theory explains its nature in a somewhat novel fashion. At any rate, the author's suggestion that the sudden cessation of previously abundant perspiration is to be regarded as a danger signal is a good one, as well as his recommendation that the excessive loss of body fluids should be compensated by adequate drinking of water. The treatment he recommends in addition to the usual measures to control the hyperpyrexia and the respiratory and cardiac manifestations consists essentially in venesection and the infusion of saline solution, measures that have already been found empirically to be of value.

Gastric Therapeutics.

Sufferers from disorders of the stomach will no doubt be more pleased than disappointed to learn that a recently much heralded plan of treatment for such ills appears to offer little of real utility, and that the somewhat unesthetic mode of medication involved is not likely to be widely recommended. A number of authors have written enthusiastic reports on the results obtained in various affections of the stomach, particularly such as are accompanied by a deficiency or absence of hydrochloric acid secretion, by the administration of gastric juice obtained from the dog and also from the pig. These encomiums have not been generally corroborated, however, and a recent observer, in order to settle the question of the utility of this method of treatment, has administered human gastric juice. This was obtained from a patient suffering from gastrosuccorrhea, whose fasting stomach daily yielded from 250 c.c. to 600 c.c. of perfectly clear, highly acid juice. From a teaspoonful to a tablespoonful of this secretion was administered four times a day before eating during a period of five or six weeks to six patients with various forms of dyspepsia. Although it is stated that the remedy was taken without distaste, the improvement produced was no more than might be expected to follow the dietary regulations, etc., that the patients also observed. Rosenberg, the observer in question, therefore concludes (*Münchener medizinische Wochenschrift*, June 25, 1907) that this plan of treatment is not promising, and even goes so far as to deny that much is to be expected from the administration of diluted hydrochloric acid in any quantity that patients can be persuaded to take.

The Duodenal Sphincter.

Two years ago Ochsner, in a paper read at a meeting of the American Surgical Association, called attention to a collection of muscular fibers in the duodenum, from 2 to 4 cm. below the entrance of the common duct, which he regarded as a sphincter of this portion of the intestine, and to which he was inclined to attach considerable importance. The correctness of this finding is disputed by Walter M. Boothby in the *Boston Medical and Surgical Journal* of July 18, 1907, who examined the duodenum in nearly forty subjects in the Harvard Medical School and Boston City Hospital. Some of these were studied macroscopically, others were examined microscopically, but in none could any structure be found suggesting a sphincter muscle. Boothby concludes that the musculature of the duodenum (especially the circular layer) presents certain irregularities in its thickness, but these irregularities are slight as compared with the average thickness of the muscle, and, compared to a true sphincter, the pylorus, are insignificant. In short, he found no grouping of circular fibers in the duodenum which could be considered an anatomical sphincter muscle.

News of the Week.

The Bill to Prevent Substitution in Prescription Compounding, which was passed recently by the Legislature of this State, has been signed by the Governor. This bill amends Section 401 of the penal code relative to certain offenses connected with the dispensing and sale of drugs and medicines. It provides that "Any person who, in putting up any drug, medicine, food, or preparation used in medical practice, or making up any prescription, or filling any order for drugs, medicines, food, or preparation puts any untrue label, stamp, or other designation of contents upon any box, bottle, or other package containing a drug, medicine, food, or preparation used in medical practice, or substitutes or dispenses a different article for or in lieu of any article prescribed, ordered, or demanded, or puts up a greater or less quantity of any ingredient specified in any such prescription, order, or demand than that prescribed, ordered, or demanded, or otherwise deviates from the terms of the prescription, order, or demand by substituting one drug for another, is guilty of a misdemeanor." The bill expressly grants to the druggist the right (except in the case of a physician's prescription) to recommend the purchase of some other article than the one called for, but he must not substitute such article without the knowledge and consent of the purchaser. This bill was introduced in the Senate by Mr. Page at the instance, we understand, of Mr. Charles Roome Parmele. The previous law forbidding substitution, of which this is an amendment, was practically of no force, since it was not possible to punish alteration of the physician's prescription, unless it could be proved that human health or life had been endangered by such alteration. The law goes into effect on September 1 of this year.

Army and Navy Union in Favor of the Canteen.—The Army and Navy Union, at its meeting held in Washington on July 18, adopted the following resolutions in favor of the restoration of the canteen: "That we desire to go on record with the officers and men of the army, with President Roosevelt and Secretary Taft, with the Spanish veterans and many other patriotic organizations in favor of the restoration to the army and to Soldiers' Homes of the canteen as it was operated prior to 1901. That our own experience has shown beyond question that the sale of beer and light drinks in the army canteen was a veritable temperance measure; that it aided in promoting the moral welfare and comfort of the men in the post and camps, and that no greater blow to genuine temperance was ever struck than when the law was repealed. That we believe Congress should have the courage to meet this question squarely and fairly, and not be influenced as in the past by the theories of persons who have had no actual experience with army and navy life. We therefore direct the officers of this organization to take whatever steps may be necessary to urge Congress to restore the former law as to the canteen, believing that we are acting not only for the good of our soldiers, but likewise in the interest of temperance and moderation."

Third International Sanitary Convention.—The Third International Sanitary Convention is to be held in the City of Mexico on December 2 to 7 of this year. The two preceding conferences were held in Mexico in 1902, and in Rio Janeiro last year. The program provides that each delegate shall bring a paper relating to the nation he represents and covering a report on the existence of transmissible diseases that may prevail in its territory, especially with reference to bubonic plague, yellow fever, cholera, malaria, beriberi, and trachoma. A request is made for information as to the methods adopted for the prevention and stamping out of such diseases; also reports on the condition of ports and sanitary police laws. The transmission of yellow fever and the means to be used in combating the stegomyia mosquito, the tuberculosis question, and various administrative measures, will also come up for discussion. Surgeon-General Walter Wyman is chairman of the International Sanitary Bureau.

Pure Foods and Drugs in Spanish America.—The Board of Food and Drug Inspection has decided that, under the Pure Food law, products meant for foreign consumers are not subject to domestic regulations such as relate to preparations of drugs, chemicals, dyes, and preservatives with food, so long as they comply in this respect with the food laws of the countries to which they are exported. Dr. A. M. Fernandez de Ibarra of this city, the American correspondent of a number of medical journals in Spanish-speaking countries, states that he has warned the readers of these journals that many impure drugs and food products are being sent to Spanish-American countries where pure food laws do not exist. The Argentine Republic has recently passed a law similar to ours.

Hospital Internes Suspended.—Charities Commissioner Hebbard has suspended for terms of one and two months each four of the internes of the Kings County Hospital and Bradford Street Hospital for their connection with an experiment in skin grafting carried out on two puppies. The Commissioner holds that the performance of such experiments in public hospitals tends to impair their reputation for humanity, and that those who took part in them were guilty of a serious indiscretion.

Mosquito Extermination in New Jersey.—As a result of the ditching that has been done in the Hackensack Meadows, the low lands between Newark and Elizabeth, and other marshes in the neighborhood, together with the oiling of stagnant pools, the mosquito pest has been reduced by what is estimated as at least three-quarters.

Street Cleaning at Night.—Street Cleaning Commissioner Bensel is about to put into execution a method of street cleaning which is in general use in large European cities. Instead of doing most of the work as at present during the hours when the traffic is heaviest, the bulk of the cleaning and removal of ashes and garbage will be carried on at night, when the streets are comparatively deserted.

Garbage Barrels for Holding Food.—The Central and Federated Union of the Coopers of New York, at a meeting last week, passed a resolution expressing its disapproval of the practice of certain "soulless individuals" who are alleged to buy for three and five cents the garbage barrels emptied at the New York dumps, repair them, and use them again for the packing of meat, vegetables, flour, etc., for public consumption. Copies of the resolution have been sent to Health Commissioner Darlington and Mayor McClellan.

Peace Conference Adopts Red Cross Proposal.—At the meeting of The Hague Peace Conference on July 20 a report was read by the French delegates relating to the adoption of the Red Cross regulations in naval warfare. The Persian and Turkish delegates made their usual observations setting forth the impossibility of their accepting the cross as an emblem, but after further discussion the Red Cross proposal was approved.

Typhoid Fever in New Jersey State Hospital.—Seventy cases of typhoid fever, with eleven deaths, have been reported from the New Jersey State Hospital for the Insane at Trenton. An investigating committee has found that the sanitary conditions in the institution are very bad and demand radical reforms.

Typhoid Fever at Tuskegee.—An epidemic of typhoid fever is reported to be prevailing at the Tuskegee Normal Institute. Up to July 22 there had been twenty-seven cases and two deaths.

Smallpox on Ocean Liner.—Owing to the discovery that the child of a second cabin passenger on the steamship *Koenigin Luise,* which reached this port last week from the Mediterranean, was suffering from smallpox, the ship's surgeon vaccinated several hundred of the passengers and crew who had not been so protected within a reasonable time.

Whooping-cough is very prevalent along the Jersey coast and large numbers of children have been infected in the summer colonies at Long Branch, Monmouth Beach, and Seabright. The epidemic is believed to have started in the negro and Italian quarters of East Long Branch, though there were also many cases at Asbury Park before the season opened.

Another Gift by Mrs. Sage.—Mrs. Russell Sage has given $125,000 to the Association for the Relief of Respectable Aged Indigent Females in the City of New York. The home of the Association, at 104th street and Amsterdam avenue, is being extensively enlarged, and when the addition is completed its capacity will be increased from 90 to 270 beds.

Bequests to Charities.—By the will of the late Isidor Wormser filed for probate last week, the Mount Sinai Hospital and the Hebrew Orphan Asylum are to receive $2,500 each, the United Hebrew Charities Association of this city $2,000, and the Home for Aged and Infirm Hebrews, the Montefiore Home for Chronic Invalids, the Roman Catholic Orphan Asylum, the Hebrew Technical Institute, the Educational Alliance, and the Tuskegee Institute, $1,000 each.

Connecticut Tuberculosis Commission.—A commission to investigate tuberculosis in the State of Connecticut has been appointed by Governor Woodruff with the following medical members: Dr. J. P. C. Foster of New Haven, Dr. O. LaRue of Putnam, Dr. Stephen J. Maher of New Haven.

American Medical Editors' Association.—At the thirty-ninth annual meeting of this organization held in Atlantic City, sixty-four new members were admitted. The following were elected as officers: *President,* C. F. Taylor, M.D., Philadelphia, Pa., editor of the *Medical World; Vice-Presidents,* Kenneth Millican, M.D., St. Louis, editor *St. Louis Medical Review,* and H. E. Lewis, M.D., New York, managing editor of the *International Journal of Surgery; Secretary and Treasurer,* J. MacDonald, Jr., M.D., New York, managing editor of the *American Journal of Surgery.*

Lake Keuka Medical and Surgical Association.—The eighth annual meeting of this organization was held at Grove Springs, Lake Keuka, July 25 and 26, 1907, under the presidency of Dr. J. E. Walker of Hornell.

Connecticut State Board of Health.—At a meeting held in Hartford the following officers were elected: *President,* Prof. W. H. Brewer; *Treasurer,* Dr. J. H. Townsend; *Managers of County Homes,* Dr. E. K. Root, Hartford and Middlesex; Prof. W. H. Brewer, New Haven; Dr. J. H. Townsend, New London; T. H. McKenzie, Fairfield; Dr. A. W. Phillips, Litchfield; Dr. A. J. Wolff, Windham; Lewis Sperry, Tolland.

Lamoille County (Vt.) Medical Society.—At the meeting of this organization held in Morrisville on July 12 officers were elected as follows: *President,* Dr. G. L. Bates; *Vice-President,* Dr. S. G. Start; *Secretary,* Dr. G. C. Rublee; *Treasurer,* Dr. J. C. Morgan.

Iowa Union Medical Society.—At the meeting of this society held in Iowa City on July 10, Cedar Rapids was selected as the next meeting place and officers were elected as follows: *President,* Dr. J. M. Ristine of Cedar Rapids; *Vice-Presidents,* Dr. E. N. Brown of Marengo, and Dr. S. H. Watson of Blairstown; *Secretary,* Dr. A. Crawford of Mount Vernon; *Treasurer,* Dr. George P. Carpenter of Cedar Rapids.

Death of Professor Grancher.—Dr. Joseph J. Grancher, a member of the French Academy of Medicine and Professor of Children's Diseases in the University of Paris, died in that city on July 15 from pneumonia.

Obituary Notes.—Dr. John B. Summers died at his home in Milton, Indiana, July 17, from gastric hemorrhage. He had attended to his usual professional duties until five days of his death. He was born at Rising Sun, Indiana, 1841, was graduated from the Ohio Medical College, and later, in 1876, from the Bellevue Hospital Medical College. He had practised in Milton thirty years and had served several years on the Board of Education, and held other positions of trust.

Dr. Charles H. Boardman of this city died on July 17, in his sixty-ninth year. He was a son of the late Rev. Dr. H. A. Boardman of Philadelphia and a graduate of Yale College and the University of Pennsylvania Medical School. He was professor of medical jurisprudence in the University of Minnesota from 1887 to 1890.

Dr. W. W. Robinson of Loveland, Colo., died suddenly of asthma on July 11. He was thirty-five years of age and had practised in Loveland for five years. He was formerly a resident of Anna, Ill.

Dr. William Mazyck of Charleston, S. C., died on July 10, at the age of thirty-one years, after a long illness. He was a graduate of the South Carolina Military Academy and of the Charleston Medical College. For the past four years he had been one of the city physicians of Charleston.

Dr. Hamilton Osgood of Boston died on July 10 in Oxford, Eng., as the result of a long illness. He had made a special study of the therapeutic value of hypnotism, and for some years was associate editor of the *Boston Medical and Surgical Journal.*

Dr. J. H. White of Delaware, O., died on July 13, at the age of ninety years. He was born in Lewis County, N. Y., and received his medical education at the Starling Medical College, Columbus. After his graduation he practised for a time in Warrensburg and in Ashley, and then became a resident of Delaware. In 1890 he gave up active practice.

Dr. Joseph A. Krieger of St. Louis, Mo., died on July 12 after a short illness. He was a graduate of the old Missouri Medical College.

Dr. John Henry Criswell of Marion, O., died on July 14, after an illness of nine months. Dr. Criswell was born in Morrow County, O., in 1850, and was graduated from the Cincinnati College of Medicine and Surgery in 1877. He commenced practise in Caledonia, and in 1884 was made probate judge of Marion County. He then removed to

Marion, and in 1903 was elected to the general assembly of the State.

Dr. Marshall D. Kelly of Nashville, Tenn., died on July 7, at the age of seventy-six years. He was graduated in medicine from the medical department of the University of Nashville in 1857. He first practised in Cornersville, but removed to Nashville about twenty years ago.

Dr. Alfred Wynkoop died at Philadelphia on July 17, at the age of eighty-seven years. He was graduated from the medical department of the University of Pennsylvania. He served as an army surgeon during the Civil War, being for a time assistant at the Chester Hospital. He was later promoted to the position of medical director of the Second Division of the Sixth Army Corps. He participated in the battles of Fredericksburg, Chancellorsville, and Gettysburg. He was honorably discharged at the close of the war with the rank of lieutenant-colonel.

Dr. Edward J. Gallagher of this city was instantly killed in an automobile accident near Jamaica, Long Island, on July 21. He was a native of Brooklyn, and was graduated from the Bellevue Hospital Medical School in 1887. He was fifty-one years of age.

Dr. Edwin J. Russell of Brooklyn died on July 21 as the result of injuries received at the hands of street robbers, by whom he was assaulted while on his way to see a patient in Harlem. He was forty-nine years old, and was graduated from the Homeopathic Medical College about twenty-seven years ago.

Correspondence.

PRIMARY TYPHLITIS WITHOUT APPENDICITIS.

To the Editor of the Medical Record:

Sir:—A year ago[1] I directed attention to the frequency of symptoms which are to-day regarded as those of appendicitis, but are in reality symptoms of typhlitis. To Dieulafoy of Paris also belongs the honor of having supported the claims of colitis against those of the now greatly overburdened appendix. In a very instructive paper in the *Annals of Surgery* for June, 1907, Dr. C. A. McWilliams has again brought this subject before the medical profession and he shows that he and others, during operations and at autopsies, have recognized that the cecum was diseased and the appendix healthy when, unfortunately, an operation had been performed for supposed disease in the latter organ. Howard Kelly, as McWilliams reports, has already found many cases of typhlitis in which there were no evidences of appendicitis. Kaheren states that in a large proportion of cases after the interval operation, the patients suffered from pain and constipation similar to what had been present prior to the operation. It is not claimed that one can decide frequently by the symptoms present before operation between appendicitis and typhlitis and the indications for operation are therefore similar. Nevertheless, the foregoing statement should make it evident that "ordinary cases of colitis of the catarrhal variety probably are often confounded with appendicitis and operated on as such."[2]

This being admitted, would it not be wiser, as a rule, to restrict one's operations to (1) cases of acute perforation, (2) cases where an abscess has formed and is limited by adhesions—when it is a very simple matter to let out the pus and properly drain. In the former cases, of course, the sooner operation is done the better, and yet even in these instances mistakes arise and occasionally there is no perforation, as shown subsequently, either because the patient recovers completely in a short time,[3] or because abdominal section demonstrates that it is not present.

Beverley Robinson, M.D.

Westport, N. Y.

[1] Medical Record, July 13, 1907, p. 66.

[2] Robinson: "Appendicitis vs. Colitis." Medical Record, July 7, 1906.

[3] I reported such a case some years ago in the Medical Record.

OUR LONDON LETTER.

(From Our Special Correspondent.)

CANCER RESEARCH—ROYAL INSTITUTE OF PUBLIC HEALTH CONGRESS—CONFERENCE ON PURE MILK SUPPLY OF INSTITUTE OF HYGIENE—LORD LISTER—DEATH OF SIR WM. T. GAIRDNER.

London, July 5, 1907.

The Prince of Wales presided on Monday at the sixth meeting of the Imperial Cancer Research Fund. The report mentioned that Dr. Bashford, superintendent, had attended meetings and taken part in discussions in Canada, the United States, and Germany. The museum of the Royal College of Surgeons had been provided with a series of specimens showing the growth of cancerous tumors in mice, with a complete set of histological preparations illustrating their development. The government of Cape Colony had forwarded a report of a committee of the House of Assembly on certain reported cures of a herbal sort, the claims of which could not be substantiated. Dr. Bashford reported that a wide range of research had been maintained and the hopes of advancing knowledge had become more and more centered in experimental investigations. The experiments on living animals continued to be controlled, and the results supported by comparative biological and statistical investigations. These were continued in London and provincial hospitals, in India and in colonies and protectorates. Of 1,806 cases in India 1,513 affected the surface and only 76 internal organs; 335 were in persons living on vegetable diet, 608 on a mixed diet, largely flesh.

In 1889 the Registrar-General calculated the liability of cancer of persons thirty-five years old or older as 1 out of 21 men and 1 of 12 women. The figures for 1905 give the chances as 1 in 12 and 1 in 8. The question of real or apparent increase must wait for further data. But it is noted that cancer as a cause of illness is more rare than infective diseases, as the high case mortality of cancer represents nearly the total cases observed.

The question whether there is a family as well as an individual liability can only be determined on animals of a short life. In mice, by crossing different strains, the concentration of a hypothetical hereditary factor can be obtained and in the course of a few years determine whether there is a family as well as an individual liability to cancer.

Dr. Bashford reported that serious attention had been given to alleged cancer cases brought under notice during the year, but unfortunately it was impossible to assign any value to any of them. The reinvestigation of trypsin has shown it to be incapable of influencing cancer in mice. The financial statement having next received attention, Sir W. Church moved the adoption of the report and remarked on the valuable assistance received from India and other dependencies from which our knowledge of the frequency in various races was increasing and evidence was accumulating that the disease is often associated with native customs and rites irritating the surface. No support was given to the idea that the disease was associated with any kind of diet. In studying the relation of cancer cells to those of the organism in which they occur, an abundant supply of material is necessary, and this year they had obtained and propagated two fresh groups of tumors, viz., certain cancers of the mamma characterized by tendency to hemorrhage, and certain squamous-celled cancers. Further research confirmed last year's statements as to protection conferred by the spontaneous absorption of tumors which had grown for a time against subsequent inoculations of the same strain. The degree of protection was proportional to the amount of tumor tissue absorbed. The immunity is maximal against its own variety, minimal or absent from other strains, showing the change to be intracellular. It was not by modifying the cancer cell, but the environment that the implanted cell in a protected mouse can be hindered or prevented from growing.

Sir Henry R. Swanzy seconded the motion, remarking that, though much had to be learned, substantial progress was being made and they might confidently hope the time would come when they would not only understand the nature and cause, but find an effectual cure of cancer. The report brought out clearly the necessity of experiment and that was most important when opinions were expressed which would frustrate the work which must be near to the heart of every right-thinking man. The Royal College of Surgeons in Ireland, over which he had the honor to preside, was deeply interested in the work and had the utmost confidence in the Fund.

Sir R. D Powell proposed and Mr. Edmund Owen seconded a vote of thanks to the Prince, who in reply remarked that the broad lines of inquiry undertaken by the Fund had doubtless influenced the whole nature of in-

vestigation at home and abroad. It was, he said, recognized that the work was carried on in a liberal spirit, and whatever facts were ascertained were immediately made known. We may gather from the report that the result of the work has been to leave behind certain vague issues which it was necessary to decide in order to clear away doubts and narrow down the issue to a definite line of investigation in which the clew to the nature of cancer must be sought. Good progress has been made and the investigation of reported cures may assure the public that nothing will be neglected to help towards the alleviation of suffering.

The annual congress of the Royal Institute of Public Health has been held this week in the Isle of Man, about 500 delegates attending. Lord Raglan, president, who opened it on Saturday, said this year was specially interesting because the society comes of age in it and because it is the tenth since Queen Victoria became its patron and conferred on it the title of Royal. He was glad to see the King continued the patronage and interest in its work. From a hygienic point of view, he said, we were in advance of other nations. In regard to the progress of medicine, his Lordship spoke of two ideas. The first was pouring things down the sick man's throat until they either killed or cured him, the second that it did not matter to A, B and C whether D died or not; that was his lookout. Those ideas were both exploded and we see that "prevention is better than cure," because the sick man is not only a danger to himself, but to everyone around him. The idea of personal liberty which allowed anyone to spread disease was exaggerated and we are still handicapped with wrong ideas hung on the word liberty. Foreign countries had a great pull in compulsory military service, and young men rejected for armies on account of tuberculosis could be notified to the civil authorities and cared for.

There were sections devoted to preventive medicine, school hygiene, bacteriology, chemistry, and engineering and architecture, in all of which papers were read of considerable interest, but which it is not even possible to outline or enumerate in a moderate space. Let me refer to the Preventive Medicine Section: In that Sir James Barr of Liverpool University delivered the opening address, in which he pointed out many shortcomings. He told the audience plainly that if the money spent on treatment were diverted to prevention of disease and the preservation of health many hospitals might have half their beds unoccupied, dealers in artificial foods and synthetic drugs might find a suitable place in a home for the destitute, and many surgeons and specialists could be spared, while physicians and general practitioners would find better occupation in advising their clientèle as to the preservation of health. He even suggested—rather grimly—that a system might be so perfected that advisers who allowed patients to die should be expected to pay the funeral expenses. From this he passed on to express the opinion that sanitarians had not been more successful because they had confined their attention too much to zymotic disease and the preservation of life rather than the improvement of health. He would encourage the military spirit as the best means of developing the physique and moral grit of the people. He further advocated medical inspection of school children and seeing that the healthy received as much attention as the degenerate. The deaths of children might be reduced by half if parents and the State took sufficient interest in their health.

Mr. Mayo Robson presided at a conference called by the Institute of Hygiene on Monday in reference to the pure milk question. He urged the importance of pure milk to both infants and adults, for if instead of nourishment a poison—dirty milk was that—was given, infant mortality must be excessive. Dr. Thresh said veterinary inspection of cows was required. Milk intended for transmission should be cooled to 40° F. and sent in refrigerating vans. Much contamination took place in the homes of the poor, and therefore education was required. Dr. George Carpenter, as a physician to a children's hospital, accepted an invitation to inspect the dairy company supplying it. He gave some details of the shocking conditions he observed. Dairymen often thought they were doing right to sterilize their milk, but he declared some of them were sterilizing sewage. The editor of the *Dairy World* said the farm described by Dr. Carpenter was by no means a typical one and added it was medical men who had suggested sterilization. Mr. Davies said he had traveled in America, Denmark, France and Germany, and London milk was equal to any. Dr. Lawson Brown attributed all defects to sanitary ignorance. Resolutions were passed in favor of compulsory veterinary inspection, the local board having power to deal with defaulting authorities, and medical officers of health to have fixity of tenure.

Lord Lister was presented last Friday with the freedom of the City of London. In a brief speech he accepted it as "the highest civic honor in the world" and thanked the corporation for the special arrangements made to facilitate his presence, but for which, in his feeble health, he could not have attended to receive the freedom in that historic building. The event recalls that it is more than a century since another great medical discoverer—Dr. Jenner—was presented with the freedom. The leaders of the profession assembled in force to witness the ceremony.

Another great and beloved leader has passed away. Sir William Tennant Gairdner died suddenly on the 28th, aged eighty-two. His long career as a successful physician and valued teacher of clinical medicine to some degree obscures his other eminent qualities and work. He took his M.D. Edin. in 1845 and was awarded the gold medal. In 1850 he was elected a Fellow of the Royal College of Physicians, Edin., and in 1853 began to lecture on clinical medicine in the Extra-Academical School. In 1862 the University of Glasgow gave him the Professorship of Medicine, which he filled until his retirement in 1900. In 1862 he issued his "Public Health in Relation to Air and Water," a record of the first course of lectures on public health ever delivered in Scotland. While residing in Glasgow he was Physician to the Royal Infirmary, the Western Infirmary. He was also elected President of the Edinburgh College of Physicians, the first occasion on which the office had been given to a nonresident. He was physician to Queen Victoria from 1873 to her death, and to King Edward since. He was made K.C.B. in 1898. Edinburgh gave him her LL.D. in 1883. Dublin made him Honorary M.D. and F.R.C.P. in 1887. The F.R.S. and other distinctions were also given him. He long represented Glasgow University on the General Medical Council. Professor Gairdner's "Clinical Medicine," which first appeared in 1862, has been ever since a favorite with students. His "Lectures to Practitioners," published with Dr. Coats in 1888, has also maintained the high position it immediately took. "The Physician as Naturalist" consists of interesting memoirs on the progress of medicine and "the three things that abide" of three addresses to young men—"Faith, Hope, and Love" being the three things—to which he added another addresses to the White Cross Society of Edinburgh University, entitling it "A Faith."

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

STERILIZATION OF CATGUT—INCOME OF SWEDISH PRACTITIONERS—DEATH OF PROFESSOR GRUT—CAMPAIGN AGAINST RATS IN DENMARK.

COPENHAGEN, July 4, 1907.

Dr. N. V. Akerblom recommends a method, devised by him, for the sterilization of catgut. The catgut strings, previously wound on glass rings, are placed in a nickel-plated metal vessel containing olive oil, and this oil is slowly heated until its temperature reaches 150° C. Once at this point, it is rapidly cooled down. As a result of this treatment the catgut strings become stiff and hard, but they regain the necessary softness and pliability by subsequent conservation in 92 per cent. alcohol, with an addition of ⅓ per cent. formalin. The bacteriological and practical tests have shown that this treatment makes the catgut entirely aseptic and very tough and resistant, so that fine numbers of it suffice for all work. The ease with which the sterilization is obtained should recommend the method to the busy practitioner.

The yearly income of Swedish public medical officers has been looked into by Dr. Andrew Alfvén. The average income of salary and practice was, for the 242 colleagues that had given the required information, less than $2,000, varying from $650 to more than $4,000. The average cost of the medical curriculum, which in Sweden is very long (eight or nine years), was computed at $4,600. The debts, into which the long and expensive period of study had obliged the students to run, was on an average $3,500. Two hundred and nineteen of these two hundred and forty-two practitioners had answered the question at what age they had paid or thought they would be able to pay this debt; fourteen of them stated that they saw no probability of ever being able to become debtless; thirteen were doubtful, and five named a very remote future; twenty had been freed by lucky casual happenings; ninety-nine had paid the debt (in their case averaging less than $3,000) at the age of 41; sixty-nine (with an average debt of $4,000) hoped to be clear of it when they reached 51. This is certainly rather a dark picture. The statistics concerning the yearly income of practitioners in Stockholm are a little more agreeable to review. Of these 50 per cent. had declared a revenue of more than $2,500; 12 per cent. between $2,500 and $2,000, and 28 per cent. below $2,000.

The death of Professor Edmund G. Hansen Grut has inflicted a heavy loss on Danish medical circles. One of v. Graefe's favorite pupils, the deceased was our first ophthalmologist in the modern sense of the word. He opened his clinic, which was soon to become famous throughout Northern Europe, as far back as 1863, and, in spite of considerable opposition from certain older members of the faculty, he became and remained a university teacher of his specialty during a long series of years. Among the many scientific honors that fell to his lot, and the one which perhaps he esteemed highest, was that in 1889 he was called to deliver the Bowman lecture before the Ophthalmological Society of London.

Our indefatigable legislative body has framed a law of some medical interest. The law, which came into force on the 1st of July, is directed against the rat nuisance. As the diseases, the spreading of which is generally attributed to rats, never or hardly ever occur here, the motives for the carrying of the law have mostly been of an economic nature and prompted by consideration of the important destruction caused by the little rodents. But in countries where rat-caused diseases occur more frequently, it might perhaps be well to take similar measures. The law provides that the State set aside $10,000 a year for the distribution of rat-killing preparations. Further, the municipalities are obliged to pay about 2 cents for every killed rat delivered to the authorities *ad hoc*. Heavy fines threaten those that should begin breeding rats or import them from abroad, with a view to making an easy and agreeable living. The promoters of the cause—there exists here a league against the rat nuisance—believe that they are going to make an Eden without rats of Denmark. It is not impossible that the modest appeal of the law to the lust of lucre of my countrymen will prove more efficient in eradicating the rat evil than the solemn lawsuits and anathemas which, during the middle ages, the ecclesiastical authorities repeatedly directed against rodents, cockchafers, and other dumb criminals.

Progress of Medical Science.

New York Medical Journal, July 13, 1907.

Subcutaneous Rupture of the Spleen.—This subject receives a systematic review from E. Eliot, Jr., who gives the histories of three personal cases, one of which was an instance of serious abdominal lesion after trauma, but without rigidity. In this case retroperitoneal hematoma followed the injury (man struck by motor car and thrown against a lamp-post). The man recovered after operation. The first of the splenic cases was that of a man of twenty-eight years, who had fallen down a shaft. The spleen showed a deep rupture two and one-half inches long, in its phrenic surface. Splenectomy was done and recovery ensued. Case 2 was that of a woman of thirty-four years who fell against an ash-can. Splenectomy was done six hours later, and though she had a very critical postoperative experience, she was doing well when the case was reported. The clinical histories of these two cases are given in detail and cannot be reproduced here. The author calls attention to the fact that nature endeavors to provide a substitute for the loss of splenic reparative power, as is evidenced by a moderate hypertrophy of the lymphatic glands or of the thyroid or of the marrow of the bones, the last mentioned being indicated by a general soreness along the shaft of the long bones. Experimental evidence exists to show that splenectomy in animals increases their resistance power against various infections, but we have no knowledge in this direction as bearing on the human species, although there are several cases on record of infections occurring in splenectomized individuals running mild courses in severe epidemics. In one case there occurred pneumonia six months after operation, and during this whole time there was a considerable increase of large lymphocytes persisting many months after recovery, though previous to the pneumonia the blood count had been normal.

The Craving for Sweets in Diabetic Patients.—A. A. Ripperger says that while the loss of calories resulting from the exclusion of sugar from the diet of diabetics can be easily replaced, still the patient craves sweets, and he notes the recent recognition of the nutritive value of sugar. The only safe substitute is saccharin and the author's paper is largely devoted to a consideration of this substance. He reviews the literature of the question and declares that the restrictions placed on its use in continental countries have been instituted by the cane and beet sugar growers who had feared competition with its consequent lessening of their own revenue. Saccharin has no nutritive value, and clinical experience appears to show that its use as a condiment is attended with no deleterious effects. It will prevent fermentation, but there are other preferable remedies for this object. It does not in any sense cure diabetes. It only satisfies, and that in a perfectly safe way, the craving for sweets. It should not be used in such large doses as to cause repugnance and nausea. Out of twenty-six replies to a circular letter sent out by the author to various physicians twenty-two stated that the respective writers considered saccharin a harmless addition to foods and beverages. One writer was doubtful about the matter and three failed to express any opinion on the matter. The average dose seems to have been about three grains three times daily.

Diagnosis by the Nose.—The sense of smell in diagnosis receives an elaborate consideration from E. C. Hill, who reviews briefly the physiology of olfaction and reproduces Quaardemaker's classification of odors. He then discusses the characteristic odors emanating from the skin in health and disease, the breath, sputum, vomitus, and gastric contents, feces, urinogenital discharges, and aspirated fluids.

Journal of the American Medical Association, July 20, 1907.

The Salicylates in Lichen Planus.—M. B. Hartzell finds that in a minority of cases of lichen planus, in which the arsenic treatment fails, the salicylates either alone or in conjunction or alternating with arsenic, are of good service. Four cases are reported of patients thus treated with salol and salicylates of lithium and sodium. While the number of cases is inconclusive to a certain extent, there seems to be sufficient evidence that the salicylates are sometimes of value, especially for the relief of itching and in cases where arsenic either fails or actually aggravates the condition. Hartzell also describes several unusual eruptions of lichen, such as circles and segments of circles, slightly elevated discs, and band-like papules instead of the ordinary diffuse form. One type mentioned as perhaps the rarest and most interesting is that where blebs accompany the usual flat-topped angular papules characteristic of the disease. These were present in one of the cases reported, and the author suggests the possibility of their being the result of traumatisms caused by the patient scratching himself.

Ulcerative Keratitis Caused by Yeast Cells.—G. F. Keiper and S. Burrage report a case of deep ulcer of the cornea occurring in a man employed by a strawboard manufacturing company, which was cured by calomel and atropine with hot water applications. The whitish growth covering the ulcer was cultivated and numerous slides prepared from the culture; the stain used was methylene blue. Three kinds of organisms were found: A sarcina, in all probability *Sarcina lutea*, a small, unidentified bacillus producing a pink-colored growth, and a diplococcus. Inoculation experiments on guinea pigs produced corneal ulceration in all cases in which cultures of the blastomycetes were used. Further experiments are being made which seem to promise results of interest. The paper is offered as only a preliminary report.

The Use of Paraffin Injections Near the Eyes.—A. E. Davis gives case histories of two patients showing the danger of the employment of paraffin injections near the eyes. In the first case the paraffin, injected near the root of the nose to correct a deformity, caused an immediate swelling of the upper eyelid, with marked inflammatory reaction, keeping the eye closed for six weeks, followed by permanent ptosis, the vision and movements of the eyeball remaining normal. There was a lump in the forehead near the root of the nose which was also the result of the injection. Operation two years later removed from the eyelid a mass of connective and fibrous tissue with particles of paraffin and completely relieved the ptosis. The second case was that of a boy of seven, who had had his right eye enucleated on account of an injury, and the capsule of Tenon filled with paraffin. He did well for nearly a year, then the artificial eye began to squint inward and symptoms of sympathetic irritation appeared in the other eye, together with headaches. The capsule was found empty and a solid ball of paraffin, 7x5x3 mm. in size, together with a smaller piece, was removed from near the apex of the orbit, and the symptoms quickly disappeared. It is supposed that during the first operation the capsule must have been punctured, the paraffin escaping pressed on the optic nerve and gave rise to the symptoms observed. Davis reviews the literature of similar accidents and thinks the dangers have been sufficiently demonstrated to make a more thorough investigation of the subject desirable.

The Cause of Infantile Atrophy.—A. H. Wentworth suggests as a possible cause of infantile atrophy a de-

fective correlation of the several digestive organs, stomach, intestines, pancreas, and liver. This hypothesis is based on the discovery of Bayliss and Starling of secretin, originating in the small intestine and passing from it through the blood to the pancreas, and to some extent to the liver, which organs are stimulated by it to secrete. He reports experiments on cats made to ascertain the effect on the pancreatic secretion of the secretin obtained by Bayliss and Starling's method from the cadavers of atrophic, new born and other infants. The tabulated results show that the material obtained from the intestines of atrophic infants possessed little or no power to stimulate the flow of pancreatic juice in the cat, indicating either a lesser strength or quantity of secretin present. The secretin from well-nourished infants and children, on the other hand, always caused activation of the cat's pancreas. He thinks it very unlikely that the diminution of secretin can be due to inanition, as suitable food restores the functions rapidly before the general marasmus of the infant has been bettered. He has also experimented to ascertain as far as possible how much it can be due to digestive disturbances, etc., and while his investigation is not yet finished, he is inclined to offer the following hypothesis as the result of the research thus far to explain the cause of infantile atrophy: The digestive functions of the very young infant are not activated because it does not receive the only food capable of activating them, viz., mother's milk. This leads the stomach to secrete an inadequate gastric juice, and the duodenum is therefore not stimulated to form normal secretin. The defective secretin insufficiently stimulates the pancreatic secretion, and leads probably to as yet unstudied disorders of the function of the gut lower down. What renders the milk specific in this way is now engaging his attention and he hopes to be able to answer it in the future. It is possible that it is due to some hitherto overlooked specific substances or to certain hitherto disregarded factors in chemical composition.

Benign Melanosis.—A case of melanotic abdominal tumors with pigmentation of urine, milk, and sweat, is reported by J. C. Stewart. The patient has been in good health for fifteen years after the diagnosis of multiple melanotic sarcoma had been made and operation suspended on account of the apparent hopelessness of the condition. The patient has passed through two normal pregnancies, following the last of which, as well as after the operation, there was temporarily black pigmented milk from the breasts, and melanuria. The probable explanation given is that the original cyst was either a dermoid with great overproduction of pigment, or that a parovarian cyst became the seat of repeated hemorrhages and filled with changed blood pigment. Against this latter, however, is the fact that the urinary pigment was apparently melanin, and not changed blood pigment. It is supposed that the cyst, possibly as a result of galvanic treatment, ruptured, and its contents became diffused through the abdomen and caused multiple small peritoneal cysts. The subsequent pigmentation of milk, sweat, and urine is attributed to the traumatic effect or to changed pressure relations following operation and labor, respectively. The structure of the cysts examined and the composition of the pigmented milk, speak against the case being one of delayed fatality in melanosarcoma. The case is reported as a remarkable simulation of the clinical features of melanosarcoma without malignancy.

The Treatment of Erysipelas.—E. Laplace reports experiments made to find whether or not it is possible to alter the virulence of staphylococci and streptococci so as to explain the clinical phenomena. He found that by taking a virulent strain of streptococcus and incubating it in an acid medium, the streptococcus changed to an apparently typical staphylococcus, while the same strain incubated in an alkaline or neutral medium retained streptococcic appearance and virulence. He also refers to his earlier discovery that the acidifying of a bichloride of mercury solution would take away its action of coagulating the blood, thus rendering it more useful as an antiseptic application. Applying these facts to the treatment of erysipelas, he has used acid, ice-cold bichloride of mercury solution locally in the treatment of this disease, making minute scarifications, especially for two or three inches beyond the infected areas so as to lay upon the lymphatic vessels. The venous capillary hemorrhage thus caused allows vast numbers of the infecting cocci to escape, and the ice-cold compress, kept wet with the solution and applied to the lymphatic vessels, helps to destroy those remaining. If the infection is deeper, involving the cellular tissue, an incision should be made over the infected area for thorough drainage and disinfection. If the nose or some delicate part of the face is involved the scarifications may be replaced by copious acupuncture. He has employed this method in a large number of cases, both in hospitals and private work, with unfailing success in checking from the first the starting infection, and he believes that by this local treatment, in conjunction with the constitutional tonic treatment with tincture of chloride of iron, all the indications will be met.

The Lancet, July 6, 1907.

Some of the More Unusual Forms of Acute Conjunctivitis.—An investigation into this subject has been made by A. C. Hudson and P. N. Panton, who report in detail with reference to the streptococci, *Staphylococcus aureus*, an intermediate staphylococcus, an unclassified coccus, *Staphylococcus albus*, gonococcus, diphtheria bacillus, and diphtheroid bacillus. In each instance two or more film preparations were made from the discharge and a culture taken on to some form of solid medium. The films were stained and examined *pro forma*, but diagnosis was not made from the films alone, except in some cases of gonorrheal infection in which attempts at cultivation failed. The author concludes as follows: That both *Staphylococcus albus* and *Staphylococcus aureus*, as well as streptococci, are capable of exciting an acute conjunctival inflammation. That these organisms when they are present as the only pathogenic bacteria in an inflammatory conjunctival discharge should be considered as the causative agents. That these orgamisms give rise to a considerable percentage of all cases of acute conjunctivitis. That the severity of the type of inflammation they produce varies on the whole directly with the generaliy recognized pathogenicity of the members of the group, the most severe cases being associated with the streptococci and the least severe with the white staphylococci; but that the severity of the symptoms produced by any of the individual organisms may vary considerably with the idiosyncrasies of the patient. That there is reason to suppose that these bacteria, when associated with other pathogenic organisms, tend to increase the severity of the conjunctival inflammation. That the types of acute conjunctivitis due to these organisms, although presenting no pathognomonic features, are not infrequently suggestive of their etiology. That staphylococcal, as well as streptococcal, infection of the conjunctiva is liable to be associated with membrane formation. That conjunctivitis due to the diphtheria bacillus is uncommon and may be difficult to diagnose on clinical grounds. That diphtheroid bacilli are present in a high percentage of cases without appearing to influence the nature of the processes. It is probable that they represent more than one species and it is possible that some of these may be pathogenic to man; but there is no evidence that they may ever become transformed into the genuine diphtheria bacillus. That sporadic cases of pneumococcal conjunctivitis must be of rare occurrence (in London not a single case being met with in this series). Inasmuch as the diagnosis of this organism from a streptococcus may be a matter of great difficulty, its identification by film preparations only or by incomplete cultural investigations cannot be relied on; the mere appearance of encapsulation of the organisms in the films is most unreliable as a means of diagnosis. These observations agree with the investigations of others as to the rarity of organisms of the bacillus coli group as causes of acute conjunctivitis.

Separation of the Acetabular Epiphysis of the Femur: Its Relation to Adolescent Coxa Vara.—P. W. Sargent and L. A. Kisch regard separation of the acetabular epiphysis as not uncommon and notes the general recognition of its etiological relation to adolescent coxa vara. They recently presented to the London Medical Society the case of an epileptic boy who had fallen in a fit and showed a condition of recent separation of the right acetabular epiphysis without having any knowledge that there was anything wrong with his joint. The case is described in full with reproduction of skiagraphs. From a study of the latter and of some ten other cases as well as of an equal number of cases of coxa vara, the authors differentiate two classes of this condition: (1) Those cases in which there is only rotation on an horizontal antero-posterior axis, and (2) those in which there is rotation on both an horizontal and on a vertical axis. In the first class the symptoms are slight and there is only slight impairment of mobility. The treatment consists in wrenching under an anesthetic and immobilizing in the abducted position in a suitable apparatus for two or three months and then the use of patten and crutches for a year. The prognosis is excellent and skiagrams taken after this treatment has been carried out show no evidence of abnormality whatever. In the second class the symptoms are more severe, and the author declares that the greater the vertical rotation the severer the pain and immobility. The

pain is due to pressure on the capsule. The treatment is more difficult. An attempt should be made under an anesthetic to wrench the bones into place, but if not successful the neck must be screwed or nailed to the epiphysis, the femur first being rotated and abducted until the fractured surfaces are in apposition. The prognosis is worse than in the first class. If a case of separated epiphysis with a history of injury is untreated the deformity known as traumatic coxa vara results. Now the skiagrams of traumatic coxa vara are exactly similar to those of ordinary adolescent coxa vara, and as in the traumatic cases the injuries are always trivial, the view has gradually developed that these conditions are really one and the same, that is, that all cases of adolescent coxa vara are due to a previous separation of the epiphysis. All cases, therefore, of slight limp or aching about the hip joint in patients between twelve and eighteen years call for immediate skiagraphy, so that the condition of separation may be detected in its incipiency and the case be prevented from passing into the second class above specified.

Intermittent Hydronephrosis Treated by Operation.—Two cases are reported by G. W. Watson Cheyne, whose paper contains several illustrations. Both patients, woman, aged thirty-two, and man, aged twenty, recovered. In both the left kidney was involved. The author considers the condition found in both the most common one found in such cases, at least, such a statement is borne out in his personal experience. This condition is the attachment of the ureter too high up on the pelvis with the result that a valvular opening is formed which tends to become closed when the ureter is distended. He is not prepared to say whether the condition is congenital or acquired. In all the cases he has seen the kidney has been freely movable. As a result of that mobility the ureter may become kinked or curved from time to time, so that there is a difficulty in the urinary outflow. As a result the pelvis becomes distended and as it yields more at the lower part than elsewhere a pouch is formed below the ureteral attachment. Consequently in time the ureter comes to arise from the upper part of the dilated pelvis and thus the orifice tends to become blocked as the pouch fills with urine. As an argument against this theory the author reminds us that the ureter in these cases does not come off straight from the dilated pelvis, but is adherent to the wall of this sac for some little distance, so that one may put one blade of a pair of scissors into the ureter and the other into the pelvis and cut the intervening wall of pelvis and ureter for a little distance without opening the cellular tissue beyond. This looks more like a congenital malformation. The author describes his surgical technique as follows: An oval piece of the pelvis of the kidney containing the orifice of the ureter is excised, the greater extent of the oval being above the ureter. At the lower part the incision runs about a quarter of an inch below the point where the ureter leaves the pelvis, at the sides it is carried out to about half an inch, and at the upper part rather more. This piece being detached the orifice of the ureter is inspected and one blade of a pair of scissors is introduced into the ureter not quite down to the point where the ureter loses connection with the pelvis, and the other blade being on the pelvic surface the scissors are closed and in this way a slit-like opening is made and the valvular orifice is got rid of. The wall of the ureter and that of the pelvis along this cut, and more especially at the lower angle, are now united by three or four fine catgut sutures. A piece of the lower part of the dilated pelvis is now cut away corresponding in size and shape to the above, and the ureter is then fastened into this opening by a series of Lembert catgut sutures. If deemed advisable a portion of the dilated pelvis may now be cut away and the opening stitched up in a linear direction. If possible it is well to avoid any connection between this incision and that in which the ureter is attached, as leakage is apt to occur at the angle of union.

British Medical Journal, July 6, 1907.

Post-Scarlatinal Desquamation.—A child came under the observation of F. J. Vincent Hall with scarlatina presenting a copious rash. Although closely looked for, desquamation of even the most floury nature was never observed. At the end of about five weeks she appeared perfectly well, except for a very slight aural moisture. Two or three weeks afterwards her father developed scarlatina with every other symptom of the disease, except a rash. This no one ever could detect. At the end of six weeks, no desquamation having taken place, and feeling perfectly well, he suggested to the author that he should take a fortnight's holiday, at the expiration of which he considered he might safely resume his practice. A few days later the author received a letter from him stating that he was peeling profusely, and he returned home. It was nearly two months before all the desquamation ceased. Three months after her attack was apparently cured, the little girl was sent to her grandmother's in the country. While out for a walk a nursemaid, accompanied by the child and a small boy cousin, used her own pocket handkerchief to both the boy and the girl. Both the boy and the nursemaid developed scarlatina in a few days, and had it severely. There was at that time no other case in the district. The author states that long ago he came to the conclusion that the desquamation stage of scarlet fever is not infectious, provided the throat is well and there is no nasal nor aural discharge.

Spontaneous Aneurysm of the Dorsalis Pedis Artery.—The patient of A. Cuff, a woman of fifty-three years, had noticed a small swelling on the dorsum of the left foot for over two years. For the few weeks previous to observation by the author it had given no trouble, but recently had begun to enlarge and to give the patient considerable trouble. There was no history of trauma or syphilis. Examination showed on the dorsum of the foot a pulsating, expansile swelling, the size of a small walnut, over which the skin was thinned and slightly reddened. It lay toward the point of termination of the dorsalis pedis artery. The arteries generally were somewhat thickened, vascular tension increased, and the aortic second sound accentuated over the valves. The aneurysm was excised, the resected portion of the artery showing well marked endarteritis with considerable thickening of the vessel walls.

Sterility Among X-Ray Workers.—A. C. Jordan refers to this untoward result of *x*-ray work upon operators. He has not found any data bearing on possible recovery from sterility thus produced. If it is recognized while there are still immobile spermatozoa, it would appear possible that two or three years of complete abstinence from *x*-ray work might result in some degree of recovery. After some remarks on protective devices used by others, he suggests as sufficient the following protective measures: The tube box should be made entirely of wood, and should be completely lined on the outside with an efficient protective rubber material with the exception of an aperture at the top which is controlled by an adjustable diaphragm. A view of the tube may be obtained through a small lead-glass window covered with a flap of a protective material. The operator should always wear a protective apron reaching from the shoulders to below the knees, and, as these two means are not sufficient, he should also have an upright rectangular wooden screen, three feet three inches in height and two feet in width, lined on both faces with three-pound sheet lead, and should place it close to the couch between himself and the tube box. A larger screen (say four feet square) should be supplied for use while *x*-ray treatment is in progress. The screens may be mounted on castors. Screens of the sort described are not in the operator's way to an uncomfortable extent. For treatment the tube should always be completely enclosed. Eventually, the author believes, sheet metal shields and tube boxes will be available, but this cannot well be before static machines have been so far improved and developed as to be used in place of induction coils, as has been done with great success.

The Care of the Patient During Serious Abdominal Operations.—H. B. Gardner refers to certain points which he believes to be of value. Strychnine should be given t. i. d. for a week previous to operation. Strong purgation the night before is to be avoided, as it temporarily lowers the general blood pressure. Rest in bed should be insisted on for two or three days preceding with regulation of the diet and compliance with nursing discipline. The body should be thoroughly clothed during operation. Hot water beds are often advisable in long procedures. Thin blankets are quite inefficient as heat preservatives and all blankets should be heated. Large surfaces of the body near the wound should not be exposed or covered with wet cloths, which produce rapid chilling of the skin by cooling and evaporation, and if these are to be used mackintosh and, if possible, blanket also should lie beneath them. It must not be forgotten in this connection that exposed intestines and other vascular organs produce a rapid loss of heat and should be covered when drawn out by a succession of warm sponges or wads of gauze. A patient always begins to flag when eviscerated bowel is allowed to cool. Syncope due to the removal of the weight of fluid or tumors from the splanchnic area may be anticipated and prevented by the surgeon removing the tension slowly, and the anesthetist lowering the patient's head at the same time. After an operation conducted in either the Trendelenburg or the lithotomy position, if hemorrhage has occurred it is best not to let the patient down flat at its termination, but to keep the feet raised for some hours afterwards to prevent the supervention of cerebral anemia before the blood pressure

has returned to normal level. In deep stages of anesthesia the vasomotor mechanism is paralyzed and whenever shock or hemorrhage begin to appear the anesthesia should be lightened so that the vasomotor system may recover its activity and readjust the disturbed blood pressure.

Berliner klinische Wochenschrift, July 1, 1907.

The Use of Morphine in Asthma.—Goldschmidt says that while all the textbooks contain the strict injunction not to give morphine to asthmatic patients, and the number of morphine habitués who are led to begin the habit through its administration for this disease is very large, nevertheless most practitioners find it necessary to resort to opium in many of their cases of asthma. He himself is of the opinion that if carefully watched and controlled the use of the drug is not very dangerous and forms an almost indispensable part of the treatment. Two broad types of cases may be distinguished, those in which the attacks occur at rare intervals and those in which a more or less persistent asthmatic state or status asthmaticus exists. There can be no objection to giving morphine to patients of the first type who have attacks lasting only one or two days, but even in instances of the chronic form for a time at least it may be used without danger. A point of great importance is to realize what exceedingly minute amounts suffice to produce the desired effect. Doses ranging from three to five milligrams hypodermically are usually competent to bring relief in even the severest attacks. Administered in this way there is little tendency to producing addiction, but when the first symptoms of morphinism, instanced by the demand for a considerable increase in dosage, appear, some more harmless, though less efficient substitute, like chloral, must be employed.

Münchener medizinische Wochenschrift, June 25, 1907.

Phosphaturia in Gonorrhea.—Oppenheim does not agree with those observers who believe that the phosphaturia which so frequently accompanies gonorrhea is the result of a secretory neurosis of the kidney attending a condition of sexual neurasthenia, nor with those who hold that the peripheral disease of the urogenital apparatus exerts a reflex action on the kidney, causing it to secrete phosphatic urine. He expresses the opinion, which he seeks to corroborate by clinical observations, that the phosphates of the urine are precipitated owing to the addition to it of the alkaline secretions of the inflamed urethra and its glandular structures. It is notably the prostatic secretion that has this effect, which is further enhanced through the fact that the usual dietetic régime prescribed for gonorrheal patients involves a reduction in the normal urinary acidity. Owing to this cause even small amounts of alkali are sufficient to induce the precipitation of the urinary phosphates. It is also possible, though not certain, that there is an actual increase in the amount of calcium excreted by gonorrheal patients.

The Results Obtained in Thoracic Operations by Means of the Pneumatic Cabinet.—Kausch says that there are still differences of opinion, first, in regard to the necessity for the pneumatic cabinet in thoracic operations, and secondly, as to which form of procedure—the increased pressure or the negative pressure method—is to be preferred. While he admits that most of the justifiable thoracic operations can be performed without resort to these measures, he considers that they may be regarded as indispensable in order to avoid operative pneumothorax with its attendant dangers of infection in performing extrapleural pneumonotomy, especially if the lung is infected. They are also very desirable, though not essential, in the treatment of empyema. Owing to the greater opportunities for manipulative control and the less complicated nature of the apparatus, he prefers Sauerbruch's cabinet with negative pressure to Brauer's method of increased pressure, in which serious difficulties are likely to be encountered in the management of the anesthesia.

Deutsche medizinische Wochenschrift, June 27, 1907.

Discharge of the Appendix Through the Rectum.—Groedel describes this remarkable case. The patient was a man of sixty-two years who had been under treatment for some years for diabetes, arteriosclerosis, angina pectoris, and cardiac insufficiency with congestion in the lungs, liver, and kidneys. During convalescence from an exacerbation of these conditions he suddenly developed evidences of diffuse peritonitis. Operation seemed inadvisable owing to the patient's general condition, and after twenty-four days of symptomatic treatment the patient died. On the tenth day of the illness about fifteen enteroliths were discharged, and on the sixteenth day the appendix, measuring eight cm. in length, was found in the stools. During the following days quantities of light green pus were mingled with the feces. The author believes that through the pressure of an enterolith at the opening of the appendix a circumscribed patch of gangrene was caused in the cecal wall, accompanied by necrosis of the mesenteriolum, so that the appendix was enabled to drop back into the cecum and so be discharged with the stools. The tendency to gangrene may have been increased by the diabetes from which the patient was suffering. At a partial autopsy the conditions found seemed to justify such a view.

The Secretion of Milk After Castration.—Grünbaum observed a case in which after a double oophorectomy a copious secretion of milk began on the eleventh day and lasted for several weeks. This led him to watch similar patients with this end in view and he reports twenty additional oophorectomies, in fourteen of which the removal of both ovaries was followed by a more or less profuse mammary secretion. This usually began to appear during the third week after operation; in some instances it ceased after a few days or weeks, but in others it had already persisted for several months. In some of the patients the secretion was very abundant, so that even moderate pressure caused the fluid to squirt from the nipple, but in most cases only a few drops could be expressed. The first secretion obtained was usually colostrum-like, milk appearing later. The patients ranged in age from twenty-three to forty-six years, and six of those whose breasts secreted milk were nulliparas. The author suggests that ovarian tissue may exert an inhibitory influence on mammary activity.

French and Italian Journals.

Enuresis in Children.—Arture Cavalieri classifies enuresis of children, according to the cause, into four divisions, excluding all cases resulting from general, spinal, or brain diseases. The condition is essentially a neurosis, and hereditary nervous conditions are often to be found as remote causes. According to some, the cause is a hypoplasia of the central nervous system. The immediate cause is a hyperexcitability of the detrusor vesicæ, with relaxation of the sphincter of the urethra, or a lack of development of the prostate and failure of the bladder orifice to close. The therapeutic measures must depend on the one of these conditions that exists. General hygienic and dietetic measures are appropriate in all conditions. For hyperexcitability of the detrusor, belladonna in increasing doses at night, valerian and warm baths are the best remedies. For deficiency of the sphincter, strychnine and faradization are useful. For reflex enuresis, the removal of the cause is all that is needed. In deficient closure of the bladder, with other deformities, massage and systematic dilatation of the urethra are useful. The most brilliant modern method of treatment is that of Cathelin, the injection of physiological salt solution into the spinal canal, entering the needle in the hiatus sacralis. The effect is supposed to be due to stimulation of the nerve roots.—*Rivista di Clinica Pediatrica*, March, 1907.

Supplementary Venous Circulations of the Anterior Thoracico-Abdominal Wall, Especially in Affections of the Liver.—A. Gilbert and Maurice Villaret state that in the course of hepatic affections the collateral venous circulation may have multiple origins; they may be due to troubles of the intrahepatic portal vein, the inferior vena cava involved in sclerosis of the posterior surface of the liver or compressed by that organ; or may be due to hypertension of the intraabdominal venous circulation from development of ascites. Certain affections seem to be accompanied by particular forms of venous dilatations, which may be of value in diagnosis of these affections. The circulatory current may be in different directions, according as the different regions of the abdomen are involved. The circulatory type due to lesions of the superior vena cava has a current directed from above downward, and the veins of the superficial layer of the upper thorax and epigastrium are affected. The affections of the inferior vena cava by compression are more complex; they are exclusively subumbilical, and the current is from below upward. They are found in cases of peritoneal tuberculosis, limited tumors of the abdomen, and hernias of the walls. Especially they are due to obliteration of the inferior third of the vena cava inferior. Later the vascularization extends to the portal region and becomes mixed. The collateral circulations in hepatic affections are more interesting. When due to compression of the vena cava inferior they are similar to the previous variety. When there is a pure portal origin it results from atrophic cirrhoses unaccompanied by ascites. There are four forms of circulations: by dilatation of the umbilical system of veins; by dilatation of the superumbilical and thoracic veins; by dilatation of veins predominating on the right side along the thorax; by circulations of several varieties. When we have a peri and superumbilical circulation, principally localized over the xiphoid region, or along the thoracic region, whose current is from below upward, we may consider it due to portal lesions.—*Revue de Médecine*, April 10, 1907.

Book Reviews.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U. S. A. Volume IV. Sixteenth Series, 1906. Philadelphia: J. B. Lippincott Company, 1906.

This volume of the well-known quarterly contains lectures and articles on therapeutics, medicine, surgery, obstetrics, gynecology, laryngology, and otology. Among them we find a very instructive, plainly written article on electrotherapeutics by Dr. J. H. W. Rhein of Philadelphia, in which the essentials of the subject, as the appeal to the practitioner, are given in a most lucid style. There are also good articles on the treatment of chronic nephritis by J. M. French of California, and on chronic constipation by J. D. Steele of Philadelphia. Brief articles on obesity and on ureteral calculi, by P. Grocco (Florence) and H. Lilienthal (New York), respectively, close the section on treatment. In the section on medicine there are important contributions on tuberculosis by W. Porter (New York), J. E. Squire (London), and Henry Sewall (Denver); on hematuria by A. R. Elliott (Chicago); on myxedema by R. S. Morris (Baltimore); syphilitic aortitis by C. Dieulafoy (Paris), and on diseases of the suprarenals by Léon Bernard (Paris).

In the surgical sections two articles attract attention, that of G. Ross (Philadelphia) on fractures of the lower limbs, and that of Russell A. Hibbs (New York) on hip-joint disease. David Wallace's (Edinburgh) article on vesical tumors is instructive, and presents a comparatively obscure subject most attractively. In G. P. Muller's (Philadelphia) article on hemorrhoids we find nothing on the "office treatment" so popular in this country. He gives an admirable description of the operative technique of operations for piles, preferring the McBurney method, which is well illustrated in his article. The article on placenta prævia by J. B. De Lee (Chicago) is worth reading indeed, as it is probably the best review of the subject published. Practical articles on lacerations of the cervix, by Newman Dorland (Philadelphia), and on cystitis in woman, by D. H. Craig (Boston), on laryngeal tuberculosis, by E. F. Trevelyan (London), and on the mastoid operations, by C. W. Richardson (Washington), close this most valuable volume. The diversity of subjects therein treated is great, and all classes of physicians will find something in it that will suit their needs.

Traitement du Mal de Pott à l'usage des praticiens. Par le Dr. F. Colot, Chirurgien en chef de l'Hôpital Rothschild, de l'Hôpital Cazin-Perrochaud et de l'Institut Orthopédique de Berck. Paris: O. Doin, 1906.

This is a very concise, exceedingly practical little book on the treatment of Pott's disease and its common complications. It is written for the general practitioner, and tells exactly how to make plaster jackets, etc. Colot is a firm believer in the reduction of kyphoses by slow and gradual compression. For this purpose he directs the physician to make an opening in the back of the plaster-of-Paris jacket, large enough to allow the kyphos to project, and then to pack the opening with a half-dozen layers of cotton. These are held in place by adhesive straps. Thus gradual pressure is made on the projection. At intervals the dressing is renewed, the amount of padding being increased up to twelve or eighteen layers. The edges of the cotton squares are pushed in under the edges of the opening in the plaster-of-Paris. Very simple and perfectly intelligible illustrations show how all this is done. A number of photographs of cases show excellent results from this treatment.

Physical Chemistry in the Service of Medicine. Seven Addresses by Dr. Wolfgang Pauli, Privatdocent in Internal Medicine at the University of Vienna. Authorized Translation by Dr. Martin H. Fischer, Professor of Pathology at the Oakland College of Medicine. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1907.

Physical chemistry has already begun to play so important a part in the fundamental conceptions of modern medicine, and appears to be destined to so brilliant a future in the solution of many of the problems of medical science that the thanks of the profession are due to Dr. Fischer for having made this series of lectures available to those who do not read German. Dr. Pauli's addresses form a simple and easily intelligible introduction into the complicated lore of ions and electrolytic dissociation, sols and gels, catalysis and viscosity, and should prove most acceptable to all who desire to keep pace with the important advances that the masters of the subject are making. The author has made his work doubly interesting to the average reader by pointing out the practical significance of many of the theoretical principles considered, and questions of physiology, pathology, and pharmacology are all dwelt upon. Sections of particular practical interest are those in which the applications of colloidal chemistry to the doctrine of the toxins and antitoxins, and of the therapeutic possibilities of the sulphocyanates are discussed. The little volume contains a wealth of information on subjects of the greatest import in the development of our art, and should prove a boon to those who are anxious to be well informed, but have not the opportunity of pursuing extensive studies in so very intricate subjects. The translation is an excellent one, and Dr. Fischer has succeeded admirably in paraphrasing the difficult terminology of the original into appropriate English terms.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. III. Earth Burial to Gummi Indicum. Edinburgh and London: William Green & Sons, 1907.

In the third volume of this excellent work there are 1,097 titles of which 60 are of more or less important articles. Among these we may mention Eclampsia, Ectopic Gestation, Eczema, Electricity, Enteroptosis, Erysipelas, Eye, Facial Paralysis, Foot, Fractures, Gall-bladder Diseases, Gangrene, Gastrointestinal Disorders of Infancy, General Paralysis, Female Organs of Generation, Glaucoma, Glycosuria, Gonorrhea, and Gout. Of articles from 80 to 900 words in length there are over one hundred, and of shorter articles, pactically simple definitions or cross references, there are over 900. The volume is illustrated wherever necessary, but it is not at all profusely illustrated, the pictures being introduced evidently only to elucidate the text, and not for the sake of making a show. As a work of ready reference, combining the dictionary and encyclopedic features, this leaves little to be desired.

The Practical Medicine Series, Comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago. Volume VIII. Materia Medica and Therapeutics, Preventive Medicine, Climatology, Forensic Medicine. Edited by George F. Butler, Ph.G., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Daniel R. Brower, A.M., M.D., LL.D., and Harold N. Moyer, M.D. Series 1906. Chicago: Year Book Publishers, 1906.

This eighth volume of the popular series of annuals covers five different departments of medical science in a duodecimo of 358 pages. It cannot be expected that an exhaustive analysis of the year's progress in all these branches can be given in such a limited space. The subjects are therefore handled very briefly, but sufficiently for the purposes for which these annuals are got up. In the chapters on materia medica are to be found brief notes on the new remedies of 1905, some of which have become more or less generally used. Under the heading of preventive medicine much attention is paid to the sanatorium treatment of tuberculosis.

Practical Gynecology: A Comprehensive Textbook for Students and Physicians. By E. E. Montgomery, M.D., LL.D., Professor of Gynecology, Jefferson Medical College; Gynecologist to the Jefferson Medical College and St. Joseph's Hospitals; Consulting Gynecologist to the Philadelphia Lying-in Charity and the Kensington Hospital for Women. Third Revised Edition. Philadelphia: P. Blakiston's Son & Co., 1907.

The general plan of this edition is the same as that of the former two, the changes being chiefly in the nature of additions to keep pace with the advance in this branch of surgery. The section on etiology is new and so is the subject of blood examination. For some curious reason the latter is included in the section on Animal Parasites, and this in turn is placed in the chapter on Pelvic Examination—at least the running page heads would so indicate. Exploration of the Urethra, Bladder, and Ureters is another subject included in the section on Animal Parasites. The sections on Microscopic Diagnosis, Gynecic Bacteriology, and the Pathology of Carcinoma Uteri have been extensively revised. A number of illustrations have been added. The pictures are a very praiseworthy feature of the book; most of them are original, many are beautifully executed, and all are useful. Dr. Montgomery's Gynecology is a deservedly popular work and it will remain so as long as the successive editions are so carefully and conscientiously revised as is this one.

Notions Élémentaires de Prophylaxie des Maladies Tropicales. Par R. Wurtz, Professor agrégé chargé de cours à l'Institut de Médecine Coloniale de Paris. Paris: Vigot Frères, 1906.

This pamphlet of thirty pages is a useful contribution to the study of the hygiene of tropical countries. Both physicians and laymen would derive benefit from a perusal of its pages.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Fifty-eighth Annual Session, Held at Atlantic City, June 3, 4, 5, 6, and 7, 1907.

Special Report to the MEDICAL RECORD.

(Continued from page 81.)

SECTION ON DISEASES OF CHILDREN.

Thursday, June 6—Third Day.

The Opsonic Index in the Tuberculosis of Children; Its Relation to the Tuberculin Test.—Dr. THOMAS MORGAN ROTCH of Boston, Mass., read this paper, in which he emphasized the growing demand for making an early diagnosis in tuberculosis, particularly in children. It was an established fact that early diagnosis meant cure. The two means for making an early diagnosis were the tuberculin test and the opsonic index. The former should be used only by trained observers and with the greatest care. A positive reaction had been obtained in 99 per cent. of cases of tuberculosis, but a negative result did not necessarily exclude the presence of tuberculosis. In his experience the giving of an overdose of tuberculin had proved serious. Children, however, took it without danger if given in the proper way. Interrupted doses were not necessary. He advocated giving the reaction dose. In one case the question had arisen as to whether the tuberculin was curative. The opsonic index had been taken in some cases in children to determine whether tuberculin had better be given as a test; and also, if tuberculosis were present, whether a large or small dose of tuberculin should be given in connection with the treatment. The general rule in giving the vaccine was that the initial injection should be very small. When small increasing doses had been used over a long time reactions had been very few, therefore he had been encouraged to continue studies along this line. He suggested that in the future the different vaccines would probably be used for diagnostic purposes, though he did not wish to go on record at present as advocating their use for this purpose.

Dr. CHARLES GILMORE KERLEY of New York City said the observations at the Babies' Hospital, under Dr. Holt's service, coincided with the experience of Dr. Rotch, and that no harm had come from the use of tuberculin; also that one injection sufficed. A useful field for this test was in tuberculous peritonitis, where the diagnosis was often very difficult.

Dr. ISAAC A. ABT of Chicago, Ill., warned against being too reckless with the use of tuberculin. He had had some sad experiences with it. Not more than two milligrams should be used at a dose.

Dr. LOUIS C. AGER of Brooklyn, N. Y., had found, in following the literature of the subject, that there is a wide divergence of opinion as to what constitutes the safe dose. This should be more accurately determined. He asked if Dr. Rotch had confined his experiments to the old tuberculin.

Dr. A. W. FAIRBANKS of Boston, Mass., said the impression against tuberculin was due to the teaching of Virchow and his pupils, who believed tuberculosis in many cases was disseminated by its use. His own prejudice against it was being gradually overcome.

Dr. RUSSELL S. ROWLAND of Detroit, Mich., cited a case of tuberculous peritonitis in which the patient was in too bad a condition to warrant operation. Tuberculin was given as a last resort, and rapid improvement followed, the fluid disappearing rapidly. Operation in this case now thought to be unnecessary. He cited a post-operative case which was improved under the opsonic treatment. Two facts had been brought out by this treatment, viz.; First, that in tuberculous peritonitis the index was low before treatment; second, that when the index is raised the patient is put in better condition for operation. After operation the opsonic index went down and remained down for a long time, which showed that the operation might be an autogenous method of producing vaccine which gradually improves the condition. He mentioned a case of meningitis of the diplococcus type, which he had seen late in the course of the disease. He made a vaccine, but the parents of the patient would not consent to its use. The child recovered. If he had used the vaccine the recovery would have been attributed to its effect.

Dr. ROTCH, in closing the discussion, said he had used only the old original preparation. So far as he knew there was no difference in the efficacy of the old and the new preparations, but with the latter small doses must be given. At the Infants' Hospital, as well as at the Massachusetts General Hospital, it had been routine practise to test for tuberculosis with tuberculin. Given properly, it was no more dangerous than opium, strychnin, or any other remedy. The dose for children was two to five milligrams; as much as ten milligrams had been given. One milligram would very seldom give the reaction. It might be given in interrupted doses when a slight reaction is desired. Two milligrams was a diagnostic dose. For therapeutic purposes small doses were given.

Tardy Malnutrition; Its Treatment by Rest and Diet.—Dr. CHARLES GILMORE KERLEY of New York City presented this communication. He referred to children who, after two years, while free from diseases such as tuberculosis, syphilis, chronic nephritis, etc., showed marked developmental defects in that they were underweight and undersized. They might be of average height, but were always of under-weight; they tired easily; had diminished resistance to exercise as well as to disease; suffered invariably from anemia, and had no appetite. Simple digestive disturbances in such children would require several days before relief could be accomplished. They were found in all classes of society. Careful study of each case would invariably demonstrate that the patient was not getting what a growing child has a right to expect. One fact in child management was often lost sight of by both layman and physician, viz.—that the child has a definite business to perform—growth and development into physically the best type of adult. All other interests should be subservient to this. The acquirement of knowledge, for example, should never stand in the way of physical development. The chief cause of malnutrition in older children as in infants, was defective nutrition, due to ignorance of food values. The next important factor was excessive expenditure of energy and inadequate rest. Here various influences were operative. In order to attain the best physical development the child, up to the eighth year, should sleep twelve hours out of the twenty-four. Late hours, entertainments, children's parties, boxed breakfast foods, etc., were to be deprecated and deserved part of the blame which had attached to long school hours and overwork at school. Heredity was a factor; but he had found that when these children were put on a rational method of living improvement in weight followed. He outlined his scheme of management in such cases, which consisted in the proper selection of foods and the regulation of the environment and habits of life, in order that the food might be best utilized.

Dr. THOMAS MORAN ROTCH of Boston, Mass., believed that the usual treatment with drugs in these cases had had its day.

Dr. J. W. VAN DERSLICE of Oak Park, Ill., agreed with Dr. Kerley that the regulation of the diet and the insistence upon adequate rest were the important points in the management of such cases.

Dr. JOHN LOVETT MORSE of Boston, Mass., subscribed to all Dr. Kerley had said. Intellectual development was of no consequence compared with physical development.

The discussion was continued by Dr. STOWELL of New

York City, Dr. McKee of Philadelphia, and others, and closed by Dr. Kerley.

The Percussion of the Chest in Infants and Children. Dr. S. McC. Hamill of Philadelphia, Pa., called attention in this paper to the fact that the tendency to-day is to neglect percussion of the chest in early life, and protested against the neglect of so valuable a procedure. He detailed the methods for percussion of the lungs and heart, the best position for each, and the external influences which affect the result. He particularly emphasized the importance of minimizing the percussion stroke.

Dr. Arthur Willard Fairbanks of Boston, Mass., advocated the use of the stethoscope in connection with very light percussion.

The paper was further discussed by Dr. Lowenburg of Philadelphia, Dr. McKee of Philadelphia, Dr. Hand of Philadelphia, and others, and the discussion closed by Dr. Hamill.

Symptom-Complex of a Series of Intestinal Cases in Children with Pathological Findings.—Dr. Thomas D. Parke of Birmingham, Ala., detailed, in this paper, a series of eighteen cases which had come under his observation between the months of May and October during the years 1904, 1905 and 1906, description of which he had not been able to find in the literature. The chief symptoms which characterized the cases were rapid abdominal breathing, air hunger, rapid pulse, cessation of bowel movements, respiratory moan, engorgement of the liver, and, as a rule, lowered temperature. The attack was preceded by stools containing blood or blood and mucus for a few days. Within twelve hours of the onset of the attack the liver, not palpable below the margin of the ribs, could be distinctly felt, and in forty hours it could be felt four inches below. The urine was normal in quantity in all but one case; albumin was found in some cases. Jaundice was absent in all cases. Leucocyte count in one case showed 25,000, mostly polynuclears. All but one case showed prolonged convalescence, loose stools, and tardy restoration of the digestive function. Of the eighteen patients twelve died, six recovered. Fourteen were males and four females; the youngest was six months and the oldest twenty months, and all were breast-fed, previously healthy children. The cases occurred in different parts of the city and in good surroundings. In eight cases autopsy was allowed. The findings were negative except as to the mucosa of the intestine and in the liver. The liver was enlarged to a greater or less extent in all cases and showed fatty degeneration. The gall bladder in every case contained dark green, ropy bile, as did the intestine. Unsuccessful attempts had been made to work up the bacteriology of the cases. The etiological factor had not been determined, but it would seem that a toxin had been generated in the intestinal tract that caused the fatty degeneration of the liver. How the air hunger was caused was a matter of speculation. The treatment had been eliminative. Food was withdrawn and the patient kept on water until food seemed to be needed.

Dr. Isaac A. Abt of Chicago, Ill., called attention to the fact that two years ago he had reported two cases with this symptom-complex before this Section, and had asked the members if they had seen similar cases; they had not. The cases were followed to autopsy and showed very extensive fatty degeneration, so extensive, in fact, that the pathologist reported that it looked like phosphorus poisoning or acute yellow atrophy. In both cases there was, toward the end, mechanical obstruction of the bowel. Both became tympanitic, and could pass neither flatus nor feces. In one of the cases, where some of the urine taken from the bladder was examined, not only albumin and casts were found, but leucin and tyrosin, indicating a destructive process. He did not know the etiology of the disease. He had been told that it was what had been known in newly settled communities as "milk sickness."

Dr. Annie L. Sawyer of Atlanta, Ga., asked if Dr. Parke had noticed in any of the cases reported gingivitis or dark, tarry stools.

Dr. John Lovett Morse of Boston, Mass., said this symptom-complex was characteristic of acid intoxication with acetone bodies. In several cases he had found these acetone bodies in the urine. This was not of much importance, however, as anybody that had been vomiting and taking no food would show these bodies. He had treated such cases with bicarbonate of soda with resultant improvement, but not cure.

Dr. Charles Gilmore Kerley of New York City did not think these cases particularly unusual. The enlargement of the liver was not unusual, nor was it of very great significance, the degree depending upon the length of time during which the organism had been subject to the toxemia. He considered the condition due to some peculiar form of toxemia. The difficult respiration was doubtless due to some toxin which affected the respiratory system.

Dr. A. H. Wentworth of Boston, Mass., said these resembled experimental cases. The mere presence of fat in the liver did not show that the liver was degenerating.

Dr. Parke, in closing the discussion, said that all who had examined the microscopic sections had agreed that there was true fatty degeneration of the liver. As to mechanical obstruction of the bowel, this had not been found in his cases. He cited one case in which the physician in charge had told him that there was peritonitis and obstruction of the bowel; at autopsy neither was found. There was no affection of the mouth in any case. The stools were dark green in every instance. The pulse and respiration ratio varied. As a rule the respiration varied from 50 to 75 and the pulse from 130 to 167.

Five Hundred Cases of Whooping-Cough Treated by Means of the Abdominal Belt.—Dr. Theron Wendell Kilmer of New York City said, in this paper, that of the 500 cases in his own practice and in that of other physicians with whom he had been in correspondence, 93 per cent. had showed marked improvement from the use of the abdominal belt, the improvement being particularly marked with reference to the vomiting. Patients who had worn the belt from the outset had usually been free from complications. Gain in weight had been noticed during the disease. He gave a description and presented cuts of the latest improved abdominal belt, and outlined the method of its application.

Dr. Charles Gilmore Kerley of New York City thought the belt would help the child to come out of the attack better because it would enable him to keep down his food. With reference to the vomiting, the belt was of great benefit. It was particularly useful with little babies. He had never seen a case of hernia from it.

Dr. Louis Fischer of New York City reported improvement in fully 70 per cent. of the cases in which he had used the belt. He had never seen a case of hernia caused by it. He reported one case of epistaxis and prolapse of the rectum which was benefited in two hours after the belt was put on.

Dr. Kilmer, in closing the discussion, said that hernia is more frequent in cases where the belt is not used than in when it is. He agreed with Dr. Kerley that it is particularly useful in young infants to whom medicine cannot be given.

Scarlatina and Duke's Disease.—Dr. A. C. Cotton of Chicago, Ill., presented this paper, in which he reviewed the recent epidemic of exanthemata in Chicago, and gave an analytical study thereof with reference to diagnosis. Opinions *pro* and *con* concerning the probable existence of a fourth exanthematous disease were noted. From this study the questions arose as to whether there are no pathognomonic signs or symptoms of scarlet fever, and whether the conception of the "symptom-complex" of scarlatina must be revised.

Dr. J. W. Van Derslice of Oak Park, Ill., was not sure that all the cases in the recent epidemic referred to which were diagnosed as Duke's disease were so. Whether it was an atypical epidemic he did not know, but he admitted that there were cases which it was possible to diagnose as Duke's disease.

Dr. Louis C. Ager of Brooklyn, N. Y., recalled an epidemic of typhoid fever in which many children were affected, and in which some of the cases presented symptoms similar to those described in certain of the cases mentioned by Dr. Cotton. He attributed them to intestinal toxemia of some kind.

Dr. Cotton, in closing the discussion, said the health department of Chicago had sent out letters to seven hundred physicians asking for information as to the possibility of a new disease. The majority believed that there was no evidence to support the belief in a fourth disease.

Malformations of the Rectum and Imperforate Anus.—Dr. Samuel W. Kelley of Cleveland, Ohio, detailed, in this paper, a description of two cases of severe malformation of the rectum, in neither of which was there an anus. The first presented a minute fistulous opening near the penoscrotal junction. Otherwise appearances were similar—great abdominal distension, with venous stasis. The second case was also jaundiced and feeble. In both cases a search for the rectum was made by the perineal route and none found in the pelvis. In both an artificial anus was made in the left inguinal region, with temporary relief to the patient. Both patients died of exhaustion thirty-two and fifteen hours, respectively, after operation. Autopsy on the first case showed the colon ending in the right inguinal region. The fact was emphasized that it is impossible to predict before operation the location of the enteron. The choice of procedure was outlined.

Dr. E. H. Small of Pittsburg, Pa., Dr. L. T. Royster of Norfolk, Va., and others discussed the paper, and Dr. Kelley closed the discussion.

Clinical Observations in the Acute Infectious Diseases, with Bedside Notes from the Willard Parker Hospital; Practical Deductions with Therapeutic Suggestions.—Dr. Louis Fischer of New York limited the discussion of this subject to diphtheria and scarlet fever, citing in his paper illustrative cases of each disease. During the subnormal condition following various infections, complications easily arose. Rest and extreme caution with the diet were necessary during the convalescent period. The most likely complications that follow scarlet fever, such as otitis, nephritis, or endocarditis, must always be guarded against. The best method for accomplishing this was detailed. Similar considerations applied to diphtheria.

Dr. Arthur Willard Fairbanks of Boston, Mass., thought the rest cure for these cases should be applied also in measles and other acute exanthemata.

Dr. L. T. Royster of Norfolk, Va., said that when he was interne at Willard Parker Hospital nephritis was very common in these cases. Milk was excluded from the diet in order to control this. He asked Dr. Fischer if the same applies in his experience.

Dr. Theron Wendell Kilmer of New York City thought it best to keep these children in bed. The urine should be examined, whether the temperature was normal or not, and it was very important to keep the gastrointestinal tract clear. He asked Dr. Fischer whether diphtheria antitoxin made any difference in his scarlet fever cases.

Dr. H. Lowenburg of Philadelphia, Pa., asked whether Dr. Fischer had followed these cases for three or four years with reference to the kidneys. He recalled cases of scarlet fever in which there had been nephritis, and every time these individuals became ill they developed sore throat, and albumin was found in the urine. The treatment for scarlet fever was the treatment for all the acute exanthemata, and if, in treating these cases, the physician would look forward three or four weeks to the time for otitis media and other complications to arise, he would do most for his patient.

Dr. Fischer, in closing the discussion, said that milk, *per se*, would not cause nephritis to appear or disappear. He had not given diphtheria antitoxin in scarlet fever. By giving protective doses of antitoxin diphtheria had been cut down one-quarter, and this applied to diphtheria complicating scarlet fever. He did not believe that one thousand units would have anything to do with nephritis. He had not watched these cases, as suggested by Dr. Lowenburg, with special reference to the recurrence of nephritis, but it was well known that where it had appeared there was a tendency to recurrence. The vulnerability of the kidneys depended upon the severity of the nephritis.

Differential Diagnosis Between Measles and Rötheln.—Dr. H. M. McClanahan of Omaha, Neb., read this paper, in which he gave a brief history of measles. He had made notes on twenty-seven cases of rubella occurring in an epidemic of this disease. At the same time there was an epidemic of measles and he had consequently been able to study the two conditions by contrast. He believed a distinction should be made between rubella and measles. He called attention to the importance of the prodromal symptoms in measles, particularly of Koplik's spots, to the coryza and lachrymation, the character of the cough, and the temperature, with its wide fluctuations. In contrast to this he pointed out the slight prodromes of German measles, the slight fever and the tender cervical glands. The character of the eruption in each disease, the complications, and sequelæ were detailed and contrasted.

The paper was discussed by Dr. Clarence A. Earle of Des Plaines, Ill., and others, and the discussion closed by Dr. McClanahan.

An Interesting Case of Incontinence of Feces in an Undersized Boy of Six Years.—Dr Maurice Ostheimer of Philadelphia, Pa., reported this case, in which the treatment consisted in the correction of errors in diet and the administration of strychnine gr. 1/60 three times a day, during a period of several weeks. The only recurrence of the incontinence was on the day following that on which the treatment was begun.

Dr. Arthur Willard Fairbanks of Boston, Mass., said these cases occur, as did Dr. Ostheimer's, in defective children, and signified a lack of cerebral control.

Dr. H. Lowenburg of Philadelphia, Pa., agreed with Dr. Fairbanks. He cited two cases, one following cerebrospinal meningitis and the other following typhoid fever of the meningeal type, in each of which the incontinence of feces was controlled by offering the patients rewards.

Essential Insufficiency of the Heart in Childhood.—Dr. Arthur Willard Fairbanks of Boston, Mass., read this paper. Muscular deficiency of the heart was comparable to muscular deficiency elsewhere. Heart development should correspond to the demands made on it by the growing body. Its continued failure to answer such demands constituted a relative insufficiency. This was a frequent condition in childhood. Its causes, the results of such inefficiency on the development of the child, were discussed. Such results were comparable to similar effects seen in valvular lesions, either congenital or acquired early in life.

The Diagnosis and Treatment of Convulsions in Children.—Dr. H. Lowenburg of Philadelphia, Pa., presented this contribution. Convulsions were not to be regarded as a disease entity, but as a symptom. A careful study of the etiological factors was essential to a correct diagnosis and successful treatment. The causes might be grouped as predisposing and exciting. The latter were local, reflex, or toxic. The rôle played by dentition was discussed, as was also the influence of heredity. The diagnosis should be made by process of elimination. The treatment should be rational. Under this head he discussed anesthetics, emetics, purgatives, hydrotherapy, stomach

washing, colonic irrigation, hypnotics, gum lancing, and the treatment between the attacks.

The paper was discussed by Dr. GRAHAM of Philadelphia, Dr. ABT of Chicago and others, and the discussion closed by Dr. LOWENBURG.

MEDICAL SOCIETY OF THE STATE OF NEW JERSEY.

One Hundred and Forty-first Annual Meeting, Held at Long Branch, June 25, 26, and 27, 1907.

(Special Report to the MEDICAL RECORD.)

(*Continued from page* 119.)

Wednesday, June 26—Second Day.

Premature Separation of the Placenta.—Dr. J. WATSON MARTINDALE of Camden read this paper. The object of this paper was to bring before the Society a condition which was very grave and one which required for its management a stout heart and prompt action on the part of the attendant. On July 8, 1906, he was called to see a woman who was seven months pregnant and who had lost consciousness. On examination a small quantity of serous fluid was noted on her underclothing, and the cervix was dilated as large as a dollar and was quite soft. There was no evidence of a placenta coming first, but through the membranes the head could be felt engaging at the brim. There had been no labor pains. The uterus reached to the ensiform cartilage and had a doughy feel. After the examination the patient became unconscious again and he felt suspicious of a separation of the placenta, the blood working its way between the uterus and the bag of waters. He decided to empty the uterus and a dead child was delivered without difficulty. As the child passed the introitus, the placenta was swept out with a tremendous gush of blood, showing that there had been a complete separation of that structure. The uterus contracted well and she did not lose much blood after delivery. Salt solution, injections of whiskey, strychnine, camphor oil, digitalis, and external heat failed to cause the patient to rally, and she died an hour after his arrival. Upon examination of the placenta there was found a large area of calcareous degeneration, and this had been the cause of the placental separation. After quoting cases that had appeared in the practice of other men, he said that the cause of this condition had been attributed to hemorrhagic diathesis, nephritis, hydramnios, short funis, fatty and calcareous degeneration of the placenta. Among the symptoms noted were steady pain in the lower abdomen, weak fetal heart sounds, irregularity of the uterine contractions, with a show of blood. In one-fourth of the cases the hemorrhage was generally concealed until it reached serious proportions. The diagnosis should be made from colic by the absence of shock, and the history of eating some undigestible food, and the presence of constipation. The diagnosis was made from ruptured tubal abscess, by the previous history of tubal disease and localized tenderness over the tubes; from rupture of the uterus because of its more sudden onset, with a gradual diminution in the size of the tumor. The prognosis was bad. The children, as a rule, perished and only the most vigorous women were likely to survive. Cases in which there were no labor pains generally died; some died of shock. If the patient was in collapse, the uterus distended but inactive, with the os rigid, the outlook was highly unfavorable. In considering the treatment, the question resolved itself into Shall we wait, or shall we empty the uterus at once? Some recommended the use of ergot, with firm pressure over the fundus uteri. Brunton said it was best to preserve the membranes and wait for dilatation. Robert Lee said to rupture the membranes, give ergot and stimulants, and use a binder. Fry said if the os was dilated, use forceps or craniotomy; if not, the best was the Porro operation. Murray recommended elevation and bandaging the extremities, stimulants, and the use of the tampon. Coe said, if the head was down, apply forceps; if not, use manual dilatation of the cervix and do a craniotomy or version. Goodell recommended prompt interference; he suggested the application of the forceps, craniotomy, or version. Of 93 cases, 43 were treated on the expectant plan, with 32 deaths; 50 by emptying the uterus, with 15 deaths.

Dr. HENRY H. SHERK of Camden, who had been called in to assist Dr. Martindale in the care of the case just reported, said that nothing was more appalling than a case of this kind, and he related what he did to assist.

Dr. CHARLES P. NOBLE of Philadelphia said that although he was no longer a practising obstetrician, yet he began his active medical career as one, and served five years in a maternity hospital. That experience, of course, was of value to him as a gynecologist. Everyone who attended labor cases should post himself on this question. Although these cases were rare, when they did occur the only salvation for the women was that the man in charge should act promptly and correctly; otherwise the women would invariably die. To-day it was the consensus of opinion of all men who were entitled to have an opinion on the subject, that if a diagnosis of concealed hemorrhage was made, and if the cervix was soft and dilatable, the application of the forceps should be instituted. Otherwise a cesarean section should be performed, providing any one was available who was competent to do it.

Symposium on Diseases of the Gall-Bladder.—The balance of the morning's session was devoted to this interesting symposium.

Etiology and Pathology of Diseases of the Gall-Bladder.—Dr. H. G. NERTON of Trenton said that cholecystitis was nearly as frequent as appendicitis, more difficult to diagnose, and less amenable to treatment than other surgical diseases. It was a very important subject. Cholecystitis was most frequently caused, it was thought, (1) by microbic infection; (2) possibly by toxins, and (3) by direct traumatism to the gall-bladder. In the first group were septicemia, pyemia, influenza, pneumonia, and typhoid fever. The second arose from disease of the alimentary canal, including typhoid fever and dysentery. Appendicitis was sometimes a focus for the spread of infection to the liver and gall-bladder. It might be by direct extension from the duodenum, through the common and cystic ducts, or by the blood-vessels, or by both simultaneously. In general blood infection, the microorganisms might be excreted into the bile ducts or gall-bladder from the hepatic artery and portal vein. That cholecystitis did arise from typhoid infection was proved by the finding of typhoid and colon bacilli in the gall-bladder. Probably slight cholecystitis frequently occurred in typhoid, but was masked by the graver condition, and unless jaundice occurred was usually overlooked. Cholecystitis caused by typhoid infection was said to occur years after the infection; this was proved by the presence of typhoid bacilli. Cholecystitis was usually present at this time; possibly the presence of gallstones and irritation induced by them might be necessary to cause a cholecystitis from the invasion of the gall-bladder with typhoid bacilli. Typhoid bacilli in the blood could not pass through normal hepatic tissue; it probably required that the hepatic tissue and walls of the portal veins should be damaged by the toxins incident to an attack of typhoid or other disease before they could infect the bile duct or gall-bladder. He once saw a very severe acute cholecystitis with jaundice follow an operation for a fulminating appendicitis in a child. This case came near ending fatally, after the onset of the jaundice. There was no evidence of coexisting cholecystitis. The presence of gallstones in cases of appendicitis was, he thought, usually an accidental coincidence. The attack of cholecystitis causing the gallstones, surely long preceded the latest attack of appendicitis with appendical disease. He had never seen a well

marked case of typhoid cholecystitis, but it did occur as a complication. The irritation of previous cholelithiasis might be the factor needed to produce cholecystitis as a complication of typhoid, acting either by obstructing the duct and causing distention, or by ulceration of the mucous membrane from pressure offering an avenue of infection. In cholecystitis the presence of typhoid and colon bacilli, streptococci, staphylococci, and pneumococci, seemed to indicate that any of these microorganisms could cause infection of the gall-bladder. It had been stated that typhoid infection had occurred eighteen years after the attack of typhoid fever. More than one variety of germ had been found at the same time in the viscus. It might be taken for granted that if they had a distended gall-bladder infected by germs of any kind, cholecystitis would follow. Suppurative cholecystitis was due to a further development of the causes of acute, viz., infected calculi, microbe infection. Cancer of the gall-bladder, either primary or as an extension from the liver, was of considerable importance and fairly frequent among visceral forms of cancer. The presence of gallstones in the gall-bladder was probably a frequent causative factor of cancer, but gallstones were frequently present for years in cases in which no cancer developed. In his histories of gallstones he found seven cases of long standing in which no cancer had developed. Primary cancer did occur without the presence of gallstones in about 20 per cent. of the cases. He asked if irritation of gallstones in the gall-bladder of one predisposed to cancer, *i.e.* having a cancerous family history, might not cause cancer of the liver, which had it not occurred in this way might have developed elsewhere? He had treated a case of cancer of the gall-bladder and liver in a man aged fifty, whose mother died of cancer of the womb. Analogous to irritation of gall-bladder as a factor in causing cancer was the greater frequency of uterine and mammary cancer in multiparæ. The gall-bladder was enlarged, or sometimes in old recurrent cases shriveled and contracted, often adherent to parts around it, with the wall of the gall-bladder swollen, softened, and often there was ulceration near the fundus, due to irritation of calculi. The mucous membrane lining of the cystic duct was sometimes so swollen as to be closed.

Diagnosis of Diseases of the Gall-Bladder.—Dr. PHILANDER A. HARRIS of Paterson said that it was the duty of every physician to study carefully any pain that was complained of by the patient. Much could be learned by inspection, palpation, and percussion in diagnosing diseases of the gall-bladder, especially when to this was added the knowledge gained from the clinical history. An abdominal incision often gave such knowledge, that otherwise could not be obtained. The thorax, the abdomen, and the cranial cavities were more or less invaded by the knife of the surgeon, and facts were secured that substantiated or disproved former opinions. After referring to autopsies *in vivo*, he said this was the standstill era in gall-bladder pathology. A stone arrested in the common duct dammed back the bile stream, causing first pain and then colic. It was a physical impossibility to overdistend the gall-bladder, so long as the bile flowed into the intestine without obstruction. The commonest diagnostic symptom was colic. A colic lasting one-half, one, or several hours, with the plain disappearing as quickly as it came on, appearing again after days, weeks, or months, should make one think of gallstones. The pain caused by gallstones was situated usually over the gall-bladder, but sometimes it was situated in the median line in the epigastric region. Pain, again, might be referred to a point between the ensiform cartilage and the umbilicus. This was its location in a considerable number of cases. Ninety per cent. of the so-called cases of neuralgias of the stomach proved to be gall-bladder trouble. The remaining 10 per cent. would be of duodenal, appendical, or stomach origin. When called upon to interpret the meaning of pain in the upper abdomen, lesions of the gall-bladder, cancer, or ulcer of the stomach or duodenum, appendicitis, tuberculosis of the kidney and enteritis should be thought of particularly. Gallstone colic was apt to occur at night and averaged one-half an hour in duration. In the moderately severe colics the patients were apt to assume a variety of postures, but with the body more or less flexed. Occasionally they were found on the floor in the knee-chest position. During this colic the pain usually radiated to the right or left shoulder blades. A large area of the abdomen might be painful. The interval between these attacks might be one week, or even years. Pain after eating, if attended with vomiting, was usually suggestive of gastric ulcer. In some instances blood would be found in the vomit. The colics of gallstone disease were never so frequent as the pains due to gastric or duodenal ulcer. Gallstone colic never bore so close a relation to what was ingested as did cancer and ulcer of the stomach. Cancer of the stomach was usually well advanced before pain and indigestion were complained of. Cancer seldom produced great pain. In real colic the pain radiated outwards, as a rule, and was attended with alterations in the urine. There was pain and tenderness even after the subsidence of the colic, and it might last for hours to several days, and might be so severe as to require the use of an opiate for its relief. If after the disappearance of the gallstone colic pressure be made over the gall-bladder, tenderness at that point would often result. The degree of tenderness on pressure and its duration were not in proportion to the amount of pathology present. The steady pain or tenderness following colic was an aid in diagnosing gallstone disease. With regard to the jaundice, so long as the inflammation and pathology were limited to the gall-bladder jaundice would not appear. In from one-half to three-quarters of the cases in which jaundice appeared it was shown that the pathology had extended below the gall-bladder. When the choledochus was blocked and the bile stream arrested, jaundice resulted. The absence of jaundice should never disprove a diagnosis of gallstone disease. In a large series of cases referred to, jaundice only occurred in 20 per cent. of them. The finding or the not finding of gallstones in the stools was only of restricted value. The screening of the stools was interesting and the knowledge gained might be of some value, but just how much value was obtained from this he did not know. If stones were found in the feces, it gave no knowledge of how many were in the gall-bladder. The appearance of jaundice without colic or pain should not be taken as indicating gallstone disease without a very careful look into the history and symptoms. There were many pathological conditions causing jaundice. The occurrence of jaundice with little or no pain, and with the development of ascites, pointed to a sclerotic condition rather than to gallstone disease. Tenderness in the gall-bladder region was an important symptom in gallstone disease.

Complications in Disease Conditions of the Biliary Passages.—Dr. G. K. DICKINSON of Jersey City read this paper (see page 137.)

Medical Treatment of Diseases of the Gall-Bladder.—Dr. JOHN H. MUSSER of Philadelphia said that this was not a subject of broad lines, yet very much could be said about this condition; not so much about the medical treatment of gallstones, but rather the medical treatment of that state of the liver and the ducts, including the gall-bladder, which offered a tendency for the formation of gall stones—that was, cholelithiasis. Moreover, notwithstanding the fact that it was well appreciated that gallstones were present and that they were doing mischief, in many instances it was appreciated that operative treatment could not be resorted to. This meant that medicinal lines of treatment must be instituted. The age of the person, intercurrent disease, or other circumstances rendered operative procedure inadmissible. Yet for these classes of cases a great deal could be done medicinally. Cholelithiasis, on account of which there was usually a congestion, or in

which there was a congestion and catarrh of the biliary passages and stagnation, with secondary formation of gallstones, had for its origin either toxin influences or influences from impaired vitality—as, for instance, from alcohol—agents acting from within. Secondly, this led to digestive, gastric, duodenal, or intestinal disturbances, with the resulting changes in the liver. There might at least occur such a modification of reflexes in the duodenal end of the stomach on account of which either, on the one hand, the hepatic secretion was inhibited or, on the other, increased, leading thereby to modification of secretion on account of which cholelithiasis might develop. Third, cholelithiasis might result from circulatory conditions of the liver, the result of a weak heart, valvulitis, pericarditis, or perhaps an arteriosclerosis. For this reason not only the liver, but other organs of the body, their secretions and functions, were so modified that catarrhal conditions arose, on account of which cholelithiasis occurred. Again, infection might be a cause. If one realized these four predisposing factors one could really see that each had a field for medicinal or hygienic therapy. In accordance with one's judgment as to the factors causing cholelithiasis, one must lay down various plans of treatment. In general, it might be stated that cholelithiasis demanded hygienic treatment, the removal or modification of the cause as far as could be best brought about. But, further than that, there were certain specific measures. When catarrh continued there also obtained more serious inflammatory states, such as cholecystitis and pericholecystitis. First of all, then, after attempting to modify the cause, regulation of the diet must be considered one of the chief measures. Such a regulation of the diet did not require one to say a "liver diet," or "specific diet for the liver." The reduction of the diet was the chief essential. One should recognize the fact that there was a class of patients who were overfeeders—those who gave the liver too much to do—and in the larger proportion of cases cutting down the food to about one-half that usually taken was the first and best step toward the prevention and cure of cholelithiasis. There was no doubt but that, independently of the value of the waters, the cures secured at Carlsbad and other places were brought about by the reduction in the diet. If there were any specific lines of diet to be enjoined they must be those which were indicated more particularly by the state of the gastric and intestinal digestion. If there was a hyperacidity, then the diet must be so arranged as to meet this condition. If there was a subacidity, or added acidity, the diet must meet these conditions. If there was a dilated stomach, or evidences of intestinal indigestion, an enteritis, or mild catarrhal conditions of the stomach and intestines, treatment to relieve these conditions must be insisted upon. Hydrotherapy would avail much, whether used internally or externally. One might use either general baths or local baths. One might use alternately hot and cold douches over the liver. The use of hot compresses, alternating with cold ones, every one-half or one hour, or twice a day, was of value. Hydrotherapy could not be too strongly insisted upon. Such means as would continue hepatic drainage were important; hence there was value to be had in the use of abdominal bandage. This was not so valuable in fat as in thin subjects. In a large number of cases of cholelithiasis the frequency of the attacks had been lessened, and the severity perhaps had been modified, by wearing a properly constructed bandage. Unless the gallstones were doing mischief it was probably more conservative and better that these patients, if possible, be sent to Carlsbad or one of the resorts abroad, or to Bedford or Saratoga Springs in this country, so relieving any complicating conditions before the operative treatment was resorted to. Perhaps they had seen, as he had in a number of instances, a disappearance of the gallstone symptoms follow the patient's stay for the time being at least. As to the condition of the circulation, one must study most carefully the heart and blood vessels. If the liver contained a large amount of blood, one could get valuable suggestions as to the mode of treatment by a study of the circulation, which had much to do with the management of cholelithiasis. A weak or a dilated heart, with a low blood tension and evidences of a modification in the pressure on the venous side of the circulation, was indicated by the cardio-sphymograph; therefore, such remedies which modified, increased, or lessened the blood pressure were undoubtedly of value. It was important to note that the treatment of cholelithiasis meant not only the treatment of the liver or local disorder, but the treatment of the individual. With regard to drugs, there were very few that could be thought of in connection with cholelithiasis; none could be mentioned with any degree of confidence except those that were indicated after a careful study of the gastrointestinal tract, including the stools and gastric contents, indicated by a study of the circulation and of the blood as well. Alkalies should be first considered. If there was congestion and stasis, the old-fashioned remedy (muriate of ammonium), if it was not contraindicated, was valuable. This drug had a direct influence on the circulatory condition without a doubt. It also influenced the secretions. If there was any remedy which could allay catarrh and modify the secretions, it was this preparation. Again, there were the so-called biliary antiseptics, salicylate of soda and other salicylates. After the establishment of a biliary fistula, and watching the secretion of bile, it would be undoubtedly shown that the amount of bile was increased after the use of these remedies; also, the number of microorganisms became less. Whether this was due to the action of the drugs or to drainage he did not know. The use of phosphate of soda needed scarcely to be more than mentioned. With regard to the medicinal treatment of gallstones, any gallstone quiet in the gall-bladder and ducts could not be influenced by medicinal treatment. There was no known solvent for gallstones. Olive oil was thought of by those who believed in solvents, but Dr. Musser said he had never seen any relief of gallstones arise from the use of this agent. Sometimes there was a relief of the symptoms, but such relief, so far as he could see, followed because associated with the gallstones there was a hyperacidity; and, as a cause of this hyperacidity, there was either a simple gastralgia or pyloric spasm. And it was these conditions—or symptoms, rather—which were relieved by the use of the oil. It was only in a general way that one could hope for success in the management of cholelithiasis. It was not the treatment of the local process, but the broad, general management of the man who was sick.

Surgical Treatment of Diseases of the Gall-Bladder.—Dr. JOHN B. DEAVER of Philadelphia took up this part in the symposium. He said that to the surgeon diseases of the gall-bladder, excepting the malignant variety, were manifestations of some form of infection. Broadly speaking, it showed itself in two great varieties: the calculous and the noncalculous forms, cholelithiases with their various complications and sequelæ. The calculous form was the more common. In both forms were found various grades of inflammation of the gall-bladder. The main forms commonly met with were cholangitis, hepatitis, perforation of the gall-bladder, peritonitis, and adhesions in the upper abdomen. He said that if gall-bladder disease was to be regarded in its true light, as a local infection, with great power to spread and capable of prompt relief by the surgeon, then operation would no longer be delayed until hope had gone and surgery had become the last resort.

As calculous cholecystitis was of paramount importance, both by its frequency and the necessity for surgical treatment, he said he would first consider this form of gall-bladder disease. The indications for the *immediate* invasion by the surgeon were, first, the occurrence of any of the complications mentioned above, showing a spread of the infection, and, secondly, failure of amelioration of symptoms in obstruction of the common duct after a reasonable interval of treatment, which Dr. Deaver considered to be two or

three weeks. Certain other conditions demanded operation, but the necessity was not so great as in, first, repeated attacks of biliary colic or continued abdominal distress and indigestion; secondly, hydrops of the gall-bladder; third stone in the choledochus. Some of the contraindications to operation might be summarized as follows: Extreme age; organic lesions of the heart, lungs, or kidneys; marked cholemia; anemia of marked degree, or a greatly lessened coagulation of the blood. Dr. Deaver called attention to the remarks of Kehr, who stated that gallstone surgery indications were threefold: Removal of the inflammation causing the gallstones; removal of the stones; prevention of recurrences of the stones.

The following were the main facts in his own technique in gallstone operations: (1) After the incision had been made and the field of operation exposed, wall off this field from the general peritoneal cavity, and so guard against any possible spread of the infection. (2) Adhesions that were evidently impinging upon and interfering with neighboring organs must be removed; adhesions which were doing no damage should not be disturbed. (3) Only so much should be done as was required to meet indications present, especial care being taken when acute infection was present. (4) When that infection was present or suspected, and the gall-bladder was opened, it should be drained. His method of draining was the commonly used rubber-tube drain. The appearance of the bile was no criterion of its infectiousness. (5) The gall-bladder should not be removed unless it was so damaged as to render it incapable of function as a bile reservoir. If the fundus only was damaged, the gall-bladder should be resected instead of removing it entirely. (6) When the gall-bladder was removed, in the presence of infection, drainage of the stump of the cysticus should be made if possible. It was wiser to drain outside of the abdomen than to allow infected bile to flow into the duodenum. To drain one infected organ into another was unsurgical. So when the liver was infected and one had a suppurative cholangitis to deal with, the only chance for safety lay in direct hepatic drainage through the laparotomy wound. (7) When the gall-bladder was removed for disease in the absence of infection, drainage should be made by means of the cigarette drain, or piece of gauze passed through a split rubber tube to the stump of the viscus and the cystic duct. This guarded against hemorrhage and infection. (8) Choledochotomy without drainage should never be performed. (9) The stones present should be removed in order to make the operation successful. The after-treatment in most gallstone cases was simple—they got well by themselves. Occasionally certain conditions must be dealt with. Persistent vomiting might be treated by lavage and enteroclysis of salines. Dr. Deaver always immediately gave hypodermoclysis of 1,000 c.c. every four to six hours to insure a quantity of urine. If the heart became weak, digitalis was indicated. The drainage tube should be left in until its purpose had been accomplished. The diet should be restricted after operation. The bowels should be moved on the third day with castor oil. The technique of the operation was the same for noncalculous as in calculous cholecystitis, but one did not have so much trouble, but should confine themselves to combating infection. Malignant disease of the gall-bladder was evidently very rare. In a series of 217 gall-bladder cases operated upon by him, including 182 gallstone cases, Dr. Deaver's total mortality was 13.8 per cent. The mortality of the calculous form was 14.8 per cent.; in the noncalculous form it was far under 5 per cent. When acute infection was present, the rate of death with all operators arose to almost 20 per cent. The causes of death in over one-half the cases could be directly or indirectly attributed to the presence of infection before operation. The septic patient was a poor patient for operation. The general practitioner and internist should send their patients to the operating table earlier and in better condition; then the risks of surgery of the gall-bladder would be reduced to a minimum. The whole question depended upon the realization that they were dealing with infection; that it could be treated surgically, and that the sooner that was done the better the patient's chances would be.

Dr. E. W. Hedges of Plainfield, Dr. Charles P. Noble of Philadelphia, Dr. Emery Marvel of Atlantic City, Dr. Vanderveer of Albany, Dr. Philip Marvel of Atlantic City, and Dr. Philander A. Harris of Paterson discussed the papers read.

Tetanus and the Antitetanic Treatment.—Dr. Daniel Strock of Camden offered this communication. No matter how the serum had been used, the results had been disappointing, and probably it was the general impression of the profession to-day that in acute cases of tetanus antitetanic serum was of little value. He then called attention to the results of treatment in a few cases recently under his direction. Previous to this period he had been in contact with a number of cases of tetanus, following wounds of every description, and he had never known one to recover, no matter what the method of treatment had been. He began the use of the tetanus antitoxin about six or eight years ago. The patients then received one injection of 10 cm., to be followed by another the next day or the day following. In the years following the amount given in twenty-four hours was increased, until it reached a point where from four to six injections of 10 cm. would be given in twenty-four hours, covering a period of several days in succession. The results of this larger quantity appeared, in a few cases, to delay the approach of death, but did not affect the uniform termination of the disease. The last case treated during this period he identified as the first of a series of antitoxin injections, and this patient lived fourteen days and received the injections at more frequent intervals than any previously. Dr Strock decided that if the antitoxin possessed any virtue in fully developed cases it was exerted only in large quantities. This idea he then put into practice. Five cases were treated, and all presented typical avenues of infection, and all presented the classical symptoms of fully developed tetanus. Of these five cases, three recovered. In view of his past unfortunate experience with this disease, giving a mortality of 100 per cent. and extending over a period of many years, he said he was reluctant to believe that this last series of cases, with a mortality of 20 per cent., was simply an unexplained coincidence. As a result of his observation and experience in the use of the serum, he was of the opinion that much larger quantities must be used in the treatment of these cases, and also that larger initial doses must be given. He believed that at least 10 cm. should be given every hour in adults, until evidences of improvement manifested themselves. In conclusion, he felt encouraged to say that the pessimistic view entertained by the profession as to the use of antitetanic serum in fully developed tetanus would be modified in the future. Of the value of antitoxin in cases of suspected wound infection there could now be no reasonable doubt, and it would seem that the physician was culpable who failed to give the patient the benefit of this fully recognized immunizing agent, at the same time throughly cleansing the wound. All the antitoxin he had used had been introduced subcutaneously.

The Significance of Blood Pressure in Surgical Shock. Dr. A. J. Walschied of Hoboken offered this paper, which was read by title.

Election of Officers.—The Nominating Committee presented the names of the following men, who were elected to office: *President*, Dr. Edward J. Ill of Newark; *First Vice-President*, Dr. David St. John of Hackensack; *Second Vice-President*, Dr. Benjamin A. Waddington of Salem; *Third Vice-President*, Dr. Thomas H. Mackenzie of Trenton; *Corresponding Secretary*, Dr. Daniel Strock of Camden; *Recording Secretary*, Dr. William J. Chandler of South Orange; *Treasurer*, Dr. Archibald Mercer of Newark. Next place of meeting, Cape May.

Report of the Committee on Hygiene and Legislation. Dr. L. M. Halsey of Williamstown, chairman of this committee, said that the work during the session of 1907 had not been in vain, as they had been enabled to prevent the passage of any osteopathic measure. Personally, he wished to thank Senator Frelinghuysen for his untiring devotion to the interests of the medical profession of the State. There was now on the statute books of the State of New Jersey a pure-food act which was almost identical with the national pure-food measure, and the Senator from Somerset County should have unstinted praise for his exertion in placing this measure upon the statute books. There were several other bills of minor importance which were looked after by the committee. The committee were unanimous in their opinion that osteopathy should be recognized along the lines of the bill as introduced by Senator Frelinghuysen, and which passed the Senate, as being the very best solution of the difficulty, and one in which the interests of the medical profession were more nearly safeguarded than any other plan that had been proposed.

Report of the Committee on Medical Defense.—Dr. William G. Schauffler, chairman of this committee, reported to the society, advising the adoption of a scheme of defense based on that in use in the New York State Medical Society, modified to suit New Jersey conditions. A form of application was embodied in the report.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held April 18, 1907.

The President, Dr. John A. Wyeth in the Chair.

This meeting was held under the auspices of the Section on Dermatology, and the evening was devoted to "Recent Advances in the Knowledge of Syphilis."

The Morphology of the Spirochæta Pallida.—Dr. James Ewing presented this part of the topic, and illustrated his remarks with specimens and lantern slides. His paper was practically the one that he had already presented to the State Society.

The Inoculation Experiments.—Dr. Charles M. Williams read this paper. He said the experimental investigation of the problem of syphilis was blocked for many years by the lack of a susceptible animal. Metchnikoff furnished a secure foundation for future labor by selecting for his experiments the anthropoid apes. Metchnikoff's first article appeared in the *Annales de l'Institut Pasteur*, December, 1903, and was so epoch making that Dr. Williams quoted from it at considerable length. The higher apes, that is, the chimpanzee, the orang outang, and the gibbon were generally more susceptible than the lower, or at least they developed the chancre more readily. The incubation period varied from two to nine weeks, and its duration usually depended upon the virulence of the material used, and on the thoroughness of the inoculation. The initial lesion began as a small red spot, which soon changed to a papule, rarely a vesicle, then developed a scale, and might so remain as a firm scaly papule for days or weeks, and then slowly disappear, leaving a brown stain; or else it might form a shallow ulcer with an indurated base, exactly analogous to a typical human chancre in appearance, course, and duration. Thus far the different species of monkeys reacted in almost the same manner; but at this point they diverged, the higher apes, and especially the chimpanzee, presenting many of the symptoms of the disease as observed in man, while the lower apes showed no generalized eruption whatever, and only occasionally a few symptoms which might be called secondary. That this disease in monkeys was really syphilis, and not an accidental infection, was proven by the close correspondence with the disease as observed in man in all its important features. True tertiary lesions had not yet been certainly observed in apes. The material used for these inoculations was of various kinds, but all proven to contain the virus. Positive results were obtained eight times in twenty-four attempts to inoculate gummatous material, and in one of the eight cases the disease was twenty-four years old. The question of the infectiousness of semen was still undecided. Whether a qualitative change could be brought about by successive inoculations in lower apes was another question not yet definitely settled. Another important problem related to the question of the rapidity of the spread of the poison through the system, and two methods at once suggested themselves. First, the inoculation wound was excised, after varying intervals, or attempts made to destroy the virus in the wound by various means. From the experiments made it appeared that the virus might penetrate beyond the reach of ordinary interference in a very short time, but that as a rule about a day was required. The second method was by means of inoculation with the blood and internal organs of animals killed at varying intervals after infection. It was altogether probable that the virus was spread through the body even earlier than the figures given indicated, but as yet the experiments were too few to settle the question. Closely allied with this problem was the question of reinfection. The older the syphilis the less marked was the lesion caused by secondary inoculation, so that in the full secondary period it often failed altogether, and was much less conspicuous when it did appear. Subcutaneous, intravenous, and intraperitoneal inoculations had been repeatedly attempted, but always without success. Dr. Williams closed his paper by saying that there were still many gaps in our knowledge of syphilis, but that he confidently expected to see them filled by the continuance of the work so well begun.

Serum Diagnosis and Serum Therapy.—Dr. Sigmund Pollitzer read this paper. He said that with the great movement of the past decade toward serum diagnosis and serum therapy in infectious diseases, it was only natural that attempts at employing some of the methods that had proven valuable in other diseases would be made in the cases of syphilis. The first really important work was that of Kraus and Spitzer, who based their method on the theory of the production of antibodies through the injection of large quantities of specific toxins. They practised subcutaneous injections of increasing doses of suspensions of finely divided chancres into patients as soon as possible after their infection with syphilis. Of twenty patients treated eleven developed secondary symptoms as in the normal course of the disease, two showed only a rudimentary development of secondary lesions, and seven (35 per cent.) showed no further symptoms whatever for a period of observation extending in some cases over two years. Experiments were at present under way with animals normally refractory to syphilis in the hope of producing sera. As bearing on the question of specific substances in syphilitic blood the observations of Hoffman and Provazel were mentioned. Wassermann, Neisser, and Bruck were the first to bring syphilis in line with other infectious diseases in relation to the great working hypothesis of immunity, Ehrlich's side-chain theory. They proposed to utilize the method of fixation or anchoring of the complement for the purpose of testing the presence of syphilitic antigens and antibodies in infected individuals. Dr. Pollitzer then entered into the details of this method. This method of complement fixation, or "anchoring of the complement," was proven to hold true for anthrax, plague, typhoid, diphtheria, tetanus, tuberculosis, etc. It went to prove that they were dealing with broad biological principles of universal application. The determinations were carried out by exact quantitative methods. The precise amount of complement required to reactivate

a given hemolytic serum was first determined. In applying this method for the determination of specific syphilitic substances Wassermann, Neisser, and Bruck did as follows: Apes were injected with syphilitic material consisting in a series of cases of the blood of secondary syphilities or of watery extracts made from primary syphilitic buboes, from condylomata, from organs, or bone marrow of hereditary syphilitic infants or fetuses, or of the organs or marrow of apes killed seven or eight weeks after infection with syphilis, and their serum, inactivated by heat, was mixed with fresh extracts of chancres or syphilitic organs. Such serum was presumed to contain syphilitic antibodies and the fresh syphilitic extracts the specific antigens. To this mixture some fresh pig's blood containing complement was then added and the mixture allowed to stand for a short time to afford an opportunity for the union of antigen, antibody, and complement to take place. Then a second mixture of inactivated hemolytic serum and appropriate red blood cells was added to the first mixture and hemolysis failed to take place because, of course, the added complement had been anchored by the first mixture and was, therefore, not free to reactivate the hemolytic serum. This experiment was a success and it was definitely established (1) that the immune serum of syphilis contained antibodies, and (2) that the syphilitic extracts contained antigens. By way of control it was shown that (1) the immune serum of apes gave the reaction only with syphilitic material of man or apes, not with non-syphilitic material of either; (2) that normal non-syphilitic ape-serum was ineffective with syphilitic material; (3) that serum of apes treated with extracts from the organs of non-syphilitics gave no reaction with known syphilitic material. Finally, the immune serum worked equally well whether prepared with human or simian syphilitic material, a striking corroboration, by the way, of the identity of human and simian syphilis. This, then, was a specific sero-diagnostic reaction for syphilitic material which enabled them to determine in the laboratory *in vitro* the presence of specific antibodies against the syphilitic organism in human serum, or in prepared immune serum, and second to show the presence of syphilitic substances in a given organ. Thus it had been shown that specific antigens were present in the placenta of syphilitic women, and in a few cases the presence of syphilitic antibodies were shown in the circulating blood of syphilitics.

The Practical Application of the New Knowledge.—Dr. Boleslaw Lapowski read this paper. The facts known regarding the *Spirochæta pallida* were (1) that such a structure had been found on the surface and in the parenchyma of all lesions of acquired and congenital syphilis; (2) it had been found on the surface of lesions produced by inoculation of syphilis into higher and lower apes and into the cornea of rabbits; (3) that it was not found in non-syphilitic lesions. The identity of the *Spirochæta pallida* found on smears with the supposed *Spirochæta pallida* in sections of syphilitic organs was questioned by many, who held that the structures seen in tissues by means of Levaditi's silver method were particles of tissue, sometimes connective tissue fibers, sometimes nerve fibrils, and cell contours, which presented a morphological appearance not unlike that of *Spirochæta pallida*, owing to pathological processes in the tissues, and to the action of the silver impregnation, used to bring into view the supposed pallida. The real advance was made by the successful inoculation of syphilis into apes. If an ape was inoculated a second time before the appearance of the chancre of the first inoculation, or even some time after its appearance when a certain incubation period had elapsed, a second chancre would appear at the point of reinoculation. No result could be obtained from reinoculation during the development of the secondary eruption. Reinoculation was tried in every period of syphilis and successfully achieved in every stage, except during the height of the first early eruption. The system reacted upon such second inoculation in a peculiar manner, that was, it responded to reinoculation with external virus in the same manner as it reacted to its own syphilitic virus. That the reaction was due solely to the newly introduced virus was proven by the failure of producing such an effect by the introduction into the syphilitic organism of non-syphilitic material. These results were obtained from experiments carried on in human beings and in apes infected with syphilis. They demonstrated that in apes and in humans a reinfection was possible, not only during the first incubation, but through the whole development of the disease, the system reproducing lesions of that stage in which the patient was during the time of reinfection. The fact that a syphilitic patient in the active stage of the disease could react even in a slight degree upon the introduction of new syphilitic virus was in gross contradiction to their accepted conception of immunity in syphilis. Dr. Lapowski emphasized the point that, owing to the prevalent idea that syphilitics were absolutely immune to new infection, patients very often exposed themselves to a possible fresh infection. This idea of absolute immunity was erroneous. The skin was not immune. Does syphilis begin with a chancre? The reported clinical observations, where early manifestations of syphilis followed lesions without characteristic symptoms of a chancre were to be regarded as correct; while reports of syphilis developing without the appearance of a primary lesion were open to question, the chancre having been overlooked by the observer. Can syphilis develop without involving the skin and the visible mucous membranes? Clinically the fact of the appearance of these manifestations played an important part in the diagnosis of syphilis. The experimental inoculations demonstrated that syphilis in the lower ape was generalized, involving some internal organ, as the spleen, bone-marrow, testicles, and glands, without producing any manifestations upon the skin or mucous membranes. In view of this fact conclusions as to the character of doubtful primary lesions should not be drawn from the non-appearance of early skin manifestations in patients with such lesions. Upon the rapidity of generalization of the virus depended the result of excision. Inoculations demonstrated the futility of excision eight hours after infection. In regard to the syphilis producing agent, inoculation experiments demonstrated that it existed not only in the fluids of the body, blood, and spinal fluid, and all lesions of the early period of the disease, but also that the lesions of the late period, gummata, contained the active living virus, and that the virus was of the same character, having the same properties in a chancre which appeared say seventeen days after infection, as in a gumma which developed seventeen years after infection, showing that it did not undergo a qualitative change during its stay in the system. The demonstration of the infectiousness of gummata should induce physicians to hasten the process of their healing. Nothing definite was demonstrated by the inoculation experiments regarding the virulency of sperma and ovum *per se*. The part which maternal and paternal transmission played in hereditary syphilis was still open to question. Nearly all the organs of a hereditary syphilitic fetus contained the active virus; even the nasal discharge was infectious, a fact to be borne in mind when the child was wet-nursed. Every fetus and every infant which died shortly after birth without evident cause should arouse suspicion in the physician's mind of the presence of syphilitic infection of the parents, even when both parents and infant present no visible signs of syphilis. Serum therapy had not proven a success, as it was impossible to obtain an attenuated virus. They must

still rely upon mercury in the treatment of syphilis; the salutary specific action of mercury must be brought to bear upon the virus intermittently for a protracted period in both stages of the disease; that is, in tertiary manifestations mercury, and not potassium iodide, was the remedy par excellence.

Dr. Simon Flexner said that the question still remained unsettled and would no doubt remain unanswered for some time to come. So far as the etiological factor of syphilis was concerned, properly there were two camps: first, those that had a strong conviction that the agent had been discovered in the *Spirochæta pallida;* the second camp was still in doubt as to this causative factor. Personally he belonged to the first camp, for the evidence from a pathological point of view was strong in its favor. The only set of facts which would seem to lead to doubt was the restricted distribution of the organism. When compared with other pathogenic organisms one must decide that there was a great deal more to be said in favor of the *Spirochæta pallida* belonging to this class than could be said against it. In regard to the application of the method of demonstrating the presence of antigens and antibodies as a satisfactory and reliable means of diagnosis of syphilis, Dr. Flexner said that in theory the reaction was one which supported the present contention that this microorganism of syphilis was the one which yielded toxin or antigen and was bound up more or less with the view of the *Spirochæta pallida* being the microorganism. He said that the pallida stain was one that was easy of application; with a slight modification it was possible in ten or fifteen minutes to demonstrate its presence in smears. The chief part of the modification was not to fix the preparation with alcohol or osmic acid; the method was one in which a mordant was used. Not only did the mordant fix the smear and impregnate better, but the stain was more intense. Recently he had had sent to him an infant, still born and syphilitic, and in whom was demonstrated the pallida. He asked regarding the history of the mother and nothing was given that was at all definite. The patient was in the hospital and was gone over very carefully clinically, but nothing was discovered on the body surface. There never had been a sore throat. When the mouth was opened, however, a very slight abrasion upon the side of the tongue was found. It was cleaned by scraping, smears were prepared, and the pallida demonstrated. The infant was clearly syphilitic, and the mother had but this single lesion. It seemed to Dr. Flexner that the evidence was strong in favor of the *Spirochæta pallida* being the etiological factor of lues.

Dr. William S. Gottheil was glad that an easy method of staining had been found, because he had been impressed not long ago by the failures of professional pathologists connected with the largest institutions in demonstrating the *Spirochæta pallida* in specimens when it was known to be present. He was glad to hear that the new method was a practical one. After all scientific results must be judged by practical findings. Even if it had been demonstrated that the gumma contained the *Spirochæta pallida*, the fact remained that, as seen to-day, it was not an infectious lesion and did not produce syphilis. If a modified form of the disease was thus produced the ravages of this disease would be enormous.

Dr. Ira Van Giesen could see nothing which proved that the *Spirochæta pallida* should be regarded as the causative agent of syphilis.

Dr. Edward L. Keyes, Sr., said he had seen syphilitic monkeys in the Pasteur Institute in Paris last summer, and the observations made showed that the monkeys did not have true syphilis.

Dr. Williams, Dr. Pollitzer, and Dr. Lapowski closed the discussion.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 20, 1907:

	Cases	Deates
Tuberculosis Pulmonalis	308	152
Diphtheria	304	29
Measles	414	24
Scarlet Fever	231	14
Smallpox	..	..
Varicella	44	..
Typhoid Fever	54	9
Whooping Cough	32	6
Cerebrospinal Meningitis	13	12
Malarial Fever	.....	.....
Totals	1400	246

Helath Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended July 19, 1907:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, San Francisco	June 22–July 6	2	..
Illinois, Chicago	July 6–13	3	..
Galesburg	June 29–July 6	1	..
Indiana, Elkhart	June 29–July 6	1	..
Indianapolis	June 30–July 7	1	..
Kansas, Kansas City	June 29–July 6	3	..
Louisiana, New Orleans	June 29–July 6	6	1
Michigan, Detroit	June 29–July 6	1	..
Mississippi, Natchez	June 29–July 6	2	Imported
Missouri, St. Joseph	June 30–July 6	3	..
St. Louis	June 30–July 6	1	..
New York, New York	June 29–July 6	1	..
North Carolina, Wilmington	July 10	2	1 imported
Tennessee, Nashville	July 6–13	1	..
Virginia, Richmond	June 29–July 6	2	..
Washington, Spokane	June 29–July 6	10	5 imported
Wisconsin, Milwaukee	June 29–July 6	3	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	May 25–June 1	3	..
SMALLPOX—FOREIGN.			
Brazil, Para	June 22–29	3	1
Canada, Nova Scotia—Halifax	June 30–July 6	1	..
Quebec—Sherbrooke	June 1–30	2	..
Chile, Iquique	June 15	..	Present
France, Paris	June 22–29	12	..
	June 1–8	4	Supplemental
Germany, General	June 15–22	6	..
Great Britain, Manchester	June 15–22	1	..
India, Bombay	June 4–11	..	2
Calcutta	May 25–June 1	..	26
Madras	June 1–7	..	2
Italy, General	June 20–27	27	..
Florence	June 16–30	3	..
Japan, Yokohama	May 20–27	1	..
Java, Batavia	May 25–June 1	2	..
Madeira, Funchal	June 15–30	100	25
Mexico, Aguas Calientes	June 22–July 6	..	15
Mexico City	June 8–22	..	16
Monterey	June 23–30	1	..
Panama, Colon	June 30	1	On steamship
Portugal, Lisbon	June 15–22	7	..
Russia, Batoun	May 1–31	2	..
Odessa	June 15–22	3	..
Riga	June 15–22	4	..
St. Petersburg	June 1–22	11	3
Siberia, Vladivostok	May 14–21	1	..
Spain, Barcelona	June 10–20	..	3
Madrid	May 1-31	..	3
Valencia	June 15-30	32	3
Straits Settlements, Singapore	May 25–June 1	..	1
Turkey, Constantinople	June 16–27	..	2 deaths
Damascus	June 8–15	..	Present
YELLOW FEVER.			
Brazil, Manaos	June 15–22	..	1
Para	June 22–29	4	4
Ecuador, Guayaquil	June 15–22	..	3
West Indies, Trinidad	June 15–22	2	..
PLAGUE.			
Africa, King Williams Town	May 25–June 1	1	..
Egypt, Alexandria	June 13–27	7	3
Assiout Province	June 13–27	2	6
Behera Province	June 13–27	3	9
Beni Souef Province	June 13–27	..	1
Kena Province	June 13–27	11	12
Minieh Province	June 13–27	2	..
India, Bombay	June 4–11	..	30
Calcutta	May 25–June 1	..	100
Rangoon	May 25–June 1	..	44
Japan, Yokohama	June 13–21	4	4
New Zealand, Aukland	May 1–15	2	2
Peru, Callao	May 31–June 6	2	..
Chiclayo	May 31–June 6	..	1
Lima	May 31–June 6	5	3
Mollendo	May 31–June 6	2	2
Paita	May 31–June 6	1	..
Trujillo	May 31–June 6	10	5
Russia, Astrachan Province	June 20	3	..
French Indo China, Cholon	May 3–10	..	Present
Saigon	May 3–10	..	"
Turkey, Djeddah	May 30	1	1

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Original Articles.

THE EVOLUTION OF GASTROENTEROLOGY.*

BY HENRY WALD BETTMANN, M.D.,

CINCINNATI, OHIO.

THE most important change in the spirit of internal medicine during the past quarter of a century has been the swinging of the center of gravity from the pathology of structure to the pathology of function. Twenty-five years ago pathological anatomy and histology were beginning to lose their force as a means of medical progress. They were becoming sterile from overcultivation, and had ceased to reveal new truths. An entirely new point of view became absolutely essential to vitalize research. This new point of departure was afforded by bacteriology, which in an amazingly short period became a well-organized science. At the same time, rapid advances in organic chemistry rendered possible the development of new methods of research, and chemical pathology became a fertile department. Chemistry and bacteriology have rejuvenated pathology, making it seem like a young science capable of unlimited development and growth. Every branch of internal medicine has been quickened by the change. The post-mortem specimen has lost not its basic importance but its dominating influence over clinical ideas. Research has turned from the autopsy room to the laboratory of animal experimentation, and to the clinic itself, in its study of the disorders of function during life. Surgery has come to the aid of internal medicine by revealing pathological changes in their earliest stages, often offering the advantages of what might figuratively be called human vivisection. Medical nomenclature has of necessity reflected this change of attitude, and new terms expressing pathology of function have been created, such as renal incompetence, neurasthenia, hyperthyroidism. The study of disordered function has naturally strongly emphasized the necessity of a knowledge of normal function, and physiology has come into more intimate relation with clinical medicine than ever before in history. As a result, a new impetus has been given to research work in physiology, and many chapters have been rewritten within the last two decades. No part of the body has been so vitally affected by this progress in method as the organs within the abdomen. A generation ago our knowledge of the digestive organs was exceedingly imperfect. Physiology of the stomach had advanced but little beyond Beaumont; of the pancreas beyond Bernard. Clinical pathology had little definite to offer beyond the conception of cancer, ulcer, and catarrh. Knowledge of the motor functions of the stomach and intestines was hazy and imperfect; the interrelation of the chemical secretions was unknown; the influence of bacterial life undreamt of. It has been only within the past decade that scientists and clinicians alike have realized that the entire science of the digestive organs, sometimes called gastroenterology, is in need of complete revision in the light of modern revelations. The new knowledge obtained from physiological experiment, from bacterial investigation, from chemical physiology and pathology, and from surgery, must be brought into harmony with the facts of clinical experience and organized into practically a new art. From this point of view the formation of a society like our own has became an absolute necessity, in order that the new facts revealed by scientific investigators in the various correlated departments may be quickly brought together and made available and profitable for the clinic.

Our knowledge of the motor activity of the stomach has become clear only during the past ten years. John Hunter and, after him, Sir E. Home undoubtedly recognized the fact that the stomach was physiologically divided into two distinct parts, and Beaumont, from direct observation, described well the distinctive activity of the pyloric half of the stomach. Nevertheless, the exact mechanism of the muscular activity of the stomach has become part of our general knowledge only since it has been unmistakably demonstrated by animal experimentation. Hofmeister and Schütz showed on the cut-out stomachs of recently killed dogs that the pyloric half was the true motor part of the stomach. Rossbach noted that the fundal portion remained almost passive during digestion and that peristaltic waves began at the antrum pylori. Moritz made manometric observations on the human stomach, and also demonstrated the passivity of the fundal half during digestion and the rhythmic character of the contractions of the pyloric half. Roux and Balthazard were the first to employ successfully the *x*-ray in man and animals, but to Cannon we owe the clearest and most complete description of the muscular activity of the stomach, under normal, artificial, and pathological conditions. We have learned from Cannon that depressing emotions and asthenic conditions of the general system delay or even stop gastric peristalsis. Handling of the intestines inhibits gastric peristalsis, and operations on the upper jejunum cause closure of the pylorus for at least six hours, or while primary glueing takes place at the site of the operation. Through Cannon also we have advanced a step farther towards a complete understanding of the marvelous mechanism of the pylorus. Hirsch and von Mering independently demonstrated that the nervous impulse for the closure of the pylorus was a reflex one, having its origin in the duodenum. Serdjukow, working in Pawlow's laboratory, showed that the reflex was due to the acid reaction of the chyme, and that the pylorus remained closed after the passage of chyme until the same was neutralized in the duodenum. Sindwarew showed a similar mechanism for fats in the duode-

*President's address, read at the tenth annual meeting of the Gastroenterological Association at Atlantic City, June 3, 1907.

num. Cannon was the first to suggest that the relaxation of the pyloric sphincter was due to the appearance of free HCL in the stomach, and in this way he explained the rapid passing from the stomach of foods (*e.g.* carbohydrates) which have little binding power on the HCl, and the long stay in the stomach of albuminous foods, like eggs and meat, which delay the appearance of free acid by combining with the HCl until saturated. Cannon's explanation is ingenious and illuminating, but is not altogether in accord with certain clinical observations, such as the rapid emptying of the stomach in achylia, the slow passage of certain fruits from the stomach, the passing of alkaline waters through the pylorus before they are neutralized, etc. It probably represents part of the truth but not all of it.

Our knowledge of the movements of the intestines is very recent. Landois's Physiology of twenty years ago describes rather crudely the peristaltic waves in the small intestine. "The movements," says Landois, "cease during sleep." No mention is made of the segmenting movements. The movements of the colon are said to resemble those of the small intestines, but are more sluggish and feeble. Twelve years ago Nothnagel's "Diseases of the Intestines" was published as part of his "Encyclopedia." An entire chapter is devoted to the movements of the bowels. Nothnagel described both the true peristaltic waves and the pendular or swaying movements of the intestine. He did not recognize the segmenting effect of the latter, and only guessed at their true significance, and he knew absolutely nothing of the normal antiperistalsis in the large bowel. For our knowledge of the segmenting movements in the small intestine and the antiperistalsis of the proximal colon, we are indebted to Cannon. With the *x*-ray, Cannon demonstrated that the pendular movements of the small intestines are accompanied by rapid waves of contraction whose effect is to break up the contents of the intestine into separate masses, rapidly varying their position and shape, and thus to bring the bowel contents into most intimate contact with the mucosa. These movements are oscillatory but have no propulsive effect, and are according to Starling purely myogenic in character. In 1902 Cannon described the antiperistalsis as the normal movements of the proximal colon. By means of antiperistaltic waves originating in the ascending colon the bowel contents coming from the ileum are pressed back into the cecum, and are churned about until most of the fluids are completely absorbed. Only gradually are the slowly hardening contents propelled into the transverse colon and past the splenic flexure. Here the antiperistaltic and churning movements are slight, the propulsive movements predominating. Under normal conditions the semifluid contents of the cecum cannot reenter the ileum on account of the obliquity of the ileocecal orifice and the tonicity of the ileocolic sphincter. The innervation of the ileocolic sphincter seems to differ from that of the small intestine, inasmuch as it is unaffected by stimulation of the vagus nerve, but excited to strong contraction by stimulation of the splanchnics. The small intestine, on the other hand, is inhibited by stimulation of the vagus and relaxed by stimulation of the splanchnic. The true peristaltic waves in the small intestine are occasioned by the innervation of Auerbach's plexus, which according to Starling may be regarded as a lowly organized nervous system with practically one reaction. This one reaction has been designated "the law of the intestine," and can be summarized by stating that stimulation at any portion of the small intestines causes contraction above the point of stimulus and relaxation below it.

The movements of the intestine under certain surgical conditions have also been made the subject of special study by Cannon and Murphy. These investigators have shown that end-to-end anastomosis of the severed gut produces no obvious inefficiency; that lateral anastomosis is followed by the accumulation of food at the site of union; that etherization and exposure of the intestines to the air produce only a slight retardation of gastric and intestinal peristalsis, whereas handling of the gut seriously interferes with the onward passage of the stomach and bowel contents. Rough handling may lead to extreme sluggishness of the intestines, so that food reaches the cecum many hours beyond the normal.

Our knowledge of the chemistry of digestion has been enormously clarified by the discovery of the relation which exists between the various parts of the digestive canal. The earlier physiologists believed that the mere presence of food in the stomach or intestine reflexly stimulated secretion. The facts are not so simple. Pawlow has shown us that gastric juice is secreted before the food enters the stomach, and that in fact its flow may be excited by the mere thought of savory food. This is obviously a delicate reflex mechanism, the afferent link of which comes from the nerves of the mouth or from the centers of ideation in the brain, the efferent impulse being carried by the vagus. There is no doubt, however, that the presence of food in the stomach itself causes the flow of additional gastric juice. Walter Gross has recently shown that the flow can be produced by meat extract introduced into the duodenum.

Within the last few years we have learned how the entrance of chyme into the duodenum excites the flow of pancreatic juice. Both Claude Bernard and Pawlow thought that food in the duodenum aroused these secretions reflexly through the nervous system. Wertheimer and Popielski (working independently) proved that acids in the duodenum caused the secretion of pancreatic juice after section of the vagi, and destruction of the splanchnics and the spinal cord. Starling and Bayliss proved that the relation between the duodenum and the pancreas was of a chemical and not of a nervous character, and that the real exciter of pancreatic secretion was a chemical substance produced by the action of HCl on the duodenal mucosa. This substance, called secretin, when injected into the jugular vein, causes profuse secretion of pancreatic juice within two minutes.

This specific substance has not yet been isolated. It is not destroyed by boiling, even in strong acid; it is not affected by gastric juice; it is easily diffused through animal membrane; it is not precipitated by the usual reagents for proteins and peptones. It is, therefore, a relatively stable substance of low molecular weight. It can be obtained from the mucosa of the duodenum and jejunum, but not from the lower ileum, the colon, or any other part of the body. Secretin doubles the secretion of bile. It also stimulates the flow of succus entericus in the duodenum and jejunum. There is no doubt that the lower ileum differs in function from the upper part of the small intestine. Above, secretion is the chief function; below, absorption. The secretion of succus entericus is also stimulated by the presence of any solid substance within the bowel, the secretion occurring through the influence of the local nervous mechanism (the plexus of Meissner).

The intestinal juice contains two other ferments which are engaged in the process of proteolysis, enterokinase, and erepsin. The former activates the pancreatic juice by transforming trysinogen into trypsin; the latter has the power (which is shared by many other juices in the body) of hydrolyzing albumoses and peptones into amino and diamino acids.

Coincident with this growth of our knowledge concerning the physiology of the digestive tract, there has come about a gradual evolution of our clinical ideas. Fifty years ago von Frerichs stated that insuperable obstacles would, for a long time to come, prevent us from gaining a clear understanding of the functional disturbances of the stomach.

Yet Kussmaul, ten years later, blazed the way for this knowledge by introducing the stomach tube into general practice. Kussmaul's classic article on the use of the stomach pump in dilatation of the stomach should be read to-day by every physician, whether internist or surgeon, who is interested in the treatment of pyloric obstruction. On the basis of twelve cases treated by lavage, Kussmaul described the production of pyloric obstruction by the healing of pyloric ulcers, the subsequent dilatation of the stomach, the complete symptomatology including visible peristalsis, and the frequently permanent cures by means of dieting and lavage.

Leube quickly recognized in the tube an invaluable means of studying the functional activity of the stomach whether chemical or motor. In 1879, von den Velden, one of Kussmaul's assistants, made his epoch-making discovery of the deficiency of HCl in gastric carcinoma, and Riegel later found the almost constant occurrence of hyperchlorhydria in chronic ulcer. The motor functions early attracted the attention of clinicians, and in 1878 Rosenbach invented the term "gastric insufficiency" to designate deficient motor power of the stomach.

Thus the foundations were laid for all the subsequent study of the functional activities of the stomach. The next two decades witnessed great industry in devising ways and means of gaining a clear insight into the shape, position, and size of the stomach, and of simplifying the means of chemical analysis. Fenwick in England and von Frerichs in Germany invented the artificial inflation of the stomach with effervescent mixtures. Numerous less important means were discovered for mapping out the position of the curvatures. In 1883 Meltzer called attention to the value of studying the sounds of deglutition. Gastrodiaphany was introduced in 1889 by Einhorn.

Auscultatory percussion was also soon used, its advantages having been first emphasized by Benedict. The importance of clapotage was emphasized by Bouchard in 1884, he, however, vastly overrating its importance. Strange to say, the use of the stomach tube for diagnostic purposes did not become popular until after 1885. Gunzburg's reagent was first described in 1887. Uffelmann's dates back to 1880. Infinite pains were taken by German chemists and clinicians in refining the chemical methods of qualitative and quantitative analysis.

Looking backward over the decade from 1880 to 1890 we see what an enormous amount of painstaking effort was required to produce the few uncomplicated tests in use to-day. Since 1890 there has been a marked tendency to simplify methods, to reject all pedantic distinctions, and to make observations more practical in their nature. Toepfer's reagent for quantitative analysis, introduced in 1894, has been universally adopted. Great refinements of chemical analysis have been discarded. The static conditions of the stomach, size, shape, position, and capacity attract less and less attention, while the dynamic powers, secretory activity, and propelling power have come more and more into the foreground. We have learned that small stomachs may be incompetent, while large ones may have perfect muscular power. We speak, therefore, less of the size of the stomach and more of its functional activity. The term dilatation threatens to be displaced by motor insufficiency, myasthenia gastrica, and ischochymia.

There has grown a slight tendency, especially from the surgical side, to minimize the value of all the chemical tests. Nevertheless, every practitioner cannot fail to recognize their indispensable utility in diagnosticating functional from organic disease, in differentiating ulcer from cancer, in making certain specific diagnoses, such as achylia gastrica, nervous hyperchlorhydria, etc. The chemical tests for occult blood in the feces have already taken an assured position among our chemical methods. On the other hand, our attitude towards the total functional activity of the stomach has undergone considerable modifications. Gray's Anatomy of 1884 states that the stomach is the most important organ of digestion. The relative unimportance of gastric digestion has been gradually revealed to us since then by the study of patients after gastroenterostomy, of cases of achylia, and of the results of resections in man and animals.

Nowhere can the modern tendency to express diseases in terms of function rather than in terms of structure find better illustration than in the diseases of the intestines. Nothnagel, in 1884, impressed upon the profession the necessity of a careful and systematic study of the feces as a means of understanding intestinal disorders. For various reasons, careful examination of the feces has not been widely adopted by clinicians as a means of diagnosis. Up to within very recent times the macroscopic search for pus or blood and the microscopic search for amebæ have constituted the sum total of clinical procedures. The mastery obtained over gastric disorders by a study of gastric functions has recently stimulated investigators to apply similar methods to the study of the bowels. The task, however, is a difficult and complicated one. The study of the feces offers the only opportunity of approaching the subject, but the feces represent an end-product of many different processes. The secretions of the liver, pancreas, and intestinal mucosa, are poured into a common canal and act upon food which has already been subjected to two digestive juices. The products of digestion are absorbed, but the residue falls a prey to the action of the intestinal bacteria and is mixed with substances excreted into the bowels through the intestinal mucosa. Chemical methods of studying the feces have as yet produced little that is of practical value. The tests for occult blood, the sublimate test for hydrobilirubin, and the fermentation test for carbohydrates may be mentioned as exceptions. Bacteriological study of the feces is just entering upon what promises to be a most productive career.

The best clinical advances have been made thus far by studying the feces after certain test diets. The Schmidt test diet has found the widest acceptance in America as in Germany; in England the mixed diet recommended by Harley and Goodbody has been extensively used. Einhorn has sought to simplify the methods by giving certain foods attached to beads which can easily be regained in the stools. This plan offers obvious advantages over all others, and promises to become widely adopted.

Some of the most important conclusions reached by Schmidt are as follows: Mucus in the stool is a positive sign of inflammation of the mucosa (except in cases of mucous colic). Visible mucus nearly always comes from the colon. If mucus comes from the small intestine it may appear in very small flakes crowded with bacteria or cell-nuclei. In ulcerative processes purulent mucus is discharged, but rarely pure pus. A negative sublimate test almost invariably indicates complete occlusion of the bile duct. As about 20 per cent. of the dry substance of normal stools is fat, only a considerable increase can be practically recognized. Fatty stools are abundant in quantity, light in color, and acid in reaction. They occur in deficient flow of bile, in disorders of pancreatic secretion, and in certain rare intestinal disturbances. Connective tissue remains in the stools indicate an interference with gastric digestion. Muscle fibers show a deficiency of intestinal digestion. Starch indigestion is usually due to a defective secretion of succus entericus.

The intestinal disorders of digestion may be classified according to their etiology as gastrogenic, hepatogenic, pancreatogenic, or essential intestinal. Gastrogenic intestinal disorders are very frequent, *e.g.* the well-known diarrhea of achylia gastrica. Connective-tissue remains are found in the feces in many gastric conditions. According to Schmidt, the diarrhea accompanying gastric disease is not due directly to the diminution or absence of HCl. When gastric secretion is deficient, the fermentation and putrefactive products pass more readily into the bowel. Raw connective tissue cannot be digested by the pancreatic juice, and when fat and muscle fiber protected by connective tissue pass into the bowel they become the ready nidus for putrefying organisms.

When bile cannot enter the intestine the only important disturbance is the interference with the absorption of fat. According to Schmidt, and contrary to the common opinion, acholic stools neither ferment nor putrefy, nor does the absence of bile from the intestine lead to constipation.

It is difficult to recognize the disturbances of digestion which are due to imperfect activity of the pancreas. When the pancreas is totally destroyed or occluded, fatty stools are passed which contain bile pigment, globules of fat, and muscle remnants, and which rapidly putrefy. Methods have been devised for estimating diminished secretion of pancreatic juice. Sahli's glutoid capsules are said to resist gastric digestion and to fall a prey to pancreatic digestion, but this method will always be an imperfect one. Schmidt sought to test the digestive activity of the pancreas by the study of the nuclei of animal tissues (marbled beef). Only pancreatic juice can digest nuclei. The reappearance of most of the nuclei in the stools indicates an impairment of the pancreatic function. Einhorn makes use of this principle in his bead test, by attaching to one bead a little cheesecloth bag containing thymus gland.

In 1902 Strasburger called attention to the fact that many cases of constipation are due to a too perfect digestion. Too good a digestion leaves too little residue. As a result, the number of intestinal bacteria diminishes, the products of putrefaction are less, and the normal stimulus to peristalsis is thus removed. An effort to overcome constipation by introducing yeast and cultures of *B. coli* failed completely. In the past we have tried to cure constipation by increasing the carbohydrates in the diet. Schmidt suggests that better results might often be obtained by adding an excess of fats, and Dörfller, in 1900, successfully adopted this method by adding butter to the diet of infants, and thus overcoming the constipation.

An entirely new field of clinical medicine has been opened by the study of the intestinal bacteria. No department of medical science is richer in possibilities of revelation than this, and it seems probable that many of the so-called metabolic diseases will be found to have their origin within the intestine. The bacterial flora vary at different ages in the same individual, in the same individual under different forms of diet.* The meconium is sterile. The intestinal canal of normal human nurslings is the habitat of a fairly uniform bacterial flora. The mouth and stomach contain relatively few bacteria. The duodenum and jejunum are remarkably free from them. At the lower level of the ileum, there is almost regularly an abrupt increase. In the cecum, the number of bacteria is enormous. In the ileum, the gram-negative bacilli predominate (*B. coli* and *B. lactis aërogenes*). In the colon the gram-positive bacilli gain the upper hand, chiefly of the *B. bifidus* group, and in the rectum these seem to appear almost in pure culture. It is probable that most of the infantile bacteria are introduced through the mouth, but that *B. bifidus* gains entrance through the anus. Other important but much scarcer bacteria in the infant's intestine are the *B. acidophilus* (Maro) and *B. aërogenes capsulatus* (Welch) sometimes *B. putrificus* (Bienstock), the last two of which are putrefactive anaërobes, and grow more numerous as the children advance in years. These bacteria may increase greatly in middle life and their putrefactive products absorbed into the blood may cause various clinical manifestations. As old age approaches, putrefactive processes within the intestine are apt to become better established. Herter states with considerable assurance that "the onset of senility may be distinctly accelerated through the development of intestinal infections in which the putrefactive anaërobes are prominently represented."

In normal adults the bacterial flora of the intestines have been carefully studied. The chief obligate forms are *B. lactis aërogenes*, which predominates in the upper part of the small intestine, and the *B. coli* group, which is the chief occupant of the colon.

It is probable that the intestinal bacteria are not essential to healthy life. The chief value of these obligates lies probably in their potential capacity to check the growth and development of harmful bacteria. In the cecum and ascending colon, bacteria reach their most luxurious development. Further along in the colon the *B. coli* group tends to die out, chiefly because their soil becomes exhausted, but partly because of the formation of certain inhibitory substances such as indol, acids, and phenol.

This explains the fact that the stools following the use of purgatives are often richer in living bacteria than the normal stools. The relation of the intestinal bacteria to the formation of oxalic acid, acetone, certain diamines, cholin, neurin, sulphur compounds, and various aromatic bodies has yet to be worked out conclusively. Already numerous cases have been reported of systemic poisoning due to the absorption of one or the other of the above poisons from the intestinal canal. Individual susceptibility plays a strong rôle. Much patient research work is here needed. Already an attempt has been made to place the pathological putrefactions within the intestines upon a solid clinical basis. Herter recognizes three common types: (1) the in-

*Free use has been made of Herter's recent book on the intestinal bacteria.

dolic type; (2) the saccharobutyric type; (3) the combined type. In the indolic group there is probably an invasion of the ileum by a member of the *B. coli* group which attacks hydrolyzed proteids and forms indol. This process is common in cases of occlusion of the bile duct and probably frequently occurs in childhod. The saccharobutyric type is common in adults. It is due chiefly to an infection with *B. aërogenes capsulatus,* which may be associated with other bacteria. The stools in these cases are apt to be light in color, due to the admixture of fine air-bubbles; they float on water; they may smell of butyric acid; the reaction may be acid, neutral, or alkaline; they contain little or no indol. The patients usually suffer in nutrition; many develop anemia; they cannot tolerate acids or carbohydrates. Nervous symptoms as a rule are not prominent. There is often a tendency to diarrhea. The combined type includes those cases in which the putrefactive anaërobes are very abundant and in which there is a persistent indicanuria. Symptoms of nervous depression and of muscular weakness predominate in this condition, and pernicious anemia may result from it. In extreme instances operations for the elimination of the colon might seem indicated. Appendicostomy might answer the same purpose.

The orthopedic surgeons are beginning to look to the intestinal canal as the remote cause of many joint lesions, the etiology of which has hitherto remained unexplained. Arthritis deformans and certain types of chronic infectious arthritis are thought to be due to certain poisons circulating in the blood and resulting from intestinal putrefaction. At the recent meeting of the American Orthopedic Association, Hoke of Georgia related his efforts in these cases to overcome the intestinal putrefaction by the administration of sour milk products. As is now well known, an acid reaction restrains the growth of putrefactive bacteria. A milk diet counteracts putrefaction by favoring the growth of the lactic acid bacteria which displace the putrefactive organisms.

The contributions which surgery has made to the department of gastroenterology are so numerous and important that they may not be omitted from this review. Leaving aside the triumphs which surgery has earned for its complete mastery over appendicitis, its dramatic saving of life after visceral perforations, its victory over the formerly invariably fatal cases of acute pancreatitis, its cure of chronic pancreatitis, its optimistic attack on intraabdominal cancers, surgery has also had a marvelous effect in stimulating research work on the abdominal organs.

Surgeons have discovered the remarkable absence of pain attending the handling of the abdominal viscera during operations and concluded from this that normal and even inflamed viscera could not be the seat of pain. This view received general acceptance until Meltzer and Kast demonstrated that this apparent painlessness is in all probability due to the use of cocaine. Gastric surgery has tremendously stimulated interest in gastric ulcer and cancer, pyloric obstruction, gastric hemorrhage, and displacements of the stomach. Abdominal surgery has revealed the tremendous number of cases in which gastric symptoms are extragastric in origin, and our conception of the clinical pathology of the gall-bladder has been revolutionized in the last ten years. To this end the internists, surgeons, bacteriologists, and chemists have cooperated. There is little reason to doubt the conclusion that gallstones are formed as the result of a preceding inflammation of the gall-bladder. Catarrhal cholecystitis leads to the formation of mucus and to excessive exfoliation of epithelial cells. The desquamated cells are responsible for the over-production of cholesterin and bilirubin calcium which form the nidus for the gallstones. The cholecystitis is practically always due to infection, most frequently with the *B. coli;* less frequently with the typhoid bacillus, the influenza bacillus, pneumococcus, or staphylococcus. The suppurative forms of cholecystitis are not followed by the formation of stones. These form during the few months which follow an attack of catarrhal cholecystitis.

The enormous clinical importance of this interval has never been sufficiently recognized. From my own observation, it seems certain that primary catarrhal cholecystitis is an exceedingly frequent disease, but very commonly overlooked. After the attack subsides, if conditions remain favorable, there is a slow formation of gallstones. By therapeutic measures appropriately applied at this stage it is highly probable that the formation of the stones can be prevented.

The prophylaxis of gallstones seems to me an entirely feasible possibility. In the light of modern investigation we are justified in saying that the cholecystitis is the primary disease and the most important factor in producing symptoms; and, furthermore, that gallstones may be considered a frequent though by no means a necessary complication of cholecystitis and only an accidental factor in the symptomatology. Time will not permit of an exhaustive review of the efforts made by surgeons to overcome the evil effects of alcoholic cirrhosis of the liver by Talma's operation; of the occasional cure of hypertrophic biliary cirrhosis by drainage of the gall-bladder; of the relief of chronic dysentery by appendicostomy, and of the occasional total elimination of the colon.

Enough has been brought together in this paper to bear witness to the extraordinary activity within recent years of the workers in all the departments which deal with the abdominal viscera. In many respects our ignorance is still dense. No other part of the body is so pregnant with possibilities. Many of our most obscure problems in metabolism will be solved by the modern chemical and bacteriological methods of study applied to this region. The surgeons must work hand in hand with the internists; these with the chemists, bacteriologists, and experimental physiologists. The closest cooperation possible is desirable. The pure scientists will gain by a clearer appreciation of clinical problems. The clinicians must keep in the most sympathetic touch possible with the results of the laboratory. What could be more appropriate than that there should be joined in one society the workers in these diverse and yet intimately correlated fields, for mutual criticism, discussion, inspiration? If the sciences which deal with the abdominal viscera are to grow under the most favorable conditions possible, then such an association of coworkers becomes an absolute necessity.

The American Gastro-Enterological Association, with a full appreciation of these facts, has gathered into one fold surgeons, internists, physiological chemists, and experimental physiologists, and offers, I believe, the first example in America of a society thus constituted. It invites the cooperation of all those who in a broader or narrower sense are working for a solution of all those problems which are specifically involved in this department of medical science.

THE SEPARATION OF THE URINE OF THE TWO KIDNEYS.

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Since every individual has two kidneys, it follows that in order to know and appreciate completely their function it is necessary to collect separately the urine of each. It is necessary to separate the urines not only to make the diagnosis of a renal lesion, but also and above all when surgical interference seems to be indicated in order to assure oneself of the integrity of the supposedly healthy kidney. To learn the renal function two methods were formerly employed and seemed to give sufficiently accurate results. These two methods were a weighing of the clinical symptoms and the examination of the total urine of both kidneys. To-day it is admitted, however, that these two methods are altogether insufficient to give us a true idea of the function of the kidneys.

The clinical symptoms may, in some cases, afford sufficient evidence of the existence of disease of the kidney, but more often they are completely silent or lead us into error.

For instance, in a case under my observation all the clinical symptoms indicated a nephrectomy of the right kidney; the woman presented an abundant pyuria with pain and swelling of the right kidney, the left kidney being absolutely painless and insensible. The separation of the urines showed, contrary to all expectation, that all the urinary elimination was done by the right kidney, while the left one recorded practically no urine. The nephrectomy of the left kidney, done some time later, upon the indications furnished by the separation of the urines, showed the complete functional insufficiency of this organ, and the fatal consequences that would have followed an operation based on the clinical indications.*

When we read the report of a surgeon who has performed a nephrectomy and see the patient die twenty-four to forty-eight hours later, recognizing too late either that the patient had only one kidney, or that the one left behind had an insufficient function, we are struck by the thought that the separation of the urines has a vital importance. Finally, clinical symptoms alone can never show surely the integrity of the other kidney, which it is indispensable to know when indications for a nephrectomy are present.

Can we learn the function of each kidney by examination of the mixed urine of the two kidneys? I do not hesitate to affirm the contrary. Although, from a purely medical point of view, it may suffice to decide on the insufficiency of the two kidneys by examination of the total mixed urines, from the surgical point of view, which takes account of unilateral lesions, this method of diagnosis is notably insufficient, and it is upon the study of the urine of each kidney separately that we must base surgical interference.

Among the factors to be taken into account in an examination of the total mixed urine the principal are: urinary quantity, density, chemical composition, cryoscopy, urinary toxicity, and tests of secreting activity.

Among these the quantity and the density of the urine are subject to considerable variation, so that it is impossible to arrive from this study at any precise results.

The chemical composition may lead one to commit grave errors. Indeed it may indicate that renal elimination is insufficient when only one of the kidneys is involved, either because the kidney does not present compensatory hypertrophy, which is frequent, or because this same kidney is affected reflexly in sympathy with the poor function of its diseased fellow.

Again, the chemical composition of the total urine may show that the urinary function is going on normally, when in reality both kidneys are diseased. In this case there may be in both diseased kidneys a certain amount of normal tissue capable of functioning, or there may be in one of them a sufficiently large portion of healthy tissue, or a compensatory hypertrophy.

Cryoscopy, which has for its object to ascertain the quantity of solid substances dissolved in the urine, is subject to several variations when we study the mixed urine of the two kidneys, so that it is impossible to draw correct and important conclusions. It is the same with the toxicity of the urine.

With reference to tests to determine the integrity of the eliminative function, we should recall that such eliminations occur for medicaments as well as for coloring matters. Among these methods the commonest, which was suggested by Achard and Castaigne, is that of the methylene blue test, which consists of injecting under the skin a cubic centimeter of sterilized five per cent. methylene blue solution and collecting the urine every half hour, observing whether it is colored blue. In the normal condition it commences to be blue a half hour after the injection; the coloration increases and is at its maximum of intensity from three to five hours after the injection. It then diminishes slowly, but continues in general for from forty to fifty hours.

In truth none of these methods gives us an exact idea of the unilaterality or bilaterality of renal lesions, and they cannot furnish the surgeon with accurate and useful information. On the other hand, when we examine separately the urine of the right and left kidneys it is practically certain that we can obtain absolutely precise information of the respective function of each kidney.

To learn the function of each kidney it is necessary that the separation of the urine should be made during half an hour, and that the quantity of urine obtained from each kidney should be at least ten cubic centimeters. Indeed, in some conditions of renal retention the ureteral ejaculations are very infrequent, and if we observe for less than that time we are in danger of aiming at false results. It is by a methodical and rational analysis of the products obtained that we may arrive at precise and certain results. The combined volumetric and physicochemical examination of each specimen of urine should be performed with care. The same should be done for the color, appearance, and reaction of each specimen. When these preliminary observations have been made each tube should be centrifuged with care; the precipitate should be put aside for microscopical examination, and the decanted urine will serve for physicochemical examination.

The cryoscopic examination of the separated urines of the two kidneys has a much greater importance than when it is made from the mixed urines of the two kidneys. The conditions of elaboration of the urine are identical for the product of each gland, and it is legitimate to admit that of the two kidneys, the one that functions the best is that which eliminates during a given time the most solids; therefore the cryoscopic examination

*Numerous other cases, absolutely similar to this one, are cited in my work on "Exploration de l'Appareil Urinaire." Paris, Masson, 1907.

of the urine of one side, taken alone, would have no value, but it may furnish valuable indications when compared with that of the opposite side.

It is extremely important to determine the amount of urea, as that will furnish the most precise information in the comparative study of renal elimination. It is the most important point to be studied in separation of the urines of the two kidneys and the safest guide from which to draw deductions. Also the elimination of methylene blue will give important information, aiding us to appreciate the functional condition of the two kidneys. The histological examination of the deposits obtained by centrifugation gives us information regarding the inorganic sediment and the microscopic elements. This histological examination of the precipitates is

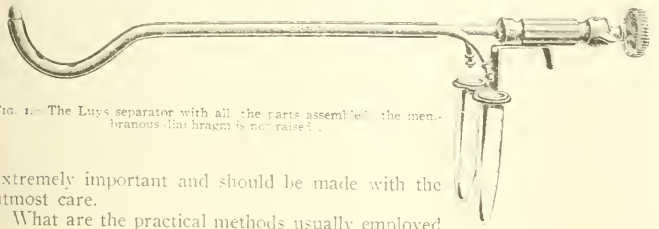


FIG. 1.—The Luys separator with all the parts assembled: the membranous diaphragm is not raised.

extremely important and should be made with the utmost care.

What are the practical methods usually employed to collect the separate urine of the two kidneys? If we look at the various methods used for separation of the urine of the two kidneys we shall see that they are in principle three in number:

1. Ureteral compression, which consists of obstructing for a certain time one ureter and collecting during this time the urine of the other kidney. This method presents a capital defect, which is that of the impossibility of collecting at the same time the urine of the two kidneys. The renal function undergoes from time to time variations, and the important point, which is to establish a comparison between the work done by each kidney, at the same time cannot be obtained. There are in reality only two practical methods for separating the urine of the two kidneys, viz.:

FIG. 2.—The separator with the membrane raised.

2. Ureteral catheterization.
3. Intravesical separation of the urines.

Catheterism of the Ureter.—Although it is certain that from a theoretical point of view the only method that is rigorously exact and absolutely certain for studying the secretions of the two kidneys separately is the simultaneous catheterization of the two ureters obtained during twenty-four consecutive hours, it is not less true that from a practical point of view the thing is not generally possible. Really, to obtain accurate information regarding the functional condition of the kidneys and definite indications for operation, intravesical separation of the urines in the immense majority of the cases is absolutely sufficient, and it has undoubted advantages over the method of ureteral catheterization.

The introduction of a sound into the ureter through its vesical orifice is the only method which will permit of a true exploration of the ureteral canal, whether we wish to examine for strictures, obliterations, or calculus of the ureters, or to explore the pelvis of the kidney to find a calculus, or measure the capacity of the pelvis. We should recall that catheterism of the ureter may be practised for therapeutic ends and that it may enable us to carry out lavage of the pelvis in case of simple pyelitis; but though the employment of the ureteral catheter is absolutely indicated in the exploration of the ureter and pelvis of the kidney, the field of this method of investigation of renal function seems to be limited.

The principal objections to the method of ureteral catheterization are:

1. Infection.—The ureteral sound introduced by means of a cystoscope in a bladder infected and full of liquid may, in traversing this septic medium, carry into the pelvis of the kidney pathogenic germs which will produce infection of the kidney itself. This is a fact that is undeniable and certain, and the accident may occur in spite of numberless precautions, including repeated lavage of the bladder. The ureteral sound, reaching an infected bladder, picks up pathogenic germs, not only on its external surface, but also, which is more important, in its cavity. The sound thus soiled with impurities internally and externally becomes a carrier of microbes, susceptible of secondarily infecting the pelvis of the kidney. This fact has been confirmed by a typical case reported by Rafin of Lyon, who found in one case spermatozoids evacuated from a ureteral sound in place in the ureter. The answer to this capital objection of the danger of infection has been made by reserving catheterism for kidneys supposed to be infected already, while the urine from the sound kidney is allowed to collect at the same time in the bladder, flowing directly from the ureter; but the clinical symptoms on which we must base the knowledge of which is the diseased side are often completely at fault, and we may be exposed to the danger of catheterizing a healthy ureter and causing the patient to run the risks of infection.

2. Untrustworthiness.—The method of ureteral catheterization may produce error in five different ways:

(*a*) Since it is impossible to be certain that the caliber of the sound is adapted to the size of the ureter, it results that a little urine may filter out around the sides of the catheter and become mixed with that of the other kidney which runs directly into the bladder, which will give false results.

(*b*) The passage of the sound into the ureter may cause lesions and make the ureter bleed, which will cause the belief that a hematuria exists.

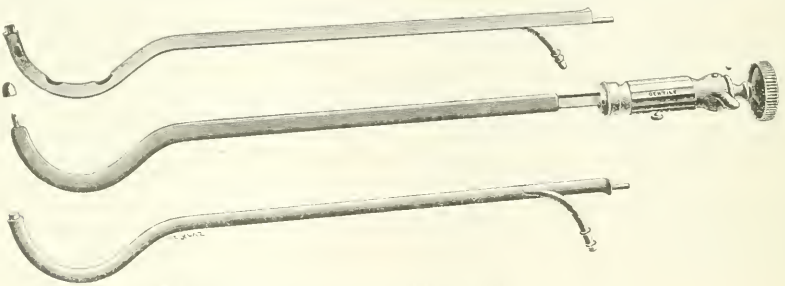
(*c*) Since we must catheterize only the infected ureter and collect the healthy urine in the bladder, the urine of the supposedly healthy kidney will reach the bladder without infection; but there it becomes mixed with the pus contained in the bladder, and the impossibility can be seen of knowing whether the morbid elements belong to the bladder or the supposedly healthy kidney.

(*d*) The fourth cause of error consists in the fact that we cannot ever be absolutely sure that with a prism-cystoscope the ureteral sound has been passed into the ureter, and that it has not slipped aside from the orifice at the moment when the cystoscope was removed.

(*c*) Finally, the fifth cause of error is the abnormal excitation of the kidney which is produced, a fact which has been brought to light by Franck of Berlin.*

3. Difficulties.—The difficulties of the method of ureteral catheterization are of two kinds. Some come from the operator, for it is certain that a long apprenticeship is necessary in order correctly to make a ureteral catheterization. Others come from the patient, for catheterism is often absolutely impossible to perform, either because of intolerance of the bladder or because of pyuria or hematuria, which would render a view of the orifice of the ureter impossible.

Separation of the Urine Within the Bladder.—The endovesical separation of the urine obviates all these objections. It consists in collecting in the bladder at the level of the orifice of the ureter the urine of each kidney. The apparatus most commonly employed is represented in the accompanying illustration. Recently brought forward, this method, which had fallen into oblivion abroad, was unknown in France before I introduced it. Six years of study and patient research have demonstrated that the essential principle which has guided me since the beginning is the expression of a truth. It is well known how widely the method has been used and how much interest it has excited not only in France, but also abroad.



—The separator dismounted, showing the three parts of which it is composed.

The points of superiority of the endovesical separation of urine over separation by the ureteral catheter are many; we will mention the principal ones. In the first place, the endovesical separation of the urine is a simpler method and may be employed by any surgeon who is accustomed to urinary procedures, while ureteral catheterism can be used by only a small number of specialists. Next, the separation of urine by the endovesical method is absolutely exempt from the dangers of ureteral catheterism, and can never, like that method, expose the patient to the contamination of a previously healthy kidney, by a ureteral sound passing through an infected medium. Again, in bladders containing morbid urine, when hematuria or pyuria renders the view of the ureters difficult, the intravesical separation of the urine is superior to catheterization.

Again, endovesical separation shows immediately the diseased kidney when, as frequently happens, no clinical sign has led us to suspect one kidney more than the other. Endovesical separation of the urine may be made with a contracted bladder. A special model of separator is made for separation in children. The smallness of the passages in children has prevented the utilization of the cystoscope in many cases. Finally, endovesical separation of the urine does not affect the function of the kidney, or, if it affects it, its action is equally upon the two kidneys, while catheterism of the ureter produces excitation only of the kidney manipulated.

It is not less true that the method of intravesical separation of the urine is susceptible of criticisms, and these may be summed up as follows:

In the first place, the endovesical separation of the urine does not furnish a pure renal urine, for the urine is mixed with the product of the bladder which it traverses. Nevertheless, in an analysis of the separated urines we need take account of only one small factor, viz., the presence of bacteria or of blood. There are other elements, such as the volume of urine, the dosage of urea, the cryoscopic point, which preserve their original value in this method and may serve as elements of great value in considering the function of the kidneys. The histological examination of the sediment obtained by the separation is also extremely important. From the bacteriological point of view the intravesical separation of the urine may furnish information that is not absolutely precise, for there may often exist lesions in the bladder associated with those of the kidney—for instance, a left renal tuberculosis with tuberculous ulcerations of the right side of the bladder. It is in such conditions that it is necessary to combine endovesical separation with simple cystoscopy to ascertain the condition of the bladder or of the ureteral orifices, or the existence of ulcerations of the bladder; perhaps even catheterization of the ureters may be necessary to collect the urine coming from the kidney without contamination in the bladder.

The second criticism that can be made of the method is that the application of the separator cannot be continued for so long a time as that of the ureteral catheter. But it is quite certain that in one-half to three-quarters of an hour the separator will obtain specimens of urine that will furnish sufficient elements to enable us to determine the function of the kidneys.

Lastly, it has been objected that it is impossible to diagnose a renal retention. Although there is a certain amount of truth in this statement, it is not absolutely correct. If in the course of the application of the separator it is seen that no urine is flowing from one kidney, it is always easy to have this organ raised toward the diaphragm by an assistant; it will soon be seen, in response to this procedure, that the corresponding tube fills with a clear liquid in the case of hydronephrosis, and with purulent liquid when there is a pyonephrosis with retention in the pelvis. This maneuver succeeds in every case in which the caliber of the ureter is normal and it is not fixed by pathological adhesions. It fails,

*Franck: Verhandlungen der Deutschen Gesellschaft fur Chirurgie, Thirty fourth Congress, Berlin, 26-29 April, 1905, S. 72-74.

on the other hand, when the ureter is fixed by adhesions or is strictured. In the latter case a sound introduced into the urethra will be arrested at the stricture and will give us more definite information regarding the presence or absence of renal retention.

In conclusion, we may say that it is not just to regard these methods as rivals in the separation of the urine. Each of them has its indications and its well-determined rôle. The separator, more simple in employment and exempt from danger, may be employed in many more cases than ureteral catheterism. Well applied it gives results that are exact and certain, but in certain cases other diagnostic methods are needed either to collect urine directly from the kidney without contamination in the bladder, or when it is desired to explore the pelvis of the kidney. In this case ureteral catheterism will find its application. When this exploration is judged necessary it will be of great advantage to practise it with a direct-vision cystoscope, for in this case the chance of renal infection will be reduced to a minimum.

To sum up, the endovesical separation of the urine has the following advantages over ureteral catheterization: (1) It is more simple; (2) it may be applied in more cases than ureteral catheterization; (3) it is devoid of danger; (4) the information given by the separator, when properly applied, if possibly not better is at least as exact as that furnished by ureteral catheterization.

20 Rue de Grenelle

PRIMARY DYSMENORRHEA.*

By MAUDE GLASGOW, M.D.,

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The function of menstruation is not peculiar to the human female, but in animals the discharge is of mucus only, and among human beings the lower the scale of intellect the greater the relative quantity of mucus to that of blood. Ovulation, though usually occurring with menstruation, is not necessarily coincident with it. The act of menstruation affects the body and its functions markedly. The elimination of urea is decreased at this time, although during the preceding week it is increased. Arterial tension is higher, remaining so for a few days, when it gradually falls. The temperature is about a degree above normal, especially during the third or fourth day of the period.

Weir Mitchell has observed a loss of weight, with gain between the periods, and Ewing has found the hemoglobin reduced from 4 per cent. to 15 per cent., with some leucocytosis.

Headache is quite frequently present, the breasts occasionaly swell, and the thyroid gland often enlarges; there is greater susceptibility to cold; there may also be local discomfort and diarrhea. Reflex phenomena are observed in the skin, erythemas, acne, eczema, and other eruptions appearing or being aggravated as the period approaches.

Riebold is of the opinion that the occasional menstrual fever is caused by absorbed toxins or decomposition products which also produce the dermatological and nervous symptoms, and that rheumatic affections, including heart disease, may be induced by infection from the genital tract during menstruation. The chemical products which produce these changes in the organism are supposed to be due to superfluous substances finding their way back to the genital organs to be eliminated; but when not so disposed of they are again taken up by the body, on which they now exercise a toxic influence.

Gebhard of Berlin has demonstrated the fact that during the period there is no shedding of surface epithelium; that there is first a premenstrual congestion, with small collections of blood under the surface epithelium, which, with increasing pressure, passes out between the epithelial cells, occasionally breaking off small fragments. As blood pressure decreases, hemorrhage becomes less profuse, and finally ceases.

The menstrual cycle as given by Leopold is as follows: Tumefaction of mucosa, five days; flow, four days; regeneration of mucosa, seven days; resting period, twelve days.

Fluger's theory that menstrual bleeding and partial denudation occur in order to afford a freshened surface for the ovum to rest upon is now generally accepted, though we still remain ignorant of its evolution. We hear so much of the pathological aspect of menstruation that we are apt to forget that it is a normal physiological process, and should not, therefore, be attended by severe pain; and, indeed, in some normal cases, the week preceding that of menstruation is one of increased vigor, while there is present during the period a condition of well being and buoyancy, with greater energy and capacity for work. This, and the greater elimination of urea, imply an increased nutrition which seems but natural to expect when the soil is being prepared for the growth of a new being.

Painful menstruation seems to have increased with the march of civilization. Among primitive people we do not find the exercise of the function producing much, if any, inconvenience, while among the country girls of Great Britain and the continent of Europe, who have an abundance of fresh air, exercise, and plain, wholesome food, there is but little discomfort or suffering at the physiological period. In all our large cities, however, both in this country and abroad, the majority of women suffer more or less, usually more. Not only the city-bred woman, but girls brought up in the country and who have menstruated painlessly for years, will, many of them, when subjected to the depreciating conditions of city life, experience discomfort and pain at the epoch, and this, too, without any pathological condition of the pelvic organs to account for the change. Englewood, who in 1900 investigated the subject of dysmenorrhea, found among American girls that from 50 per cent. to 80 per cent. suffered from painful periods, and Maria Tobler, who made similar investigations among German women, including all classes of society, found 84 per cent. suffering from either pain or disability, and at the same time found that there was present a lessened vitality and impairment of energy. This frequently occurring periodicity covering so many years, and affecting the health, strength, and wage-earning capacity of those affected, becomes a serious matter to the sufferers as well as their friends.

When we know that dysmenorrhea is to a certain extent preventable, it seems strange that its burden of suffering should continue to affect womankind and to increase with advancing knowledge. Women have been taught to regard their periodical pain as a natural phenomenon, and adopt merely palliative remedies as suggested by their friends, or prescribed by a physician, while but little thought is given to underlying conditions. We usually find the causes of dysmenorrhea systemic or local. Some cases seem dependent on a neurotic temperament, and some on diathesis, pain manifesting itself coincidently with the presence of such diseases as gout or rheumatism

*Read at a meeting of the Cornell Medical Alumni Society, April, 1906.

in other parts of the body, and yielding to treatment appropriate to those conditions. Very many cases are due to a lowered vitality, the result of a debilitated nervous system, and caused perhaps by overwork, insufficient sleep, worry, food which is not nutritious, or insufficient in quantity, lack of fresh air and outdoor exercise.

In numerous cases, however, the primary cause is poor muscular development of the uterus, which painfully performs the function which the well-nourished muscular organ performs painlessly and with but slight effort.

The uterus is lacking in strength and tone, as well as size, until the approach of puberty, when the walls of the young organ develop, becoming under favorable conditions strong and thick. Any influence which interferes with the maturing processes of nature at this time, such as insufficient or poor food, insufficient sleep, excessive mental or physical effort, will check or retard the development of the genital organs, either through defective nutrition, when the whole body suffers, or by deflecting the blood stream necessary for the perfect development of these organs, to other parts of the body.

We know that if a mature woman leads a sedentary life, or exercises her brain actively without taking sufficient physical exercise to counteract the effect of mental effort, she is apt to suffer from amenorrhea, and it has been observed that male athletes usually possess poorly developed sexual organs, while the other parts of their body may be enormously developed. If, then, the functions of the mature genital organs are so easily interfered with, we can readily understand why the lack of care in childhood and early youth can affect the future life of the individual. As the female genital organs are more highly organized and more complex than those of the male, they are more susceptible to adverse influences both during and after development.

Young girls at school or college, who are closely confined and mentally active a good part of their time, who have an insufficient amount of fresh air and exercise, are very apt to suffer from a disordered menstrual function, with which overstudy is usually credited; whereas, mental effort has been but one of several factors which have contributed to the disorder, the dissipation of late hours, with its attendant nervous excitement, insufficient rest, and sleep, and an inadequate amount of fresh air and of outdoor exercise being quite as much to blame. Mental work, combined with judicious exercise, fresh air, plenty of sleep, with due attention to hygienic laws, is not likely to injure anyone with a normal constitution. Miss Fawcett, daughter of the blind postmaster-general of England, who won the senior wranglership by 400 points over the best man in Cambridge University, was not injured in any way by her hard study, but she spent from two to three hours every day in outdoor exercise.

Another class of city girls whom we find frequently suffering from dysmenorrhea includes the anemic young women who labor in shop, office, and workroom. Their disability is mainly due to the adverse conditions which surround them. They enjoy but a minimum amount of fresh air and sunlight. Some are on their feet all day, and others are obliged to sit nearly all the time. Their outdoor exercise is seldom more than a walk to the nearest car, while their slender salaries compel them to board where they can obtain meals cheaply, no matter if they are unappetizing and innutritious. And so they suffer from dysmenorrhea, not from overworking their brains, but because of a poorly nourished body and a nervous system, manifesting its weakness by pain and discomfort in delicate and susceptible structures. For many years the teaching prevailed that dysmenorrhea in nulliparæ was mainly due to anteflexion, and the theories advanced to explain the cause of the pain are interesting. One authority believes that the flexion produces a mechanical obstacle to the flow, resulting in the formation of clots and painful contractions until the clots are expelled. Others attribute the condition to the obstruction of the venous circulation, causing pressure on the nerves at the point of flexure. Others contend that the pain is caused by spasm of the circular fibers of the internal os. Many are of the opinion that the condition is due to the imperfect development of the uterus, or that it may be due to an underlying systemic condition producing an irritability of the pelvic nerves. An English authority claims that dysmenorrhea is just as frequent in straight as in anteflexed uteri, and that pain is as often absent from the latter as present.

Intermenstrual pain has been attributed to sclerotic ovaries, to ripening follicles, and recently to a pelvic neuralgia. The anteflexed uterus we find in dysmenorrhea is usually of small volume; the cervix is long and conical, and the flexure is characterized by its immobility. A uterus of this type is not a well-developed one. Any influence tending to weaken the uterine tissue will produce a flexure owing to lack of muscular tone, although it may also be produced by a fall or blow, by fibroid growths, by endometritis, and even by fecal accumulations in the rectum. In long standing cases of dysmenorrhea we are likely to find an endometritis, due probably to poor drainage, the inflammation perhaps extending to the tubes and ovaries. The external os may be eroded and the leucorrheal discharge more or less profuse.

As these are the days of prophylaxis, and it is easier to prevent than to cure, the prevention of dysmenorrhea should begin in childhood by endeavoring to build up a sound body and a nervous system which can stand the "shocks of time and chance." The child and young adult should have nutritious, unstimulating diet, abundant sleep, especially if of nervous temperament, fresh air night and day, and what is of transcendent importance, judicious daily exercise either out of doors or in a gymnasium. The child is now building up her nervous and muscular structures, and well regulated exercise will develop all the parts of the body, internal as well as external, bringing fresh blood to all organs, and giving strength and tone to the whole body.

While the young woman during the period should be advised not to make any unusual physical or mental effort beyond her accustomed activity, she is in most cases quite equal to the performance of her daily tasks. The constant calling attention to the activities of the organs of generation does not seem wise, although the young woman's guardians should see that she is properly instructed on all physiological matters relating to her future welfare. When the pain or discomfort is excessive it is wise for the patient to remain in bed while it continues severe, adopting preventive measures during the intermenstrual period.

Anemic girls who are leading lives of close confinement will be greatly benefited by spending an hour or two every day in outdoor exercise, and this they can themselves arrange by a little self-denial, perhaps, especially during the summer months. After forming the habit of daily outdoor exercise, and observing care as to diet, patients are often

amazed at the improvement in their symptoms. It is a wise precaution to empty the bowels thoroughly before the expected period, as it often materially decreases the pain. During the period hot drinks and the application of external heat are of benefit; a hot sitz bath will add greatly to the patient's comfort, and a few small and repeated doses of phenacetin. During the intermenstrual period the patient should take hot douches twice a day, avoiding colds, and keeping the feet warm and dry. Daily exercise, nutritious food, faradism when indicated, and tonics to build up the constitution are necessary. Some cases are benefited by dilatation and curettage, but not all by any means, and it is best to employ medical means with the hope of benefiting the patient before resorting to harsher measures.

Hydrastis combined with nux vomica has rendered me good service in very many cases, the only drawback being the fact that it must be continued for a lengthened period, usually two or three months, and that it has a disagreeable taste. There are now other remedies on the market containing hydrastis and also viburnum, which are not unattractive to the eye and not disagreeable to the taste.. Some patients object to taking such drugs indefinitely, and for such apiol, 5 minims, in capsule, three times a day during the week preceding menstruation, will be acceptable; or tincture of pulsatilla in 5-drop doses, three times a day during the week before the expected period, will be found useful. In all cases the patient should keep the skin and other eliminative organs active, should avoid colds, have daily outdoor exercise, and endeavor to keep the nervous and other systems in healthy condition by wholesome, nutritious food and tonics when necessary.

110 East Eighty-first Street.

THE EYE SYMPTOMS OF SPORADIC TRICHINOSIS, WITH REPORT OF CASES.*

By Frank Judson Parker, M.D.,

New York.

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Our knowledge of this interesting disease dates from the publication by Zenker of Dresden of his famous theory of the parasite as a pathological factor in human beings. In performing an autopsy on a nineteen-year-old girl who had entered the hospital and died, supposedly of this disease, he found numerous trichinæ in the intestinal tract and in the muscles; the intestinal lesions of typhoid fever were absent. A few weeks before, the girl had been taken sick after eating pork, the source of which was traced and numerous other cases discovered. Hardly had this case been reported than reports of epidemics came from North Germany. Previous to this date there had been numerous reports of the finding of the parasite at human autopsies. In London, Peacock, in 1828, and Hilton, in 1833, had found encapsulated trichinæ in the muscles of man; Paget, in 1835, found them in an Italian who had died of tuberculosis, and recognized them as the entozoa which Owen had described as *Trichina spiralis*.

Leidy of Philadelphia, in 1847, found it in the hog; this opened the way for Zenker's classic work. Kirchenmeister and Virchow, in 1850, by a long series of experiments, showed that the trichinellæ became adult in the intestine a few days after the entrance of the larvæ, and that the females were viviparous. Previous to this time they had been regarded as harmless guests of man. Soon after introduction into the intestine, the encysted trichinæ escape from their capsules, which are destroyed by the gastric juice; they then enter the duodenum and jejunum, where they become adult copulation taking place in two days; the males die and the females bore deeply into the villi or through Lieberkühn's glands, penetrate into the mucous membrane, and thus reach the lymphatic spaces, here depositing their young. The newly born larvæ measure about one millimeter in length. These larvæ are carried by the lymph stream, or the blood, and are distributed throughout the body. The conditions necessary for their further development are found only in the transverse striated muscular system. On the ninth or tenth day after infection the first trichinæ have reached their destination and further invasions are constantly taking place, because the intestinal trichinæ live from five to seven weeks and continue to reproduce. It is the invasion of the muscles by the migration of the new brood which causes the inflammation manifested by severe pain, fever, and edema about the eyes. The trichinæ in the encysted condition remain alive and capable of development for many years, the subsequent invasions producing more severe symptoms.

The Germans have been the greatest sufferers from this disease, and a report from their Bureau of Animal Industry from 1860 to 1898 gave 14,820 cases, with a mortality of 835. Their careful inspection of pork has greatly reduced the number of cases, and up to 1898 no case in Germany had been traced to American pork products. One of the most glaring disclosures of the recent food investigation was the fact that there was no inspection for trichinosis in hogs intended for sale in this country, a microscopic inspection being maintained solely for the benefit of Europe, and pork that was found unfit for exportation was being sold for food in this country. Trichinosis in man has been considered a rare disease in this country, only nine hundred cases being reported since 1868. That the disease is far more prevalent here than has been suspected is proven by H. U. Williams, who reported in 1901 that out of 505 autopsies of persons in whom the disease had not been suspected during life 5.34 per cent. had trichinosis. In 1897 a case in Dr. Osler's clinic with suspected typhoid fever, was found to have a leucocytosis with increase of eosinophile blood cells. Examination of muscle tissue showed numerous trichinæ, and further examination showed the blood examination to be of the greatest diagnostic importance in recognizing this obscure disease. Osler has reported seven cases of trichinosis, all of whom showed a marked leucocytosis and eosinophilia. Cabot regards this as a constant symptom, and states that it has reduced trichinosis to the list of diseases which are easy of diagnosis. Ewing, on the other hand, states that while increased eosinophile should always suggest trichinosis, this has long been known to accompany other conditions. Of thirty-seven cases reported up to 1903 thirty-one had eosinophile from 20 per cent. to 86 per cent., and there was no relation between the amount and the severity of the case. The eosinophilia varies to a great extent from day to day. Vickery reported a case that one day showed 23 per cent. and two days later 2 per cent., and in the following two days 37 per cent.; it also continues high long after recovery.

*Read before the Section of Ophthalmology, New York Academy of Medicine, October 15, 1906.

There are a large number of diseases in which an increase of the eosinophiles takes place, usually with a small percentage, but the condition most likely to be confused with trichinosis are the other intestinal parasites. A differential diagnosis presents little difficulty with their exception. Packard, in reporting a case in 1897, speaks of the marked edema of the eyelids and surrounding skin, especially above the brow; this subsided after three or four days; there was no involvement of the conjunctiva. The same year Oliver reported the eye examination of a case reported by Brown as follows: "Vision and accommodation normal; pupils equal, and respond freely to light and accommodation; marked hyperphoria for near and far; fundus normal, except a small striated hemorrhage overlying the interior temporal vein just beyond the primary bifurcation in the left eye; fields normal; the only gross occular change being the disturbance in the muscular equilibrium in the vertical meridian."

Osler reported five cases in which there was edema of the eyelids, and he considers this as being one of the three characteristic symptoms—the other two being leucocytosis with eosinophilia, and the muscular pain and swelling.

Dr. David Bovaird, Jr., in a recent report of ten cases of sporadic trichinosis at the Presbyterian Hospital, noted the marked edema of the eyelids in nine of them; in three it was the earliest symptom. Five had hyperemia of the conjunctiva, and one case had a mucopurulent discharge. He regards the edema as one of the most characteristic symptoms.

The following five cases, to which I ask your attention, came under my observation at the Presbyterian Hospital in the spring of 1906:

Case I.—Miss C. K., a trained nurse, aged thirty; single; consulted me on January 5, 1906; was of German parentage; lived in New York since seven years of age; general condition excellent; family history negative; had frontal headache after use of eyes. I ordered a correction of plus spherocylinders to be worn constantly. Her eye muscles were normal. I saw her again on January 25, and she had been free from the headache since wearing the glasses. I next saw her on February 13 following. She had marked collateral edema; tenderness of the globes; diplopia on looking down, and occasional attacks of nausea. Examination showed vision 20/20 each eye with correction (homonymous diplopia with red glass); right hyperphoria, 1½°; esophoria, 2°; continual headache and muscular pain. This continued with increased severity, and on February 23 she was admitted to the Presbyterian Hospital on Dr. James' service. Blood count showed an eosinophile of 20 per cent.; collateral edema, ocular conjunctiva injected, eyes tender to the touch and painful on rotation; pupils reacted to light and accommodation. The diagnosis of trichinosis was confirmed by sections of lumbar muscles, showing the characteristic interstitial myositis. Discharged from hospital on April 5. I last saw this case on May 22. She had been free from headaches and her eye muscles were normal.

Case II. Miss M. W., age 25; admitted to Presbyterian Hospital on January 19, 1906; a domestic; general condition good. Four days ago was taken with severe pain in both eyes; pain increased on rotation. The following evening the eyelids began to swell and face was flushed; following morning the lids were closed from the increased swelling, both eyes very red and painful; had no muscular pain until two days following the pain in eyes. On admission to the hospital eyelids were swollen; slight edema of the conjunctiva; subconjunctival ecchymosis of the lower half of each eye; eyes very sensitive to touch and painful on rotation. Blood examination showed 30 per cent. of eosinophiles; this was 49 per cent. on January 27 and 52 per cent. on February 7. Section from gastrocnemius muscle showed trichinæ. February 13 symptoms had disappeared except slight headache. Patient discharged.

Case III.—W. B., German; aged 44; admitted to hospital May 30, 1906. One month ago had severe abdominal cramps, vomited frequently; pain and anorexia continued. Eight days ago noticed puffiness of eyelids; a steady pain seemed to be in back of eyes; rotation in any direction caused severe pain. Two days ago had pain in throat and hoarseness. On admission eyelids were swollen, ocular conjunctiva injected, globes painful on pressure and rotation. Blood examination showed an eosinophilia of 18 per cent. Section of muscle from leg showed large numbers of encapsulated trichinæ.

Case IV.—Miss V. B., aged 8; a child of patient III. Was admitted to hospital on May 30, 1906. Three days ago had slight headache, lassitude, and swelling of eyelids; no gastrointestinal symptoms or muscular pain. On admission had marked swelling of lids, conjunctival injection; no muscle tenderness or pain on motion at any time; eosinophiles, 35 per cent.

Case V.—Mrs. M. B., German aged 25; admitted to hospital May 30, 1906. A large, well-nourished woman. Seven days ago had distressing pains in legs and back; had swelling of the eyelids and severe pain in head and eyes. On admission had injection of the ocular conjunctiva, tenderness, and painful rotation; blood examination showed an eosinophile of 18 per cent.; urine contained no albumin and a few epithelial casts. On June 2 ophthalmoscopic examination showed beginning optic neuritis in each eye; veins enlarged. On June 7 there was a marked optic neuritis, with edema of the retina in each eye; veins large and tortuous, arteries small, a small hemorrhage just above the macula in the left eye. The urine showed a faint trace of albumin and a few granular casts and pus cells. On June 14 the retinal edema and neuritis was less, several small hemorrhages in the superior temporal field of the left eye; no hemorrhages in the right eye. Condition of the urine same as on the 7th. This patient improved steadily and was discharged on the 27th of June. The optic neuritis had disappeared, and there were only slight traces of the hemorrhages. The fundus lesion in this case was characteristic of acute nephritis, which was probably caused by the intestinal toxemia.

Case VI.—A. D., a school girl; Italian; admitted to hospital on March 20, 1906. Twelve days ago was taken with severe pain in the muscles and swelling of the eyelids; on admission to the hospital she had collateral edema with injection of the ocular conjunctiva. Blood examination showed an eosinophile of 18 per cent. Section of muscle from calf of leg showed immense number of trichinæ and myositis.

The incubation period in these cases was from one to two weeks, which is the time required for the immature parasites of the infected meat to reach maturity and reproduce their embryo, and for the embryo to leave the intestinal tract and invade the muscles. The invasion is marked by a variety of symptoms, such as loss of appetite, exhaustion, fever, headache, abdominal pain, vomiting, muscular pain and tenderness, swelling of the eyelids, and

pain on pressure and rotation, eruption on the chest and back. In summing up the eye symptoms in my six cases, all had collateral edema, and in four it was associated with conjunctival hyperemia; four had tenderness of the globes and pain on rotation; one had subconjunctival ecchymosis; one case showed diplopia as the earliest symptom; one case had acute nephritis, with neuroretinitis and hemorrhages.

Various explanations have been given for the edema, such as blocking of the lymphatics by the parasites; others, by pressure on the blood-vessels. Bovaird's theory, which seems the most rational, is that the edema is simply an attendant feature of the myositis, which is most noticeable about the eyelids, where serous effusions most readily appear. Microscopic examination of the muscle shows an interstitial myositis, the exudate consisting of small round cells lying in the endomysium and perimysium. A microscopic section of the skin lesion in one of Dr. Bovaird's cases showed engorged subcutaneous capillaries and a serious exudate.

In reporting these cases I have omitted much of the history that might be of interest, and have endeavored to emphasize the eye symptoms as being of especial importance—four of these six patients having sought professional aid on that account. Failure to find the trichinæ in the muscle sections should not mean a negative diagnosis; a case may present the characteristic clinical picture before the trichinæ have developed in sufficient number to be easily discovered.

The important points on which the diagnosis depends are: (1) Muscular pain and tenderness, due to general myositis. (2) Fever resembling that of typhoid. (3) Leucocytosis ranging from ten to twenty thousand. (4) Eosinophilia from 10 to 70 per cent. (5) Edema of the eyelids, with tenderness of the globe and painful rotation. (6) Finding of the trichinæ, or the inflammatory areas between the muscle fibers.

I have gone more into the general symptoms than my subject would suggest, my purpose being to give briefly the points of diagnostic importance, for I believe that the ophthalmologist is the one most liable to be consulted first by these patients, and I would urge the importance of excluding trichinosis before making a diagnosis of muscular rheumatism, orbital cellulitis, or adenitis of the lacrymal glands.

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VENEREAL PROPHYLAXIS—A PROBLEM IN SOCIAL HYGIENE *

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"SOCIAL sentiment holds that it is a greater violation of the proprieties of life publicly to mention venereal disease than privately to contract it." (Morrow.) But when that sentiment is founded upon and fostered by deepest ignorance on those matters of health, vital alike to the individual and the race, then I for one must disregard such settled opinions of bygone ages.

Mortal mind can conceive of no nobler work than that of preventing disease, physical, mental, or moral. A casual survey of the history of medicine reveals numerous laurels won on the preventive field; vaccine has dissipated the former fear of smallpox; antitoxin the dread of diphtheria; fresh air in abundance, combined with nutritious food and well-regulated exercise, are reducing the morbidity and mortality from tuberculosis; the introduction of asepsis and antisepsis into the domains of surgery and obstetrics has vastly broadened these special branches of the physician's art, and converted the unknown and hazardous into the familiar and comparatively safe procedures of the present day.

With the passing of years one class alone, among the various infectious diseases, seems to have been almost entirely neglected. Founded upon human frailty and ignorance of the sexual self, and patriarchial as life itself, venereal diseases are still shrouded in mystery and propagated by ignorance—ignorance on those vital matters of sexual hygiene and physiology which in itself is a sad reflection on this supposedly enlightened age.

In using the general term venereal, I refer to that class of diseases usually, but not always, contracted from sexual intercourse, and comprising the three affections commonly known as syphilis or "pox," gonorrhea or "clap," and chancroid or "soft chancre." Syphilis might be defined as a specific eruptive fever "diluted by time," characterized by a primary sore or chancre and followed by constitutional symptoms. It must certainly is, as the laity express it, "in the blood." Gonorrhea, on the other hand, is usually a local contagious disease, a specific inflammation of the urethra caused by the gonococcus of Neisser, and characterized by a discharge of pus or mucopus from the urinary meatus. Because it is so frequently acquired during sexual intercourse, and on account of the disastrous results following in its wake, it is now regarded as the "most venereal of all venereal diseases." (Keyes.) Chancroid, or soft chancre, is a localized ulcer, usually occurring about the genitals, resembling in many respects the hard sore of syphilis, but never followed by the protean manifestations of that terrible disease.

Venereal diseases prevail among all peoples, occur at all ages, and recognize neither color, creed, nor sex. Innocent and guilty, rich and poor, young and old, alike suffer from the ravages of these loathsome diseases. Innocent childhood is no barrier against the affliction, since syphilis, most noticeable among all diseases, passes on its hereditary taint unto the

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third and fourth generations, and in forms curiously diverse, often writ large and indelible and always sad to contemplate. Ecclesiastical robes are not always proof against the temptations of the seducer's art and should not mislead us into exonerating their wearer when other evidence is strongly suspicious of wrongdoing. Tothergill well expressed this thought in his classical quotation, "a ham-colored eruption and a serpiginous ulceration are not incompatible with a bishop's mitre."

Age must be a factor of some importance, since statistics show that 75 per cent. of all infections in public women occur before the twentieth year, and 25 per cent. of all infections in men are contracted before they become of age. Commenting on these figures, Morrow says: "This is the age when the centers of arrest, as they are termed—judgment, reflection, and will—are not developed, an age when the individual is influenced by impulse, imagination, and curiosity." Those of the psalmist's span of three score years and ten cannot claim exemption, for the fruits of their youthful indiscretions may appear in due season, but generally under assumed names. From middle life and onwards grim disease reaps a bountiful harvest and the enormous debt created by venereal infection in earlier years is often erroneously charged to the account of some degenerating disease. But he who is able to read between the lines may commonly, from a study of the symptoms or pathology, discern as the essential causative factor a gonorrhea or syphilis of former years. Whatever mild and noncompromising term our elastic medical nomenclature may attach to the sequelæ of venereal disease, be it tabes, paresis, aneurysm, or other name, it is a patent fact that the law of penalties is exacting its wages, and we are witnessing the fulfillment of that prophecy:

"The sins ye do by two and two
Ye shall pay for one by one."

Statistics on venereal diseases are notoriously unreliable, in part due to privacy being the distinctive peculiarity of this class of infections, and largely because of the incomplete or utter lack of official returns on sexual diseases from our boards of health. And until that day when physicians shall be compelled by law to report all such diseases to their respective boards of health we shall be dependent upon the educated guesses of specialists for all comparative and working data pertaining to the venereal peril. From such competent, though incomplete sources, we obtain the following facts: Venereal diseases have the odious distinction of being second on the list of epidemic contagious diseases responsible for a large individual proportion of deaths of the human race, tuberculosis being first. (Spencer.) Morrow estimates that one-eighth of all patients in the New York hospitals suffer from venereal diseases, or their consequences, and the number is gradually increasing. The same authority claims that 60-80 per cent. of stillbirths are the result of syphilis, while of all involuntary sterile marriages 30-35 per cent. are due to gonorrhea. Venereal diseases and criminal abortion are ranked first rivals in their causation of race suicide. Fournier claims that one-seventh of the population of Paris is syphilitic. Among the more than 225,000 syphilitics in New York City 50-85 per cent. among the female ones are believed to have been innocently acquired. If anything in the practice of medicine has forcibly impressed me it has been the ignorance, the frailty, the indifference of our young men to the dangers of gonorrhea.

Neisser, whose name the specific germ bears, estimates that 80 per cent. of adult males have at some time had gonorrhea, and ranks it next to measles in its widespread prevalence, while Bransford Lewis ranks it far above syphilis as a direct cause of death. Those who are inclined to regard this disease in the light of a trivial ailment should ponder the following facts: (1) Of all miscarriages at or before the third month three-fourths are due to a latent gonorrhea in the male. (2) Our blind asylums report 20 per cent. of their inmates as sufferers from the effects of gonorrheal infection of the new-born. "In Germany there are today some 30,000 blind as a result of gonorrheal ophthalmia." (3) Of all cases coming into the hands of the gynecologist one-eighth are due to gonorrhea; and of all deaths from diseases peculiar to women some 80 per cent. are believed to result from the same cause. "Gonorrhea produces its fearful wounds in the young households of to-day; syphilis silently deteriorates generation after generation."

The foregoing statistics, faulty and incomplete and inconclusive as figures are, have impressed us all, I believe, with the truth of Dr. Morrow's dictum that "the chief social danger of venereal diseases comes from their destructive effects on the health and productive energy of the family."

The specific cause of gonorrhea is infection with the microscopic, vegetable parasite, the gonococcus of Neisser, acquired from any person having the disease by the mere contact of the discharge or "leakage" with healthy urethral mucous membrane of the indiscreet. Unlike syphilis, this disease is largely local in its action and is most frequently contracted by sexual commerce, legitimate though such intercourse may be. The specific germ producing syphilis has until quite recent date been a debatable question, but is now believed to be a spiral-shaped animal microorganism, the *Spirochæta pallida*, which gains entrance into the system through some abrasion of the skin or mucous membrane; is taken into the blood current and from there the poison may be conveyed to any part or organ of the body, brain, heart, liver, bones, nerves, or elsewhere, producing, besides the primary local "sore" general constitutional symptoms and manifestations characteristic of the particular tissue or organ involved.

Morrow says: "Venereal diseases possess certain peculiarities in their origin and mode of communication which distinguish them from all other infectious diseases." Prostitution, promiscuous sexual intercourse, is the principal source, and prostitutes the most active disseminators of venereal infection, but the idea that these diseases, more especially syphilis, have their exclusive origin in licentious indulgence is erroneous, and productive of much harm. Buckley of New York says: "Syphilis is certainly not a venereal disease in all cases. In fact, it is no longer so classified by the Committee on Prophylaxis of Venereal Diseases of the Washington State Medical Association. Infection of a new-born babe by the wet nurse, or of the latter by an innocent infant with inherited syphilis, account for numerous cases of pox. Personal effects of syphilitic patients such, for example, as eating and drinking utensils, pipes and cigars, manicure and shaving instruments, or toilet articles, may and frequently have been active carriers of the specific virus. Still other means of innocently acquiring and transmitting the disease are: Promiscuous kissing; surgical and dental work, when either party to the contract may unconsciously communicate the dreaded disease to the other, and the ritual of circumcision as practised by the Jewish rabbi.

With gonorrhea the mode of contagion is nearly always genital, 70 per cent. being traceable to prostitution. Patients very frequently testify to having contracted their case from some public comfort station. Statistics show and physicians believe that but comparatively few cases are ever thus conveyed. With public towels and utensils used in common, the chief danger as regards gonorrhea arises from the liability of transmitting the poison to the delicate membrane of the eyes, there setting up a violent inflammation, with blindness as the sad but inevitable result unless speedily and properly treated. In such cases unclean fingers are frequently the indirect exciting agents responsible for conveying the discharge. Unconsciously rubbing the eyes supplies the missing link in the vicious circle.

Syphilis and gonorrhea alike claim many victims wholly unsuspicious of the fact that they are the active transmitters of the contagion. Syphilis is contagious for years and may be transmitted to the offspring even when the person affected is apparently free from it. Because an active discharge has stopped does not necessarily signify that a given case of gonorrhea has vanished; it may perchance be latent, biding its time, later to infect husband or wife or mutual friend. The undisputed fact that many are affected with syphilis or gonorrhea without any suspicion of it and without any one's being able to detect any signs of disease on them, accounts in a large measure for the dire results following in the wake of prostitution, legal or clandestine.

No consideration of venereal diseases and their prevention can be complete without a brief allusion to this ancient evil upon which they are founded, together with some of its underlying causes, and the various methods for its restraint or suppression. Prostitution is the result of the operation of no single cause, but of the interaction of two or more. An apparently inherited weakness toward lewdness may be discerned in some cases. Valentine believes that "females given to a lewd life are not made prostitutes by anything except an innate tendency thereto." He also says: "The fact seems to be that degeneration is the cause of prostitution." Ludwig Weiss well expresses his conception of the hereditary factor in the following quotation: "There is present on one side an atavistic, dormant propensity toward polygamy in man, a developmental defect as it were, mitigated by religion, education, and self-control; and on the other an almost extinct inclination for polyandry in the female, present in an almost negligible quantity." A fruitful source of prostitution and the known origin of numerous cases of venereal diseases is the almost universal ignorance of the young people of both sexes regarding (1) the sexual instinct and the need for controlling it, (2) the possibilities of conception, (3) the danger and mode of contracting "private" diseases.

Some eminent authorities fail to seriously consider either the hereditary or the anthropologic factors in cases coming under their observation, and variously attribute the existence of prostitution and venereal infection to alcoholism, man's lust, lack of proper moral training, and existing social or economic conditions. The socio-economic factors, if not the greatest element in the causation of prostitution, surely would seem to rank as preeminent incentives. Immigration, child labor, women in industrial life, poor and inadequate housing facilities, together with other less apparent factors in our social fabric, "converge to bring forth the prostitute."

Coeval with the existence of prostitution have been the variously inspired efforts for its suppression, regulation, or limitation within prescribed boundaries. History would seem to teach us that we can never hope to eradicate this evil and with this teaching the leading students of the subject are in accord. The French method of dealing with the social evil is one of compulsory official supervision, the so-called system of reglementation. It requires registration and periodical examination of all licensed prostitutes. Opponents of this system claim that it places a premium on secret prostitution. Naturally it does not reach the great army of clandestine prostitutes who may continue in their evil ways and disseminate venereal diseases without restraint. Perhaps the most serious defects in the system are: (1) "The chief offender, the male purveyor of venereal diseases, is allowed perfect freedom, being completely ignored in the reckoning." (2) The system of medical examinations is a farce and only serves to give a false sense of security to the participants, since at its best it offers no absolute security. Valentine is very outspoken on this phase of the question, and says: "Systematic examinations of their genitals, even twice daily, would be of no avail, for between two such examinations a prostitute can easily infect twenty men." The same author also claims that an examination for gonorrhea alone can not conscientiously be done in less than ten days. Dr. Davis, Health Officer of Cincinnati, claims as the result of weekly examinations of all known prostitutes under his jurisdiction "a very material decrease in the number of cases of venereal diseases in the city." Morrow states that "the system has proved defective as a sanitary scheme and is condemned by its practical results." With but few exceptions in the United States public opinion, at least in its present state, will not tolerate this official method of checking a manifest danger to the public health.

Believing that all methods aiming at suppression of the evil are not only futile but unjust and inhuman, and noting the very obvious defects in the system of compulsory official supervision, some of our leading authorities on the subject are advocating a geographical restriction of disorderly houses within certain limits. Spencer of San Francisco gives it as his opinion that such resorts are "self-segregating in most communities." Opponents of this method of regulating vice claim that such a plan breeds familiarity with the evil in the minds of our youth.

"Venereal infection stands as the prototype of evils made possible by the ignorance of the public." In this particular class of diseases various motives aid in its concealment: prejudice, public sentiment, and the code of professional ethics are known factors working against public enlightenment. Ignorance being one of the most potent causes for the existence of syphilis and gonorrhea, our constant aim and ambition must be to impart a knowledge of the truth and correct the many fallacies now permeating the minds of our youth. Education alone can greatly modify this potent cause for evil.

Any comprehensive study of venereal prophylaxis demands a rational consideration of the sexual instinct. This natural impulse in mankind means the perpetuation of the species, and constitutes "the most important function, from a biological standpoint, of which any man or woman is capable." (Denslow Lewis.) Its impelling force demands recognition, and requires satisfaction, and when rightly directed becomes a pure and noble function; when misapplied or perverted very serious results

frequently follow. The necessity of accurate knowledge pertaining to this dominant force, and all incidents in its manifestation, has not until very recent times been fully appreciated. The value of publicity regarding sexual matters no longer being denied, a consistent exposition of the various sexual truths should prove our most effective weapon in fighting the social evil and checking the spread of venereal diseases. Morrow ranks the education of the public as the most valuable of all measures for the prevention of communicable diseases and says: "Its importance is emphasized in the case of diseases the communication of which lies entirely within the control of the individual."

There seems to be a unanimity of opinion among the leading genito-urinary men as to the necessity of education in any efficient scheme of venereal prophylaxis. Just what knowledge shall be diffused; the proper channels for its distribution; to whom it shall be given; who shall be the instructors and at what age it shall be imparted are points upon which the various authorities differ. I can do no better than present for your consideration this evening certain facts and opinions, culled from various reliable sources, bearing upon these points.

As to the instruction of children in sexual matters, Cumston (of Boston) and Carrier (of Detroit) claim that parents should be the teachers. Where such are wanting, or inhibited through ignorance or false modesty, school instructors or the family physician have been suggested by some. Marcy (of Boston) believes it "the duty of the experienced to teach the inexperienced and of those who are wise to teach the ignorant." Herdman (of Ann Arbor) and Whiteside (of Portland, Ore.) believe that it is in work such as the instruction of girls along these lines that the high-minded woman physician will find a sphere of activity and great service peculiarly her own. I fully agree with Keyes of New York that "an example of an ideal man for such work among young men is the Y. M. C. A. (and the college) physical director. He is one-half teacher and one-half medical man and is vitally interested in the problem of sexual and venereal diseases." I have taken it for granted that the physician, be he regimental surgeon, general practitioner, or member of hospital or dispensary staff, should do his utmost to instruct those under his care as to the origin, spread, and dangers of venereal diseases. "He can teach purity from the standpoint of health." (Carrier.) All should be taught: children, youth, and adults; male and female; those in perfect health as well as all bearers of venereal contagion. But the information imparted should be adapted to the pupil's age and needs. While prostitutes might well be instructed as to the symptoms of syphilis, such knowledge would hardly be needed by an innocent youth of twelve or thirteen years. Opinions differ as to the instruction of girls. Valentine (of New York) feels that "sexual physiology and hygiene need not be formally taught girls, save in the exceptional instances in which the genetic impulse is prematurely developed." Marcy would teach each and every boy and girl, beginning at puberty, the laws of reproduction and the dangers of their violation. Dorsey (of Chicago) believes that young people should learn "how the sexual instinct manifests itself and how it may be controlled."

The consensus of medical opinion, briefly stated, is that our youth and maidens should receive full instruction regarding sexual physiology and hygiene and the results of frivolous indiscretions. Nor are there several authorities greatly at variance as to the age at which to introduce these subjects to the young mind. Valentine places that age at the time "when mental and sexual puberty make him capable of beneficially utilizing the knowledge." H. S. Pomeroy (of Boston) puts it, "as early as the dawn of puberty"; Bailey (of Harvard), "before the young man goes to college." Cumston tersely states the time as "in youth" and so clearly expresses his reasons for this period of life that I will quote him verbatim: "To be salutary as a safeguard, therefore, this hygienic education should be given in youth, for it is during this period that the foundations of what may be termed the sexual character are formed, which, in great measure, determine the future sexual life of the individual."

Personally I believe in a progressive sexual education with the parents as the first and most natural instructors. As the child imbibes his knowledge of the care of the eyes, the ears, and other parts of the body, so let him absorb information concerning the sexual organs. Teach him the proper care of them. Differences in sex, life reproduction, and the perpetuation of the species may be taught and illustrated by lessons in botany, gradually working up to the biological world as the child advances in years. Just as soon as his own sexual organs become objects of curiosity, we might the better instruct him as regards the physiology of the sexual apparatus and the dangers following its abuse. Knowledge of sexual matters the children and youth of our land are bound to acquire, and if we fail to enlighten them by a consistent exposition of the truths pertaining to their sexual lives, other and perverted sources will probably furnish the knowledge in an impure and distorted form. Without doubt, the several municipal and state boards of health would constitute suitable channels for the distribution to the general public of scientific facts pertaining to these diseases. Circulars of information and instruction issued from such sources would carry the weight of authority. Physicians might act as the direct distributors of such pamphlets, using their discretion as to the proper disposal of the same. The Committee on Prophylaxis of Venereal Diseases of the Washington State Medical Association are pursuing this plan and the pamphlets already issued are admirable in purpose and contain a fund of information and instruction for the unenlightened.

Another rational and practical method of educating a certain element of the public is through the employment of somewhat similar circulars distributed at our dispensaries to every sufferer from a venereal affection. To me they would seem to fulfil one of the chief functions of such an institution, namely, the education of its patients concerning their own needs and their relations to other people. Dr. Dillen Cabot (of New York) was instrumental in introducing this system of instruction into the outdoor department of the Presbyterian Hospital and his instruction slips to sufferers from syphilis and gonorrhea furnish valuable information in a concise and lucid form. The State Board of Health of Indiana, through the various dispensaries within its jurisdiction, is distributing similar leaflets, so-called "bulletins," on tuberculosis, syphilis, and gonorrhea. Their secretary, Dr. J. N. Hurty, says: "We hope by this means to do some good." I believe his hopes will be abundantly realized.

In any efficient scheme of education pertaining to the grave and difficult problem of venereal prophylaxis, numerous fallicies and superstitions of the public mind must first be met and exposed. Otherwise we labor in vain. Teach the public: (1) That

continence is compatible with health, or, as Peterkin well states it, "continence, if mental and physical, is not incompatible with health." (2) The stoppage of the visible discharge is positively no proof of the cure of gonorrhea. (3) The comparison of gonorrhea with a severe "cold in the head" is a grave error and far from the truth. (4) Syphilis is curable. (5) Venereal diseases may be innocently acquired; that they have their exclusive origin in licentious indulgence is a misconception and an untruth.

Education, as one of the social forces, will greatly help in checking the spread of these diseases. Knowledge alone, however, will not always suffice, since medical students and unmarried physicians are by no means strangers to venereal infections. Education, reinforced by that fear which comes of knowledge, frequently acts as a deterrent of sexual perversions. Whiteside claims that the fear of contracting such diseases prevents only the cowardly. In answer to this McDonnell (of New Haven) would say, "but fear, a most powerful, if ignoble sentiment, probably prevents more crime and misery than natural disinclination and moral obligations combined."

Teachers of criminology also tell us that fear seems to be stronger than anything else in the prevention of crime. It was Eschylus who said so many, many years ago, "It is good that fear should sit as a guardian of the soul, forcing it into wisdom."

Until within quite recent years venereal diseases have had practically no official existence, and but scant recognition from our health boards. For years known and classified as communicable diseases, they alone among the several bodily infections, have been unmolested and unreported. One of the strongest recommendations recently proposed by a sub-committee composed of Drs. Morrow, Weiss, and Fowler of New York was the one declaring that "the regulation and prophylaxis of venereal diseases should be wholly in the hands of the Board of Health." Physicians should be required by law to report the nature and source of all cases of venereal disease, solely for statistical purposes, suppressing the names of the individuals: this recommendation to include hospitals and dispensaries.

In conclusion, let us bear in mind the fact that infinite tact, patience, and perseverance will be necessary to check the spread of this public peril. The desired end can only be approximated, and "health will continue to be a matter of right living in the individual."

THE NEED OF EARLIER DIAGNOSIS.*

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PROFESSOR OF MEDICINE, DENVER, AND GROSS COLLEGE OF MEDICINE.

In the ordinary case of acute disease, the diagnosis is likely to be made early by the average physician with a good deal of accuracy. In many cases of chronic disease the exactitude of the diagnosis is of comparatively little consequence. A few months lost in the determination of arteriosclerosis, interstitial nephritis, locomotor ataxia, or a hundred other chronic diseases would not very materially alter the patient's comfort or the final outcome of the disease. But I wish to speak of another class of affections, in which the life, or at least the happiness and efficiency of the individual, depends upon early diagnosis and consequent proper treatment.

In pulmonary tuberculosis there are several weeks in the beginning in which every moment is precious. The patient with a few rales in one apex and a degree of temperature at night, with slight, hacking cough and a loss of ten pounds in weight, is curable in the great majority of cases. After dullness, expectoration, night sweats, and tubercle bacilli appear, half the chances are gone, and after extensive dullness is evident, nearly all of them. There is no difficulty in finding the signs and symptoms mentioned, yet most of the cases of tuberculosis we see were not properly diagnosed in this stage, and have suffered accordingly. The failure of early diagnosis and prompt treatment here, as in the other examples I shall give, is not because the physician does not suspect what the trouble is, but that he fears to act until he has absolute evidence to justify his action. He fails to have the courage of his convictions while there is still time to save the patient.

Another good illustration of my subject may be found in a certain type of diphtheria. A concrete example will serve us best. I saw, with two other physicians, a baby ill for thirty-six hours, with gradually increasing hoarseness and laryngeal obstruction. Nothing was found in the throat or nares by the laryngologist called, and diphtheria would not have been even suggested had it not been for the known fact that acute obstruction at the larynx is so commonly of this nature. A good dose of antitoxin was given at once, and a culture from deep in the throat was sent to the Health Office. When the report came back positive the next day the baby was already convalescent from the laryngeal diphtheria. This diagnosis was not at first grounded on any sound physical basis, nor was it positive, but it was timely, and it saved the baby's life.

I have seen dozens of cases of pleurisy with effusion or empyema which went on week after week under a diagnosis of unresolved pneumonia, or with no definite diagnosis of any kind, in which the physician had perhaps refrained from using the exploring needle because he feared there was no fluid there. The man who finds fluid every time he uses the needle utterly misses the greatest usefulness of this means of diagnosis. It should be used when we *fear* that fluid is present, rather than when we become reasonably sure of it. Neither should one be discouraged by one or two unsuccessful punctures. I have recently seen a case of empyema with a very small cavity, which had partially emptied through a bronchus, in which careful examination by six or seven physicians failed to locate the trouble. On the twelfth puncture, under an anesthetic, it was found, and resection of rib with drainage resulted in prompt recovery. In abscess of the liver we find the same difficulties.

I saw a physician a few years ago who had been so anemic for a year or two as to be unable to continue his practice. He was examined by an excellent clinician, and told that the microscopic examination of the blood did not make the diagnosis of pernicious anemia certain, although it rather looked like it. He was advised to eat nutritious food and be in the open air much of the time! Thus he went on for a year longer. By acting upon the principle that a well-grounded suspicion of pernicious anemia justified rest in bed and vigorous arsenical treatment, I was enabled to restore him to his place in the profession, although he died a year or two later in a relapse. Inability to make an exact classical diagnosis is no ground for withholding a vigorous treatment according to the best light we can obtain.

*Read by invitation before the Utah State Medical Association, Salt Lake City, May 7, 1907.

Perhaps the best class of cases to study to illustrate the points we wish to make, is that great one in which the chief symptom is abdominal pain, generally recurrent, and extending over months or years. Thousands of these sufferers, with a diagnosis of gastralgia, chronic indigestion, chronic gastritis, and other "blanket" forms of diagnosis, meaning little but covering up much, are taking bismuth, Fowler's solution, phosphate of soda, various kinds of "pain-killer," and, sad to say, morphine and other anodynes. Yet most of them might be permanently cured in a fortnight if only the physician could have the courage to make a probable diagnosis on what signs and symptoms there are, and act upon it, instead of waiting for years, perhaps, for jaundice, hematemesis, perforation of one of the viscera or some other sign equally conclusive. Then something is often done, although frequently too late for the poor patient.

Thus the diagnosis of gallstones ought to be made in most cases long before jaundice appears, but in a multitude of cases it is not. We ought all to take to heart the lesson that jaundice is a late, accidental, and, on the whole, rather infrequent accompaniment of gallstone disease. While its presence is often a great comfort to the medical mind, its absence should be regarded as of little more import than the absence of morning vomiting in an otherwise well-marked case of pregnancy.

We may make precisely the same statements concerning hematamesis in gastric ulcer. Many, perhaps most, patients having persistent sour stomach and occasional vomiting, have ulcer of the stomach, yet we are all prone to give an alkaline mixture and wait for further evidence. A month's rest in bed with rectal feeding and the usual treatment for ulcer will cure most of these patients. If it does not, the surgeon should be consulted.

Patients with chronic appendicitis continually appear who have had obscure pains in the abdomen for years, without an accurate diagnosis. Yet a skillful examination will detect a trifle of rigidity in the right lower quadrant, and tenderness, perhaps very moderate, over the appendix. Inquiry as to any acute attacks is perhaps fruitless, although history of attacks of "colic" may be easily obtained. A little further inquiry perhaps shows that the patient stayed abed with a sore abdomen for a day after the so-called colic. I have seen many patients with no further indications than those who had lost 25 to 60 pounds, and who immediately recovered after removal of a kinked appendix showing the thickening of previous inflammations. I have just seen one such patient operated upon, in whom the first acute attack occurred after he had engaged his room at the hospital and set the day for operation, and it perforated just before the time he had selected. Had he taken the trip he had intended into the mountains first, the result might well have been fatal.

Many cases of cancer of the pylorus might be saved did we not delay exploration month after month, while seeking positive evidence of cancer, or the contrary, by repeated test meals, blood examinations, et cetera. If the patient is not operated upon until a tumor can be felt, cure is generally only a remote possibility. We ought rather to be guided by the broad general rule that a patient of middle age with progressive loss of weight, continuous stomach symptoms, and lack of HCl presumably has cancer or chronic gastritis. If the means used for treatment of the latter condition do not soon bring relief, exploration is in order, that we may not sacrifice the patient's sole chance for recovery to our craze for an exact diagnosis.

One could easily quote scores of similar cases, but they are unnecessary for our purpose. My object is to bring before you the idea that, while exact diagnosis is extremely desirable, we can pay too high a price for it in sacrificing the best interests of our patient while we seek it. When we see smoke coming from a window we call the fire department first and investigate the exact source afterwards. When we see suggestive symptoms in our patients we should be prepared to act upon them as though they were more decisive, and not let our patient die while waiting for an ideal diagnosis. We should cultivate the courage which we all need to advise exploration early in obscure abdominal cases, even in the absence of decisive symptoms if the patient is not doing well. Especially must we be careful not to disregard suggestive symptoms because of the absence of others often or even usually associated.

I speak the more strongly because I have yet to see, after a reasonably wide experience, a case in which the abdomen was opened for such signs and symptoms as we have noted, without finding a justification for it in the shape of some condition capable of relief surgically. Many times it has not been just what was expected, but that is the experience of all who see these cases, I am sure. If one or two symptoms point clearly toward some abdominal lesion, and are persistent, we are safe in advising exploration if they are not relieved by medical means, and are sufficiently troublesome to the patient.

Neither should we be too easily shaken in our opinion because of the addition to the clinical picture of extraneous signs and symptoms, nor because of the absence of features common to most such cases. Few clinical pictures are absolutely complete. One perfectly clear and positive sign should outweigh a ton of negative evidence. I shall, in closing, quote briefly two cases illustrative of these points.

I have to-day seen, with Dr. C. B. Lyman, a woman of forty years operated upon by him for acute appendicitis six weeks ago. Through the incision the gall-bladder was examined in the routine way and found negative. We all realize that such an examination is of great value if positive, but of much less worth if negative. After leaving the hospital she had a severe colicky pain in the epigastrium, requiring a hypodermic injection of morphine. Tenderness and rigidity were present over the gall-bladder. A history of a similar attack a year ago was obtained. Jaundice had not been present. We agreed upon a fairly positive diagnosis of gallstones. Upon opening the gall-bladder sixty-six small calculi were removed. There were no adhesions. These stones had evidently been in some portion of the gall-bladder inaccessible to the examining finger, or were too small to be palpable.

The other case I have recently seen with Dr. Leonard Freeman. He had operated upon a middle-aged woman of marked hysterical tendencies for chronic appendicitis eleven months before, with relief for some six months. Then pain in the upper abdomen recurred. He had, through the original incision, examined the gall-bladder, and found it negative, and there were no signs of peptic ulcer. A test meal was given and gastric digestion was found normal. For a few months tonics were prescribed under an unwilling diagnosis of gastralgia. After temporary improvement she returned to Denver and reported pain as severe as ever in paroxysms, requiring the use of morphine hypodermatically. She was well nourished and without jaundice. She had very slight tenderness, and per-

haps a trace of rigidity below the gall-bladder region. She had well-marked hysterical hemianesthesia on the left side, very sharp knee jerks, and much decrease in corneal and pharyngeal reflexes, and on the evening preceding the time set for an exploratory operation a paroxysm of hysterical screaming, sobbing, and general unruliness. With some anxiety as to the possible hysterical nature of all of her symptoms, the abdomen was opened. Thirty-nine gallstones were found in the gall-bladder, two being lodged in the cystic duct. The gall-bladder was adherent to the colon, in all except its distal third, so that the stones, which were lodged in a much sacculated ampulla could be detected only with difficulty until the adhesions were separated, thus accounting for their having escaped the examining finger during the previous operation. I must express my admiration for the excellent judgment displayed by both these surgeons in remaining open to conviction by new evidence in spite of the previous negative findings.

These cases perhaps enforce the ideas I wish to present better than any others I could adduce. We must be more and more prepared to assume the responsibility for a tentative diagnosis and for subsequent treatment, without so much loss of time in waiting for a classical diagnosis. With such abdominal cases as we have indicated, and in many others affecting the chest and other regions of the body, we should explore early rather than await the advent of pathognomonic symptoms, with the unavoidable advance in the underlying pathological process.

TWO UNUSUAL CAUSES OF RECTAL HEMORRHAGE.

By CHARLES B KELSEY, M.D.,

NEW YORK.

THE first case was as follows: A man, a giant in stature, six feet four and heavy in proportion, was treated by a well-advertised quack in New York for "piles and ulcers," by the "injection method." Two weeks after his last injection, while riding in his carriage, he was seized with a sudden and increasing desire for a movement, stopped at a hotel, and emptied the bowel of a large quantity of blood. Shortly afterwards this had to be repeated, and, feeling weak and frightened, he started for his home up the river. Twice on the train the same thing occurred, and he was finally carried into his house unconscious and supposed to be dead. The fainting saved his life, as so often happens, and a couple of weeks later he was at my office for treatment.

Examination revealed a complete fistula on one side of the rectum, where an injection had burrowed its way out, and a deep, ragged ulcer in another part, the size of a half dollar, where a slough had occurred as the result of another injection, and from which the bleeding had come.

I have now, as a result of personal observation, and experience, placed before the profession a series of cases showing the bad results of this one method of treatment. Enumerated briefly, these results are: Painful swelling and edema of the subcutaneous tissue at the anus lasting for weeks, even when the injection has been well above the sphincters; marginal abscesses causing fistulæ; deep pelvic phlegmon with lymphangitis, and resulting incurable fistula; severe ulceration at the point of injection; dangerous and nearly fatal bleeding from such ulceration, and finally death from septic poisoning.

This is a pretty severe arraignment of any surgical method. In fact, I have personally encountered more accidents from this one method of treating piles than from all other recognized surgical methods combined. It is a fascinating scheme till tried, and I think I notice a tendency on the part of some of the younger proctologists to use it and advocate it. One or two of the smaller abscesses cooled my own ardor years ago, and for the benefit of those of less experience, who are honestly seeking to do good work, I would put this case on record.

The second case was this: I was telephoned to come to my office in the middle of the afternoon for a patient who was bleeding, and found a badly frightened man, whose clothing confirmed his story, being pretty thoroughly saturated. His statement was that his piles had been tied off under local anesthesia with water some hours before and that he had been bleeding ever since.

Examination with a speculum showed two wounds at the margin of the anus, a spouting artery just within the grasp of the sphincter, and a knotted ligature lying loose in the rectum. The vessel was sealed by a touch with a galvanocautery. Incidentally there was revealed a very sizable group of internal hemorrhoids which had *not* been operated upon.

This method is another to which I have never given my allegiance, though I do a great deal of office work under local anesthesia. But, as I have said before, I have never been able to see any originality, brilliancy, or surgical good sense in using drams of water where drops of an anesthetic would do, and I can see many objections. The case reported shows only one of them, and the sponsor for this particular procedure himself calls attention to the unusual number of hemorrhages in his own practice resulting from it, and is inclined to think they may have been due to some unknown action of the adrenalin he was using, and which he has therefore ceased to use. Is it necessary to look for some unknown physiological action of a drug for explanation? How would the very well-known surgical fact that ligatures do not hold well in edematous tissues suffice?

To my own mind the danger of bleeding is inherent in the method which consists in first rendering the parts to which ligatures are to be applied artificially edematous to the point of actual devitalization and calling this local anesthesia.

44 EAST TWENTY-NINTH STREET.

Tuberculosis of the Kidney.—McMillet reviews a series of cases from which he draws various conclusions. He thinks that the source of the kidney infection should be searched for, although most often none can be found. From the nature of tuberculous lesions in other organs, occasional cure of tuberculous foci in the kidney by hygienic measures might be expected. With this in view, operation might properly be delayed in the acute infection, the case being kept under observation. Surgical intervention is indicated by progressive loss of kidney function and signs of bladder involvement. A certain percentage of the acute cases have a low resistance, and the kidney manifestations are but the local signs of disease which, in a few weeks, may be demonstrated in other organs. The gradual destruction of kidney tissue in one organ is as gradually accounted for by hypertrophy of the other. The removal of the diseased kidney is indicated before it becomes a drag on the function of the sound organ. The manifestations in the individual case must offer the main indications as to the proper time for operation.—*The Journal of the Minnesota State Medical Association and The Northwestern Lancet.*

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KERNIG'S SIGN IN CEREBROSPINAL MENINGITIS.

In hospital practice lumbar puncture has of late become the readiest means of diagnosing cerebrospinal meningitis. In private practice, however, the procedure often meets with insuperable objections from the relatives of the patient, while at other times the necessary conditions for the aseptic tapping of the spinal canal may be lacking. The older signs of the disease, therefore, have not been given up, and of these, Kernig's sign, first described in 1884, has, perhaps, received the most attention. The opinions of its value are varied indeed; some claim to have found it in many other diseases, others miss it oftener than find it, while still others describe its presence in healthy individuals. Thus Wennagel, writing in the *Deutsches Archiv für klinische Medizin*, 1906, claims to have observed the sign in some 12 per cent. of patients suffering from diseases other than cerebrospinal meningitis. On the other hand, Netter, who has done most to popularize the sign, considers that it is of great value in the diagnosis of cerebrospinal meningitis complicating other diseases, and, in a paper presented at the Thirteenth International Medical Congress in Paris in 1900 (Comptes rendus du XIII. Congrès international de médecine, Paris, 1900, Vol. IV., p. 157) reports over three hundred cases of typhoid fever in which he has succeeded in finding this complication by making use of Kernig's sign.

In a recent series of papers (*Russkii Vratch*, Nos. 18, 19, 20, and 21, 1907) Kernig himself reviews the evidence, and brings abundant statistics gathered by him since 1884, in reference to the sign named after him. Perhaps his most imporant claim is that many authors have not used the correct technique in eliciting his sign, and hence have obtained such varied results. Wennagel, for instance, tested his patients, correctly enough, in the sitting posture, with the thighs at right angles to the trunk, but considered the sign to be present if the patient fell over backward when an attempt was made to extend his leg upon the thigh. Kernig, on the contrary, only begins to look for the presence of his sign at this stage; he has the trunk of the patient supported, so that his thighs and trunk are constantly at right angles, and considers that his sign is elicited if the extension of the leg upon the thigh proves to be impossible in this position.

Many authors have observed the disappearance of the sign with the onset of paralysis, or after a lumbar puncture, as well as its untrustworthiness in the case of little children. Kernig throws interesting light upon these facts in discussing the causation of this phenomenon. He refers to Roglet's theory (Contribution à l'étude du signe de Kernig dans les meningites, Paris, 1900) that the increased intracranial pressure and the irritation of the roots of the spinal nerves by the presence of an exudate produce a hypertonic condition in the muscles of the legs; of these, the hamstring muscles are physiologically too short to allow complete extension of the leg upon the thigh, when the latter is at an acute angle with the trunk. Becoming still shorter because of the excessive tone of their fibers, they now do not permit such extension of the leg, even when the trunk and the thigh are at right angles to each other. If this theory is correct, then the loss of Kernig's sign must of necessity follow the onset of paralysis with the loss of muscular tone accompanying this condition. Spinal puncture, too, diminishes the pressure upon the roots of the spinal nerves, and may thus reduce their excessive irritability and the heightened tone of the muscles innervated by them. The frequent absence of the sign in children may be explained by the greater relative extensibility of their muscles in the presence of the superior force of the examiner's hand.

Kernig's experience with typhoid fever patients differs from that of Netter, for in a series of one hundred and sixty-eight cases of this disease he found his sign but twice. He explains this apparent disagreement by the presence of an epidemic of cerebrospinal meningitis in Paris at the time of Netter's observations. It is interesting to note that of the two typhoid patients in whom Kernig had positive results, one came to autopsy, showing extensive chronic leptomeningitis, while the other was found to be suffering from tuberculous disease of the spine in the lumbar region. In many cases of middle ear and mastoid disease Kernig has seen his sign, and indeed considers its appearance as the last warning that the meninges are irritated by hyperemia or by extension of the infection, and that the case therefore requires immediate surgical interference.

Kernig's valuable papers ought to reawaken interest in the sign discussed, and lead to a careful reconsideration of its value. In all future clinical study of it, however, Kernig's explanation of the technique used by him in eliciting the sign ought to be carefully observed.

THE NATURE OF ADDISON'S DISEASE.

KOHN'S discovery of the chromaffine system in the adrenal bodies and sympathetic ganglia, as well as the clinical observations in this connection made by Wiesel, Chvostek, and others, have done much to aid in an understanding of the irregularities often observed in the symptom complex known as Addison's disease. Kohn gave the name of chromaffine cells to certain cells having the property of elective staining by means of the salts of chromic acid. These occur in the medullary substance of the adrenal bodies, in the so-called paraganglia of the same organs, in various portions of the sympathetic system, and in the carotid gland. The workers in this field believe that the active principle of the adrenals is contained in the chromaffine cells.

The corresponding cells of the sympathetic system are supposed to have the same properties as those of the adrenals, and when the latter are destroyed hyperplasia of the chromaffine bodies of the paraganglia and the sympathetic is supposed to take place and compensate for the deficiency. Wiesel has expressed the view that Addison's disease is a primary affection of the chromaffine system and may begin in the suprarenals or in the sympathetic system. The disease may therefore be present even though the cortical substance of the adrenal is intact, and, on the other hand, it may be absent even if there is pronounced disease of the adrenals, provided that the other chromaffine cells exert their compensatory function.

Granting such a well-designed compensatory mechanism in the chromaffine system, it is rather singular that so few instances have been reported of cure of Addison's disease, and in this connection an interesting suggestion is made by Grawitz (*Deutsche medizinische Wochenschift*, July 4, 1907). He is of the opinion that Addison's disease does not depend on a single etiological factor, and that it may be the result of causes other than primary degeneration of the adrenal body or the chromaffine substances. As an example, he mentions the so-called vagabond's disease, in which discoloration of the skin and buccal mucous membrane occurs in poorly nourished and usually alcoholic individuals. In this condition he believes that the chronic malnutrition is the underlying cause of the cutaneous discoloration, and similarly cases of severe asthenia with bronzing of the skin may depend on interferences of nutrition resulting from affections of the intestinal tract. Belonging to the same category are cases of severe cachexia usually classed with the group of pernicious anemias, although the blood changes frequently are not altogether characteristic of this disease. All of these affections have in common the existence of severe gastrointestinal disturbances, and Grawitz is of the opinion that such cachexias may be produced through chronic intoxication originating in the alimentary tract. In corroboration of this theory, he reports two cases of Addison's disease, which he regards as having been permanently cured by gastric lavage and carefully regulated diet. A further possibility is that the intestinal intoxication may serve to impede the regeneration of chromaffine substances in cases in which the adrenals are already damaged, and that in this way an explanation may be found for the infrequency of cure in Addison's disease, notwithstanding the natural tendency to compensation exhibited by the chromaffine system.

THE PHYSICAL CONDITION OF WEST POINT GRADUATES.

There is a widespread, if not universal, impression among both physicians and laymen that the physical and nervous condition of West Point cadets is about as near perfection as human ingenuity can make it. They are under absolute control; their food, exercise, clothing, studies, and almost every detail of life, are matters of minute regulation; the prevention of disease is given most careful consideration, and the least symptom of illness is brought under the control of skilled physicians. Excepting minor mild outbreaks of measles or mumps, or some such imported infection, the history of the Academy is said to be devoid of any serious sickness, much less of any epidemic.

Nevertheless, it is well to take occasional stock of our fixed opinions, and find out if they are really based on facts. All professions have had occasion to reverse themselves. It was only yesterday that we sent away our rich tuberculosis patients every winter, but now we shamefacedly confess that they improve most in our winters, and least, or not at all, in the summers, and that we were formerly sending these invalids away from the conditions which cured them. West Point is a national institution of vast importance, and everything involving its welfare is deserving of the widest publicity. If there are any errors of management they must be known and corrected, and the responsible authorities will no doubt give suggestions the consideration they deserve.

The correspondent, whose letter is published in another column, has touched upon several matters which have received more or less attention in recent years. It is well to pause and think over his suggestion that the training at West Point is too strenuous for immature bodies. The lean, fine-drawn athlete does not receive the indorsement from the medical profession he once did, for there is too large a proportion of life failures among that class. The untrained often succeed because they are unstrained. The suggestion as to insufficient sleep is vital and deserves consideration, for surely such boys need more than they get. It is difficult to judge of the success of West Point graduates, because so few ever have an opportunity for distinction, but it is strange, nevertheless, that we hear of such a small percentage who do distinguish themselves. Non-graduates filled the public eye during and since the Spanish war, and some of them have the reputation of being great men, in spite of much criticism as to their lack of military training in youth. Was this fact really in their favor?

The methods of West Point are essentially those of laymen. Until comparatively recently the medical officers were never consulted as to such matters. If there really is a condition of strain, either physical or nervous, as a result of an overstrenuous life of these growing and immature boys, it ought to be known and remedied. The matter deserves investigation, for mere denial will not suffice—particularly denials from laymen who do not understand what is meant by nervous exhaustion or overstrain, which may exist even if there is fine muscular development.

The Treatment of Cerebrospinal Meningitis.

The old saying that desperate diseases require desperate remedies seems to be exemplified by a suggestion in regard to the treatment of epidemic cerebrospinal meningitis made by Radmann in the *Münchener medizinische Wochenschrift*, July 2, 1907. He points out that the therapeutic problem to be solved is to find some means of aiding the body in its reaction against the meningococcus. The attempt to accomplish this by means of artificially produced antibodies has not been very successful, however; at least none of the serums hitherto tried appears to have given very promising results

as yet. Radmann undertakes to increase the powers of resistance in a somewhat different way. Starting with the observation that meningitis does not follow the subcutaneous inoculation with meningococci in animals, and that the organisms must be introduced into the subdural space in order to produce the disease, he assumes that the subcutaneous tissue is unfavorable for the development of the meningococcus, and that in disposing of local depots of bacteria in this situation the excess of reaction would prove advantageous to the body as a whole. He accordingly in two cases injected some of the patient's own cerebrospinal fluid subcutaneously in the arm. No local reaction was caused, and recovery followed in both instances. It need hardly be said that before resorting to such an expedient the diagnosis of a pure meningococcus meningitis would have to be assured, for even in a mixed infection the results at the site of injection would probably be disastrous, while in cases of a different origin the procedure would be wholly out of the question.

Diagnosis of the Source of Indicanuria.

Indican is derived from indol, a decomposition product of albuminous substances, and is found only in very small quantities in healthy urine. There are three possibilities as to its origin: (1) in the intestine by the decomposition of albumin under the influence of bacteria; (2) in pus foci where large quantities of albuminous substances are undergoing rapid decomposition, as in empyema; (3) in the body cell in cases of disturbed metabolism such as cachexia, hunger, etc. We can readily see that any method which would enable us to ascertain from which one of these three it originated would be of material aid in making a differential diagnosis in complicated cases. With this in view, B. J. Slowtzow carried on an exhaustive series of experiments as a result of which he came to the following conclusions (*Russkii Vratch*, No. 7, 1907): When the indican is of intestinal origin, the amount is moderate, reaching its maximum in from four to five hours after meals, it is diminished by a milk diet and by the ingestion of bismuth, while alkaline waters increase it. When of pyogenic origin, the amount is large, reaching its maximum at night and bearing no relation to meals or to the ingestion of milk, bismuth, or alkaline waters. When it finds its origin in the body cell the amount is uniform throughout the day, and bears no relation to the ingestion of bismuth, while milk and alkaline waters diminish it.

The Use of Alcohol by Medical Men.

The alcohol discussion in England has received a fresh impetus through a feature of the recent annual dinner of the Medical-Psychological Association. Sir James Crichton-Browne obtained from the manager of the dining-room a record of the amount of alcohol collectively and individually consumed by the diners, and in the course of a toast to science he said that there were at the table eighty-four members of the Association. Of them 6 per cent. had declined alcohol, although all the rest, 94 per cent., had partaken of alcohol in some form, and a large majority in several different forms. A fortnight before he had dined at Sir Andrew Noble's table with eighteen of the leading men of science of the day, from the venerable Lord Kelvin down, and not one of them declined alcohol. In view of such facts, he said, it would be a farce or obsession or gross hyperbole to speak of alcohol as a deadly poison. Those who declared alcohol to be a deadly poison should also state that we constantly carry about in our bodies more deadly poisons or toxins, but these human poisons were harmless, and might be beneficial so long as they were kept in their right places, and our great aim should be to keep alcohol also in its right place.

Is There Typhoid Fever at Jamestown?

The little outbreak of typhoid among the West Point cadets, as a result of their visit to the Jamestown Exposition, to which a correspondent has referred in an arraignment of West Point methods, is a matter of national concern, for it is evidence of serious mismanagement somewhere, and public opinion will not tolerate excuses if there has been wrongdoing. The public has been given to understand that there is no typhoid fever in or about the Exposition, but there have been persistent rumors that it is present there, nevertheless; and it is even said that Camp John Smith, where the regular troops are quartered, is not entirely free from the disease, despite the excellent sanitary regulations in force there, to which we referred last week. If typhoid fever is present at Jamestown the public should be so informed, and intending visitors should be warned so that they may take the necessary precautions. We presume the War Department will publish all the facts in due time, but anything of this nature should be made known at once, and not after the damage has been done.

Treatment of Constipation by Abstinence from Meat.

Treatment of constipation by purgatives alone is not regarded with favor by the majority of practitioners, and even a diet which leaves a large amount of residue to act as a stimulant to the intestines does not give good results. Kohnstamm (*Zeitschrift für Physikalische und Diätetische Therapie*, June 1, 1907) depends chiefly on butter and milk, with the absolute exclusion of meat, to overcome chronic constipation. He begins treatment with a purgative and an enema, after which he waits four or five days for a natural stool. If this does not occur another enema is given, but under no circumstances another purgative. The patient is then put on a diet consisting of oatmeal, milk, bread and butter, honey, eggs, soups, vegetables, fruits, and cocoa. He reports several instances in which excellent results have been obtained, even in cases of ten years' standing. Other cases failed because the patient became lax and discontinued butter, or added meat to the dietary.

Potassium Permanganate in the Treatment of Snakebites.

Much has been written on the use of potassium permanganate as a remedy for poisonous snakebites, and while some claim it is of no value whatever, others laud its beneficial action. This difference of action seems to depend largely upon the mode of administration of the drug. When given hypodermatically in any part of the body, irrespective of the location of the bite, it is useless. One can hardly expect to affect an organic poison, which has already or is about to spread through the entire system, by injecting a remedy such as potassium permanganate subcutaneously into any part of the body. The small amount injected can have only a

local oxidizing effect, for the drug acts merely as a chemical antidote, as ferric hydrate does to arsenic, and magnesia to the inorganic acids. Diesing (*Archiv für Schiffs- und Tropen-Hygiene*, Vol. XI., No. 11, 1907) has used permanganate successfully, however, in the following manner: As soon as possible a tourniquet is placed above the bite, and potassium permanganate (about one to two cubic centimeters of a one per cent. solution is sufficient) is then injected subcutaneously around the wound, entirely encircling it; the poison, which has not as yet been absorbed, is thus oxidized and made harmless. Any general symptoms which may already have set in are treated in the usual way with whiskey, etc. In certain regions where venomous snakes abound many of the inhabitants habitually carry vials containing a solution of potassium permanganate and use it in the way just described.

News of the Week.

Tugboat Whistles.—Capt. Ira Harris, Supervising Inspector of the Local Steamboat Inspection Service, has announced a decision in regard to the unnecessary use of steamboat whistles. The decision declares that the use of tugboats of "private code" whistles is unlawful, and is forbidden by Section 12 of Rule 10 of the steamboat regulations. The use of the siren in waters where the ordinary whistle will serve is also condemned. This ruling is approved by George Uhler, Supervising Inspector General at Washington, the head of the service. The decision was made in the matter of appeal of a tugboat captain who was fined last April for unnecessary whistling.

Copper Converted into Lithium?—It is reported by cable from England that Sir William Ramsey has declared that by making use of radium emanations it is possible to "degrade" copper to lithium. This is being heralded as the realization of the alchemist's dream of the transmutation of metals. It will be recalled, however, that discussion of the transmutation of elements at the meeting of the British Association last year arising from the apparent production of helium from radium led to a vigorous controversy in which Lord Kelvin and other eminent men repudiated the transmutation theory, which was strongly supported by Sir Oliver Lodge and others.

South Dakota Board of Medical Examiners.—At the annual election the following were chosen members of this Board: A. A. Cotton, Vermillion, *President;* H. S. Graves, Hurley, *Vice-President;* H. E. McNutt, Aberdeen, *Secretary;* J. M. Walsh, Ft. Pierre; F. S. Howe, Deadwood; F. W. Freyberg, Mitchell; L. G. Hill, Watertown.

Suicides Among School Children in Germany.—Suicides among school children and young persons are stated to be greatly on the increase in Germany. Prof. Eulenburg is reported as saying that during the last twelve years he has traced 1,152 cases of children's suicides, more than half of whom were driven to it by failure in their school examinations or overwork at school.

Tuberculosis in the War Department.—Owing to the discovery of five cases of tuberculosis among the employees of the insular bureau of the War Department, its rooms in the State, War and Navy buildings have been sealed and fumigated.

Doctors as Cooks.—A Berlin physician, Dr. Wilhelm Sternberg, is endeavoring to bring about the introduction of a course in cookery into the medical curriculum. He considers that doctors are in the habit of prescribing a diet for their patients with regard only to its chemical ingredients, forgetting the importance of an appetizing method of preparation.

Stony Wold Sanatorium.—This institution has received a bequest of $1,000 from the estate of the late Mrs. Anna Meyer of New York.

Death of a Centenarian.—Mrs. Catherine Moore of Rahway, N. J., died on July 27. She is stated to have been born at Tuckahoe, Md., on July 24, 1795, and was therefore a few days more than one hundred and twelve years of age.

Dr. J. Playfair McMurrich, professor of anatomy in the University of Michigan, has resigned in order to accept a similar position in the University of Toronto.

The Chicago School of Sanitary Instruction was recently incorporated by officials of the Chicago City Health Department, with a view to extending knowledge of public health matters, and training men to be Civil Service Sanitary inspectors. Those interested are: Dr. W. A. Evans, Health Commissioner; Dr. F. W. Reilly, Assistant Health Commissioner; Dr. J. H. Biehn; Dr. C. W. Behm, Chief of the Disinfection Service; Dr. Heman Spalding, Chief Medical Inspector; Dr. M. O. Heckard, and Charles B. Ball, Chief Sanitary Inspector. No charge will be made for instruction, and the students will be given practical work with the inspectors employed by the city.

The Woman's Medical Society of Illinois was recently incorporated by Dr. Marion K. Bowles of Joliet and Drs. Sara C. Buckley and Bertha Van Hoosen, Chicago. It is stated that the purpose of this organization is to bring into closer touch the women physicians of Illinois, with a view to securing cooperation and the promotion of all objects of interest to women in medicine; likewise for increasing interest in the membershp of the Illinos State Medical Society.

Free Distribution of Antitoxin.—The Secretary of the Illinois State Board of Health recently announced that the law providing for the free distribution of diphtheria antitoxin by the Board went into effect July 1, but that on account of the delay in the details of purchase and manufacture the supplies will not be ready for distribution before October 1. In the meantime physicians can secure antitoxin from any of the agents of the Board without cost to the poor, on obtaining an order from the supervisor or overseer, as required under the Act of 1905.

Yorkville Hospital.—The Board of Directors of the Yorkville Hospital, formerly known as the Metropolitan Hospital and Dispensary, in order to meet the increased demands upon the institution, has decided to add to the present medical board additional visiting physicians and surgeons in surgery, gynecology, internal medicine, orthopedics, and diseases of the eye, ear, nose, and throat. The directors announce that the selection of the physicians will be made solely on professional merit regardless of social, political, or financial influences.

Bequests to Charity.—By the will of Mrs. S. A. R. Moses, filed last week in the Surrogate's office, $5,000 each is given to the Brooklyn Home for Consumptives and the Cottage Hospital of Laconia, N. H.

Leprosy in Boston.—The Massachusetts State Board of Health is said to have confirmed the diagnosis of leprosy made in the Massachusetts General Hospital in the case of a woman who has recently been

employed as a domestic servant in a number of well-known Boston families. The patient, who has been under treatment for a year as suffering from some obscure skin affection, has been sent to the State leper colony at Penikese Island, off the coast, near New Bedford.

Proprietary Remedies in Germany.—At its last year's meeting the Freie Vereinigung der Deutschen medizinische Fachpresse, an association having as its members the editors of most of the prominent German medical journals, decided to prepare a list which should comprise the names of medical writers who are known to accept remuneration for laudatory articles written about proprietary remedies, the members of the association pledging themselves not to print contributions from these authors nor to abstract them. After careful investigation, in which it is stated that strangely enough many chemical firms were of great assistance, such a list has been prepared and distributed. The result will no doubt be beneficial to both medical journalism and the medical public.

Funds for Consumptives.—The Charity Organization Society appeals for contributions to aid its committee on tuberculosis in its work. The committee is caring for sixty or more consumptives on board the old Staten Island ferryboat *Southfield*, the use of which has been donated by the city. Three thousand dollars, it is estimated, will enable the committee to pay for this whole undertaking and to continue it on its present scale until November 1. Contributions may be sent to the society at 105 East Twenty-second street, New York City.

Railway Accidents.—An official of the Archive Bureau of the Prussian Railway Administration has prepared a comparative table of statistics of those killed and injured by railways in various countries. He finds that, both absolutely and relatively, the railroads in the United States are the most deadly. The United States has more mileage than all Europe, but, even taking that into consideration, the United States holds preeminence in proportional figures. Out of every 1,000 railway employees the ratio of the number injured each year is as follows: United States, 43.5; Switzerland, 25.3; England, 11.8; Belgium, 11; Germany, 2.4. Out of every ten thousand employees the relative figures of killed are: United States, 26.1; England, 12.3; Switzerland, 8.2; Russia, 7.8; British India, 6.7; Belgium, 4.1. In a single year—the fiscal year of 1902-3—76,500 persons were injured in the United States, of whom 60,000 were employees, and 9,800 were killed, of whom 3,600 were employees. In the matter of travelers injured, France holds the lowest record in the world. The United States shows proportionately forty times as many as France; Russia twenty-two times as many; Italy twenty times as many; England eight times as many, and Germany twice as many.

An Infection from Tainted Money.—A paymaster of the U. S. Army in the Philippines has had to have an arm amputated as the result of an infection alleged to have been received from the money handled in paying the troops.

"Archives of Pediatrics."—Beginning with the July number of this monthly, Dr. R. S. Haynes has been associated in an editorial capacity with Dr. L. Emmett Holt, the editor of this interesting journal.

An Oriental Opium Cure.—A report has been received from Consul Lester Maynard of Sandakan in regard to an opium cure said to be used with good results in the Straits Settlements, and which has lately been introduced into British North Borneo. A decoction is made by boiling the leaves and mixing the result with opium. After smoking, a dose of two tablespoonfuls of the drug is to be taken, and this is said to lessen the desire for further indulgence. The drug is known to the Chinese as Tong Hing Chu. Mr. L. Wray, curator of the Taiping Museum at Perak, has identified the plant as "*Combretum sundaicum*." It is abundant on the plains around Kuala Lumpur, in Selangor. The properties of the Combretaceæ, the natural order to which it belongs, are very little known. Some are used in malarial fevers, two are known to possess vermifuge properties, and one is used for poisoning bats. A few preliminary tests applied in the research laboratory of the Pharmaceutical Society of Great Britain to the small quantity of the leaves available indicate only the presence of an astringent principle and a coloring matter, but do not afford a definite proof of the presence of any alkaloid or glucoside, although the leaves appear to contain some substance as yet unknown to chemists.

Rutland County (Vt.) Medical Association.—At the meeting of this society held at Lake Bomoseen on July 16 officers were elected as follows: *President*, Dr. A. H. Bellrose of Rutland; *Vice-President*, Dr. J. F. Estabrook of Brandon; *Secretary*, Dr. C. F. Ball of Rutland; *Treasurer*, Dr. H. R. Ryan of Rutland.

Upper Peninsula (Mich.) Medical Association.—At the meeting of this organization held in Menominee on July 19 the following officers were elected: *President*, Dr. B. T. Phillips of Menominee; *Vice-Presidents*, Dr. C. L. Gerard of Escanaba and Dr. W. T. S. Gregg of Calumet; *Secretary*, Dr. H. J. Hornbogen of Marquette. Marquette was selected as the next meeting place.

Maritime Medical Association.—The sixteenth annual meeting of this organization was held in St. John, N. B., July 18. Officers were elected as follows: *President*, Dr. M. Chisholm of Halifax, N. S.; *Vice-Presidents*, Dr. G. E. Dewitt of Wolfville, N. S., Dr. Anglin of Fairville, N. B., and Dr. Jardine of Summerside, P. E. I.; *Secretary*, Dr. Melvin of St. John, N. B.; *Treasurer*, Dr. Farrish of Yarmouth.

New Brunswick (Can.) Medical Association.—The twenty-seventh annual meeting of this association was held in St. John, N. B., on July 17. Officers were elected as follows: *President*, Dr. J. M. Deacon of Milltown; *Vice-Presidents*, Dr. J. R. McIntosh of St. John and Dr. A. J. Ferguson of Dalhousie; *Secretary*, Dr. R. G. Day of St. John; *Corresponding Secretary*, Dr. C. T. Purdy of Moncton; *Treasurer*, Dr. G. G. Melvin of St. John. It was decided to hold the next annual meeting in St. Stephen.

Obituary Notes.—Dr. Lee McElroy of Elizabeth, N. J., died on July 26 in the Alexian Hospital of that city after an illness of several months. He was born at Bardolph, Ill., thirty years ago, and received his medical education in the North Western University at Evanston, Ill. He had been a resident of Elizabeth for two years.

Dr. George T. Ballard of Hampden, Mass., died on July 18, at the age of sixty-six years. He was born in Holland, Mass., and had practised in Hampden for forty-five years. He was graduated from the Berkshire Medical College in Pittsfield in 1862. He had repeatedly served as selectman and school commissioner.

Dr. Oliver LaCrone of Kalamazoo, Mich., died in Chicago on July 19, at the age of forty-eight years. He had practised in Kalamazoo for fifteen years, and at one time was candidate for the office

of Mayor. He was a graduate of the Michigan State University.

Dr. FORREST L. ESTILL, son of Dr. J. T. Estill of Colorado Springs, died in that city on July 15, at the age of twenty-seven years. He was graduated from the Washington School of Medicine in St. Louis in 1903.

Dr. SAMUEL BISHOP of Muscatine, Ia., died on July 20, at the age of eighty-one years. Dr. Bishop was born in Ohio, and practised for many years at Moline, Ill.

Dr. A. J. RADIKE of Burlington, Vt., died of abscess of the liver on July 17, at the age of fifty-four years. He was born in Germany, but came to this country while a young man, and was a graduate of St. Joseph's College at St. Joseph, Mo. He had practised in Burlington for about twenty years.

Dr. WILLIAM F. BOOR of Newcastle, Ind., died on July 17, at the age of eighty-eight years. He was born in Perry County, Ohio, and was graduated from the Jefferson Medical College at Philadelphia in 1853. After practising for a time in Middletown, Ind., he removed to Ohio and later to Newcastle, where he had since resided. He was a charter member of the Henry County Medical Society, was surgeon of the Fourth Indiana Cavalry during the Civil War, and in 1870 was appointed U. S. Pension Examiner.

Dr. ROBERT O. CRAIG of Janesville, Minn., died on July 15, at the age of seventy-four years. He had been a resident of Janesville for thirty-five years, and had served as State Senator.

Correspondence.

THE BAD PHYSICAL CONDITION OF WEST POINT CADETS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The newspapers have stated that a large number of West Point cadets were made sick by their stay at the Jamestown Exposition and some two or three contracted typhoid fever. No such reports have been published as to the large number of cadet schools which went to the Exposition and lived in similar unsanitary conditions, and it seems, therefore, that West Pointers are unable to resist infections or adverse conditions which are harmless to others.

This is amazing, in view of the frequent publication of accounts of the physical perfection of the West Pointers; how they were selected with such care and trained so as to reach a condition which cannot be improved—an opinion from which there does not seem to be a dissenting official voice. Indeed, there appears to be a resentment of any criticism of the management of the health of these immature boys. Nevertheless, I once had a chance to see the cadets and was painfully impressed by their bad condition, which, on retrospection, fully accounts to me for their lowered vitality and resistance. This condition has evidently existed so long that the authorities, who have never seen anything else, have come to regard it as normal, though in reality it is a dangerous abnormality. Some of the cadets were well nourished, a few actually fat, but the great majority had thin, drawn features and very slender figures, suggesting emaciation. They seemed to have been "worked down" or "trained" to a condition which the progressive element in the profession now recognizes as one of dangerous exhaustion, with little surplus for emergencies.

It is said that they are not permitted enough sleep, being forbidden to retire before a certain hour and routed out before they obtain eight or eight and a half hours in bed, whereas schoolboys of that age must have nine or even ten hours' sleep. The life of snappy activity uses up all energy and the cadet reaches the end of the school year more or less exhausted and spends a great deal of his vacation in sleep. These facts explain what has always seemed a medical paradox. The cadets are the pick of a large number of applicants, larger indeed than the student body of a large university with its hundreds of physical weaklings, and yet in athletic games requiring the best physique they do not shine. In the mental sphere, few are ever heard from, while the small colleges, which formerly paid no attention to physical training, have graduated a large number of noted men. Perhaps some of this may be due to the fact that West Point is a technical school, and these boys, being trained for war, do not have chances for distinction in peace. Yet the age of seventeen is too young to begin a strenuous technical education, and the last board of visitors has advised a change.

Nevertheless, there is an outcry in the profession against too much physical training in our colleges, and it seems to be well grounded, for it is apparently illustrated by the thin, drawn countenances of these cadets and the mental exhaustion which is reached at the end of their overstrenuous school year.

It may seem unwise to criticise, not having any remedy to offer, except the suggestion that immature boys should be compelled to sleep from nine to ten hours if their nervous organization is to be strengthened and not exhausted. Doubtless every official at West Point is wholly unaware that anything is wrong and will vigorously deny the need of any change. But that is the rule, for outside criticisms are always needed to effect reforms. We rarely realize the need of changing what has become familiar, and prior suggestions to remedy the course of instruction have been strongly opposed. In physical and nervous matters lay opinions are not worth much, as our college athletic abuses show.

It is said that the average West Point graduate needs a year or two to recuperate enough to take that keen delight in study which is so essential for success in any profession. If this is really so, it, too, is fully explained by the thin, exhausted appearance of those graduates, and it should be remediable without injuring that West Point discipline which is the pride of all Americans. It does seem that a change is needed, but I am not ready to make further suggestions. I have merely desired to call attention to what was seen. It does seem that we would have far better results from this splendid material if it were not so strained and exhausted in the training. M. D.

NEW YORK, July 31, 1907.

DIAGNOSIS OF RENAL CALCULUS.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—In a recent issue of your esteemed paper, July 6, page 23, you make mention of and comment on a new sign of renal calculus brought forward in an article which appeared in the *Münchener medizinische Wochenschrift*, June 4, 1907. Permit me to call your attention to a paper read by me before the New York County Medical Association June 21, 1897, and published in the *New York Medical Journal*, Vol. 66, page 349, 1897, entitled, "The Genital Phenomena of Renal Calculi." In that paper the "new" symptom to which you favorably refer is elaborately emphasized. R. ABRAHAMS, M.D.

NEW YORK.

OUR LONDON LETTER.

(From Our Special Correspondent.)

TROPICAL MEDICINE, INAUGURAL ADDRESS OF THE NEW SOCIETY—PROFESSOR OSLER ON MEDICAL WOMEN—KING EDWARDS' HOSPITAL FUND—ROYAL COLLEGE OF SURGEONS—OBITUARY—SIR W. H. BROADBENT, M.D., F.R.S., ETC.

LONDON, July 27, 1907.

THE Society of Tropical Medicine and Hygiene is now duly established among us, the first meeting having been held on the 28th ult. A lantern demonstration by Dr. C. W. Daniels proved attractive, important points being illustrated and the value of preventive measures enforced.

The President, Sir Patrick Manson, in his address said the great object of the society was to bring together those interested in tropical medicine, with a view of advancing the subject and benefiting the members. To secure these objects the society was placed on the broadest basis. Though domiciled in London, it was open to all, wherever they might be, who could forward directly or indirectly the progress of the subject. At one time special schools for teaching it were looked on somewhat askance, but that feeling had passed and if any one so regarded the formation of the society doubtless it would soon be approved. Comparing the state of the subject now and in the early nineties, Sir Patrick said that in Davidson's work on "Warm Climates," 1893, the carefully written article on malaria contained no word on the mosquito. Laveran's discovery had been before the world twelve years, but they had not gone beyond the conviction that air was the medium of infection and a lingering belief in the Hippocratic idea that enlargement of the spleen was due to drinking marshy water. In the recent edition of Allbutt's "System"

a large part of the section on tropical medicine was occupied with the part played by the mosquito, and everyone recognizes how this has changed our views of malaria and given an impetus to the study of the rôle of insects in the spread of diseases. We cannot claim so great an advance as to cholera, leprosy, and beriberi, but as regards sleeping sickness everything has been revolutionized. We now know that it is the terminal phase of a trypanosoma infection, hitherto unrecognized in human pathology, that the immediate cause of the sleeping is infiltration of the lymphatic spaces of the brain with certain small mononuclear cells, that the disease is conveyed by the tsetse fly, and that to some extent it is amenable to treatment by arsenic, mercury, and certain dyes. The tropical fluxes were not mentioned and unfortunately their etiology and treatment is in an unsatisfactory state. The *Amœba* and the *Bacillus dysenteriæ* do not cover the field and the knowledge of their existence has not helped treatment. In tropical helminthology numerous additions might be claimed. Chief among them was Looss's discovery that the larvæ of *Ankylostomiasis* gained access to the body through the skin. The term relapsing fever covered a number of infections, spread probably by as many ticks or other blood-suckers. A number of the diseases of lower animals had also great importance in regard to tropical pathology. The study of blood-suckers had become so vast that its teaching had had to be relegated to special men. In Davidson's day they had only one culex to consider; nowadays nearly 600 species of mosquitos, with the ticks, flies, etc., were objects for study. The president said there were many other discoveries in the last thirteen or fourteen years, but he had said enough to show how great had been the progress. He added that not only had their horizon been thus widened, but many additional workers were in the field. This extraordinary increase was no doubt accounted for by the establishment of tropical schools both at home and abroad, as well as by the encouragement of the British Government. The calling of an international conference on sleeping sickness by H. M. Government showed they were entering on a new era. All over the British tropical possessions laboratories were being established for the investigation of these diseases and the assistance of practitioners. These laboratories had begun to bear fruit and the president had no doubt that ten years hence they would have important discoveries and an enormous accumulation of data as a result of that enlightened policy.

The rôle of the society was to bring them abreast of what was being done by that army of workers, so that they might be in the best position to do full justice to tropical cases and to lend a hand in advancing the knowledge of tropical diseases and hygiene.

Professor Osler presented the prizes at the Women's School and in his speech told the students that many women were specially adapted to work at the highest problems of scientific medicine. He instanced bacteriology, histology, and even pathology as peculiarly suitable. Asylum work was another important line. He would like to see in every asylum one or two women physicians. General practice was hard enough for men and he was sorry for women who had to face it. As to special practice among women and children, to which many would like to see them restricted, Dr. Osler remarked that women did not believe much in men, but they believed much less in women. Amid the laughter and cheers thus excited he added, "that was one of the serious problems in connection with the progress of women." His advice to them was, therefore, so to conduct their lives that others would have trust in them. Another branch of special practice suited for them was in connection with schools. If a paternal government established a system of school inspection, he thought women could do the work more satisfactorily than men. One more field of work he mentioned was that of India and the Mission field. In this there seems to be room and to spare for medical women.

The bill for incorporating the Kings' Hospital Fund has undergone considerable alterations in its progress through Parliament. The changes made, it is understood, are in accordance with the King's desire that whatever safeguards were thought desirable should be provided. On the termination of the presidency by the Prince of Wales it is arranged that the Lord Chancellor, the Prime Minister, and the Governor of the Bank of England at that time shall be requested to recommend a member of the Royal Family (being a son, grandson, or brother of the sovereign). Further, the president will be controlled by the council as to the appointments, expenditure, and distribution of the funds. To test the power of the president will be, by his [illegible] limited to the collection of money. Thus [illegible] will have all the advantages of the close connection with the Royal Family which created and has thus [illegible]. Considering that about £100,000 a year [illegible] for the Hospital by this fund, it is only natural that it should be continued on similar lines. It is also agreed that the fund shall be annually audited, the auditor being appointed by the president of the local Government Board for the time being. In various quarters there have been proposals for representation of hospital managers on the council, but it would obviously not be in accordance with ordinary prudence to make such persons judges of their own proceedings by giving them a voice in the amount of money to be awarded to their respective hospitals.

On the question of larger representation of the profession on the council there is a difference of opinion, some holding that one or two eminent leaders suffice, others maintaining that they should be reinforced by a considerable contingent.

The annual election of Councillors at the Royal College of Surgeons—an event which always excites some interest, took place on the 4th inst. More fellows voted than on any previous occasion—800 out of the total 1,166. Mr. Chartens Symonds of Guy's headed the poll. Messrs. Moullin and Eve of the London Hospital and Mr. Bruce Clarke of St. Bartholomew's were also elected.

Yesterday the Council met and the new members were received. Mr. Henry Morris was reelected president. Messrs. Watson Cheyne and Rickman Godlee were elected vice-presidents for the ensuing year, and the professors and lecturers for the year were appointed.

Sir William Broadbent died on Wednesday, the 10th inst., and is to be buried to-morrow. Born in January, 1835, he took his M.B., Lond. in 1858, M.D. 1860, M.R.C.P. 1861. He had taken the scholarship in physiology, an exhibition in anatomy, and gold medals in midwifery and chemistry. He was an alumnus of Owens' College, Manchester, where also he distinguished himself. He was one of those to whom opportunity comes early and was well equipped for it. He took an appointment at the Western Dispensary, but it was not long before he was elected assistant physician to St. Mary's Hospital, where he continued for his life work, passing through all the posts to the consultant staff, and taking an active part in the school in which he was for so many years the lecturer on medicine and clinical medicine. He was also for a number of years physician to the Fever Hospital. At the College of Physicians he was elected Fellow in 1869, Examiner from 1876 to 1884, Councillor 1885-1886, Croonian Lecturer 1887, Censor 1888-1889-1895, and Lumleian Lecturer in 1891.

By this time he was in the enjoyment of an extensive practice as a consultant. He attended the Prince of Wales (then Duke of York) during his attack of typhoid fever, 1891, and was appointed Physician Extraordinary to Queen Victoria the next year, and in 1898 became Physician in Ordinary on the death of Sir R. Quain. He had received his baronetcy in 1893. He had on several occasions attended the late Queen and was one of her physicians in her last illness. His court appointment was continued by the King on his accession, and in His Majesty's illness at the time of the coronation Sir William was in close attendance.

Sir W. Broadbent contributed freely to the journals and societies. He has served as president to several of these, including the Medical of London, at which he delivered the Lettsomian lectures on "Syphilitic Affections of the Nervous System." Neurology was one of his favorite subjects. Another, not at all second to it, was the circulation, as his book on "Heart Disease" and that on "The Pulse" sufficiently attest.

As a speaker or lecturer Sir W. Broadbent could not be described as attractive. But he was a successful teacher, as he had a way of impressing essential points on his students. One of them said to me: "He seemed rather dry at first, but I soon saw how deep and accurate his knowledge was and somehow he made you remember the most essential things."

Last October Sir William Broadbent had an attack of influenza, with pleuropneumonia, followed by empyema. He was progressing well when a second attack of influenza prostrated him and he did not convalesce. On the 6th severe rigors set in, with other signs of endocarditis, and he succumbed on Wednesday.

The Food of French Workmen.—Professor Landouzy, in a recent address, quoted statistics showing that among the working classes of Paris the men spend on an average 1 franc and 14 centimes a day for solid nourishment, and 1 franc and 24 centimes a day for drink. The women are almost always underfed, the cost of their food averaging only from 1 franc to 1 franc and 10 centimes a day, as compared with 2 francs and 38 centimes for the men, and in consequence they age early. He asserted that nearly all laborers eat too much meat, the proportion in expense being 60 per cent., while in nutritive value it is only 8 per cent.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.

FRAMBESIA IN THE SAN LAZARO HOSPITAL—HEALTH HINTS TO NEWCOMERS—NEW PHILIPPINE MEDICAL SCHOOL—SPRUE—PERSONAL NOTES.

MANILA, P. I., June 15, 1907.

THE theory that frambesia, or yaws, is found only among persons who live in dark, damp, unsanitary places would appear to be open to considerable question, in view of the outbreak which has occurred recently among the inmates of the San Lazaro Leper Hospital. The hospital contains an average of 220 patients. On March 1, one, who had been an inmate for over a year, was noticed to be afflicted with yaws, and before seven days had passed there were three additional cases, and in the succeeding fourteen days there were two more, the last case being reported May 12, making a total of seven cases. The persons afflicted were all under sixteen years of age, and none of them had been out of the institution for many months previous. Specimens taken from the lesions and examined microscopically showed a spirochete similar to that described by Castellani. The San Lazaro Leper Hospital is not an ideal building by any means, yet the quarters of the lepers are well lighted and ventilated, the plumbing is very good, and the subsistence furnished is excellent, so that the disease could scarcely be attributed to unsanitary surroundings.

The Bureau of Health has issued a set of brief hygienic rules, which are particularly intended for new arrivals in the Philippines from temperate climates. Experience has demonstrated that the most serious diseases of the tropics are easily avoided if a few reasonable precautions are taken. The rules are as follows:

"It is easier to maintain good health in the tropics than in the United States, but in order to do so you should observe the following simple rules:

"1. Be vaccinated to-day. The Bureau of Health will do it free of charge.

"2. *Never* drink any water unless it has been either boiled or distilled, or eat any raw vegetables. If you observe this rule carefully you will probably never contract dysentery, typhoid fever, cholera, or any other disease that originates in the intestines. Disregard of this rule is responsible for the return to the United States of over 50 per cent. of the invalids who leave these islands.

"3. Fruit is wholesome, and may generally be eaten raw with impunity, provided it is of a kind that grows upon trees, well above the ground.

"4. Avoid patent medicines. Do not put drugs of which you know nothing into bodies of which you may know less.

"5. Alcoholic stimulants are not necessary, the advice of 'old residents' to the contrary notwithstanding.

"6. Generally, disease-carrying mosquitos fly only at night; therefore, always sleep under a good mosquito net.

"7. Otherwise observe the same hygienic rules that are applicable to temperate climates, including physical exercise."

The new Philippine Medical School, which is being started under the auspices of the Government, and which is eventually to be part of a Government university, is now an accomplished fact. A Government building, located on the Malecon drive, has been set aside for this purpose, and the necessary alterations to adapt it for a medical college have been made. The city morgue will be removed to the building, so that any pathological material which may become available through such a source may be taken advantage of. Nice, light, airy lecture-rooms have been provided, and excellent quarters are available for histological, pathological, bacteriological, and chemical laboratories. The first year class commenced work on June 10 last. The course is to be five years. It is quite probable that in the near future, if sufficient applicants present themselves, advanced classes will also be started. The curriculum is most complete, and compares favorably with that of first-class colleges in the United States. The entrance and graduation requirements are in accordance with the rules of the American Association of Medical Colleges, which should ensure a high standard of education. The Santo Tomas Medical School, which has been in existence for a great number of years in the Philippines, has been much stimulated by this competition, and extensive alterations have been made, courses have been changed, new teachers have been engaged, so that medical education in the Philippines has received a decided impetus during the past few months.

While cases of sprue have been reported heretofore from the Philippines, yet the disease is not commonly met with. Recently, however, another case was admitted to the Civil Hospital, of which there could be very little doubt about the diagnosis. All the characteristic symptoms were present, namely, extreme soreness of the mouth, symptoms of indigestion with feeling of weight, oppression and gaseous distention after eating, frequent vomiting; pale, grayish, pasty, fermenting and offensive stools; absence of ameba, alternate diarrhea and constipation. Improvement immediately followed when the patient was placed upon exclusive milk diet.

The recent order of the War Department that the tour of duty of staff officers in the Philippines should be reduced from two and a half to two years, has had the effect of relieving many medical officers from further duty in the islands. Among those who will leave on the transport which sails from here June 15, 1907, are Major F. A. Winter, Major Francis J. Ives, Major Paul Shillick, Major Alexander N. Stark, and Major Aaron H. Appel.

Dr. William J. Mallory, formerly chief of the Benguet sanitarium division of the Bureau of Health, has resigned his position and will engage in the practice of his profession in Washington, D. C.

Dr. R. P. Strong, chief of the biological division of the Bureau of Science, has been named as the official delegate of the Philippine Government to the Hygienic Congress, which will be held in Berlin during the month of August.

Progress of Medical Science.

New York Medical Journal, July 20, 1907.

Chancroid and Its Complications.—A. H. Uhle and W. H. Mackinney give a general description of chancroid. Nothing essentially new is presented. Concerning treatment they state that in the more virulent forms of chancroid the spread must be checked by cautery, curette, or nitric acid applied in general narcosis, and the wound treated with strict antisepsis. In some cases a continuous bichloride bath is required to limit the spread of infection. All operations are those arising from necessity. Excision of the chancroid cannot be recommended as a curative measure, as the healthy tissue invariably becomes infected with a greater destruction of tissue than if Nature's method had had its way. If phimosis is present lateral or dorsal solits should be made and antiseptic dressings applied; if paraphimosis exists it should either be reduced by one of the various mechanical methods or, this failing, the constricting band must be divided. In all cases, especially the virulent forms, attention must be given to the general health and hygienic surroundings of the patient.

Pelvic Tumors in Little Girls.—J. C. Kennedy reports the case of a girl of eleven years, attacked by sudden and intense abdominal pain. Examination led to abdominal section, and a typical dermoid cyst of the left ovary was found, weighing two and one-half pounds. Although no torsion of the pedicle was found on opening the abdomen, it was, in the author's opinion, undoubtedly the cause of the sudden and severe pain. He adds some statistics on the occurrence of pelvic tumors in children.

Treatment of Acute General Peritonitis.—G. Chandler lays down the following rules: (1) Use ether anesthesia always and operate quickly. (2) Always make a median incision and handle the bowel gently. If gas escapes a perforation is present. When little or no odor is present, the lesion is high up in the gastrointestinal tract, as ulcer of stomach or duodenum. If a foul odor is present, the lesion is low down and is usually the appendix. Where lymph is present in the intestines there usually is found the lesion. After finding this, repair quickly or remove diseased appendix. (3) Do not wash out the abdomen under any conditions. (4) Always drain the lowest portion of the pelvis through the lower angle of the incision. If necessary make multiple drains by puncture wounds in the flanks. (5) Elevate the head of the bed at least 18 inches and keep the patient in an absolutely upright sitting posture. Drainage by gravity ceases after the first twenty-four hours. (6) After placing the patient in bed, give continuous normal salt solution by rectum. (7) Give no food by mouth for four days, and always wash out the stomach just before the patient comes out of the anesthesia or immediately afterward. Cocainize the throat and wait at least five minutes before using tube (Ochsner's method). Feed by bowel every four hours, beginning with the second day, egg water, etc., one ounce of food with three of salt solution. (8) Morphine should be given by hypodermic injections for a stimulant, also to act as an abdominal "splint." It relieves the nervous tension and is absolutely indicated after operation. Use no other heart stimulant. (9) If pulse drops to 100° then everything looks favorable. Never pay any attention to the temperature until after the third or fourth day. If it then begins to show signs of suppuration, the pus can be reached by rectum or vagina, since by the exaggerated upright method it has gravitated to the pelvis,

and you have a pelvic abscess to deal with that has been walled off from the general peritoneal cavity. (10) On the fourth day always move the bowels by a high enema of milk one pint, and molasses one pint, mixed and warm.

The Rational Treatment of Nervous Patients.—Nothing new is presented in the paper of B. L. Bryant, but he has some strong common sense comments on the too frequent failure of the average physician to relieve the large class of functional neuroses. Often the most careful examination fails to discover any lesion or definite functional disturbance. What, then, the author asks, are we to do? Two courses have been followed in the past: one, the honest course, to frankly tell the patient that there is absolutely no physical condition that we can treat, except on general principles of rest, tonics, forced feeding, and general hygiene. The other, not so honest, to temporize by prescribing a bromide, a glycerophosphite, or some of the multitude of nerve tonics. Or perhaps we possess a static machine with large shiny wheels, and we play on their nerves, the seat of the supposed functional pain, and pockets, the shower, or the breeze, or the spark, or we bring out the new vibrator, the now necessary adjunct of the well equipped barber shop, and assure them we have just the thing, at so much per treatment. When all this has been done, and the patient still ungrateful enough to complain that she feels no better, then we advise a long vacation, hoping that in the meantime something new may turn up, which we can try on her when she comes back. At present we have held her as long as we can. The chances are that after several years of this kind of treatment from the profession our patient falls into the hands of some irregular practitioner, and perhaps recovers, a firm believer in the irregular's doctrines, and a distinct enemy to the regular profession. The trouble lies, says the author, in the fact that all the training of the regular practitioner has been along the physical or the materialistic line. He has been taught to believe that every derangement of the human organism has behind it some physical cause, either in an irritating toxine or a pathological lesion, therefore seeks for that physical cause, and applies the specific remedy. In most of the medical schools we hear nothing of applied psychology or psychic phenomena. It is along therapeutic lines suggested by the last statement that the proper treatment of functional neuroses largely lies.

Journal of the American Medical Association, July 27, 1907.

The Causation of Glaucoma.—J. A. Tenney has examined the eyes of 200 persons of all ages to see to what extent the lens encroached on the ciliary processes as age advanced. He does not find that a narrow circumlental space is necessarily accompanied with an increase of tension, as it is common for the aged; but he noticed that members of a family in which glaucoma has appeared all have a narrow circumlental space. He has not seen a narrow cornea in the cases of glaucoma observed by him; hyperopia is common, but some are emmetropes. He thinks it probable that chronic glaucoma is caused by excessive pressure of the vitreous, due to diseased blood-vessels in the uveal tract; at the same time, there is probably an alteration in the constitution of the aqueous humor that blocks the outlets. He asks why the ciliary process may not secrete albumin when age has changed the character of the blood vessels. If sympathetectomy relieves intraocular tension, it does, as he asserts, through its influence on the circulation in the choroid and ciliary process, and the same may be said of iridectomy, which does not relieve tension immediately, showing that its influence is on the intraocular circulation. Another fact pointing the same way is that in some cases of iridocyclitis with lessened tension it increases it.

Onychomycosis Trichophytina.—A. Ravogli reports two cases of this condition, one of them notable on account of the nails being primarily and solely affected. In the other case there was a preceding tinea of the scalp and the infection had been communicated to the nails by scratching. In the first case the disposition of the fungi in the nails was peculiar, splitting it up in a longitudinal way, but the cultures showed the same growth in both cases. The prognosis in such cases as that mentioned is less favorable than when the fungus is situated on the surface, as the spores cannot be reached so readily by therapeutic agents. In this special case the disease had lasted many years, and the patient would not endure the needful treatment. The other patient recovered with application of Wilkinson's ointment to the nails and scalp.

Itching.—J. D. Bulkley discusses the various forms and causes of itching and their treatment. He divides the causes into three general categories: 1. External; 2, idiopathic, and 3, constitutional. The external causes are divided by him into two groups, miscellaneous and parasitic, the first including itching from mechanical, toxic, and climatic causes. Under idiopathic causes he recognizes two groups, the neurotic, including reflex and functional, and senile causes. The constitutional are divided also into two groups, the autotoxic, acute and chronic, and the dermatopathologic causes. Each of these is illustrated by types mentioned. As specially calling for notice, may be mentioned his remarks on reflex itching induced by pruritus in other parts of the body and thus complicating itching from other causes, mechanical, parasitic, etc., and the opinion expressed by the author that dermatitis herpetiformis should be classed among the neurotic conditions as being due to some derangement of the cord or the conducting nerves. Senile pruritis, he says, stands alone, as a condition probably due to alterations in nerve structure in common with other degenerations belonging to old age. Urticaria is given as the type of autotoxic forms of itching, and most of the cases falling into the dermatopathologic group are included in a comparatively few diseases, eczema, erythema multiforme, lichen, dysidrosis, and prurigo. Most of the cases called prurigo occurring in this country, however, are, he says, chronic papular urticaria. Careful observation of the cause of pruritis is due in all cases; it is Nature's signal that something is wrong, either with the skin itself or elsewhere, and this must be sought and discovered. The reasons why pruritis is so often worst at night are given by Bulkley as the natural nerve exhaustion and consequent greater irritability at the close of the day, the greater loading of the blood at that time with the products of catabolism, the abeyance of the higher cerebral functions and external irritation, as from the cold in undressing followed by warmth in bed, etc. The treatment of itching is a large subject. The constitutional measures, when applicable, are both dietetic and medicinal, lowered general and nervous conditions predispose the skin, as well as the other organs to disease. This is especially true in neurotic cases. Analgesic internal treatment is often of service, but is often greatly misused. Opium and morphine are worse than useless and aggravate the condition; some of the coal-tar preparations have been recommended and may sometimes be of value, but they should be employed with very great caution. Among other internal remedies mentioned are cannabis indica, which is often of value when used judiciously, and chloral and bromide in combination with a little aconite added, and gelsemium, with which, however, he had once unpleasant effects. The hygienic treatment of the skin is important, and Bulkley thinks that the better class of patients are often liable to err in the direction of too much bathing. Woolen underclothing is generally best, and restraint from scratching is very important. Of medicinal local remedies, carbolic acid is preeminent and is a very valuable remedy when rightly employed. A number of other local remedies are mentioned and some formulas are given.

Opsonic Therapy in Skin Diseases.—H. R. Varney reports the results of opsonic treatment in about forty cases, twenty-seven of which were dermatological. In acne cases no other treatment was given; the patients came daily to the laboratory and their opsonic indices were determined, an average of three readings being taken. Autogenous vaccinations were then given with remarkably favorable results. Stock vaccines made from other cases of a similar type produced as good results at first, but were ineffective after the third vaccination, in no case producing a permanent cure. In five cases the guide to the revaccinations (autogenous) was the appearance of new lesions, the opsonic determination being omitted, and four of these cases have been discharged cured. Five cases of furunculosis were also successfully treated by autogenous vaccinations. In one case of coccogenous sycosis the treatment failed owing, the author thinks, to a too large beginning dose. The first dose should be a small one, as the effect is greater than with subsequent doses, and the positive phase is shortened and the succeeding negative phase, as in this case, is liable to be more marked. In another case of the same disease, rebellious to all treatment for six years, a cure followed five autogenous vaccinations. In this case the effect of alcohol and loss of sleep in lowering the opsonic index was noticeable, as was also the case in some acne patients. Excessive fatigue and menstruation also lower the index, and the physician should know his patient's physical condition before beginning treatment, and should warn him against things that are a handicap to recovery. Varney considers the method one of great value, and autogenous vaccines superior to those made of other than the patient's own invading microbe. The results can be obtained with or without opsonic determination, but will be uniformly better if thus guided.

Supervision of Tuberculosis Patients After They Leave Sanatoria.—Frederick I. Knight asserts that the proper and satisfactory control of tuberculosis in the future will involve a continued knowledge on the part of some authority not only of the individuals infected, but of their families and all surroundings. He believes that this duty should be assigned not to local boards of health, but to special local boards, who should gain the desired results with as little publicity as possible. These local boards should be composed of persons really interested in the subject, who should work cautiously and be sufficiently discreet not to create a panic in the local neighborhoods. One of the functions of such a board should be to supervise patients who, apparently cured, return home from treatment at sanatoria or elsewhere. The better class of patients will usually consult their physicians and arrange some hygienic mode of life for the immediate future; but the poorer class are sent out with some good general advice as to outdoor life, employment, etc., but with no idea how to obtain it. It is patients of this class that need to be guided. One of the most promising ways of helping to maintain the health of those restored at sanatoria is by the establishment of labor or farm colonies, where gardening, farming, raising of chickens, keeping of bees, cultivation of flowers, etc., can be carried on, with gradually increasing hours and severity of work, under medical supervision. This can be done at some of the sanatoria, where they have land enough, or at special farms devoted to the purpose, like convalescent homes. In fact, many patients, he states, could and would be better for doing some work of this kind during a part, or in some cases all of their time at the sanatoria, provided there are grounds enough to set up such regime at the institution.

The Lancet, July 13, 1907.

Bread As a Source of Uric Acid.—Attention is drawn by R. Saundby to Gautier's observation that bread may become a source of uric acid by setting free an excess of phosphoric acid, an acid that does not find any base which can neutralize it. Saundby relates the case of a boy under his hospital care for nephritis. The patient was nine years old and had swelling of the face and legs. His urine was scanty and high colored and contained blood, albumin, and epithelial and granular casts. His body was covered with numerous scabs and scratches and little raw red spots, and it seemed probable that the nephritis was caused by the absorption of some irritating substance which had been applied to the skin, although the author never was able to obtain absolute proof of this. The patient was treated at first by being put to bed in blankets and given imperial drink; his bowels were opened by scammony resin, and boric acid fomentations were applied to the sores on his legs. A week later the whole of his body was anointed daily with the following lotion: Sodium biboras, 3 drachms; oleum olivæ, 4 ounces; aq. rosarum to 8 ounces. The skin soon became perfectly healthy. The blood and casts disappeared from the urine, although there was occasionally a haze of albumin, but there was a very copious deposit of uric acid which was first noticed about a month after his admission, although he was on a diet containing only milk, bread, butter, light pudding, cocoa, and fish. The uric acid persisted in spite of various remedies. Several weeks later potatoes were substituted for bread, which was removed from his diet, and during the time he took no bread no uric acid appeared. After two days he was allowed two ounces of toast with each meal, with the result that the uric acid reappeared occasionally, so that the quantity of toast was reduced to one ounce. After three months' observation the boy seemed perfectly well and passed out from under observation, but the case goes to support the truth of Gautier's theory. He estimates that in 100 grammes of new bread there is 0.239 gramme of phosphoric acid.

The Most Frequent Hernia in Childhood and Its Significance.—A somewhat statistical presentation of the subject is made by E. M. Cornir, who notes as the most frequent and characteristic hernia of childhood the median ventral variety between the upper parts of the divaricated recti. He declares that it has never received its due consideration from the fact that surgeons have made more observations in the operating theater than in the outpatient room and have, with few exceptions, never combined these two sets of observations. This median ventral hernia is almost invariably an acquired character and is directly related to the pressure of gases produced by intestinal fermentation. Any hernia or set of hernia in any situation are more frequent when accompanied by it than when alone. Hence clinical experience shows that raised intraabdominal pressure is directly related to the frequency of inguinal hernia and, it is suggested, probably also to their initiation. It has been further suggested that the true proportion of acquired to congenital hernia is about 2 to 1. In the face of the fact that it is nearly impossible to recognize and distinguish the funicular variety of the congenital hernia sac from the acquired sac at an operation and even perhaps at a necropsy, there can be no certain knowledge of the formation of hernia in children. Therefore the author suggests that by means of the recognition of the presence and significance of the median ventral hernia, its frequency and associations, it is possible to introduce a strong probability into the question, which would seem to indicate that acquired hernias are more common in children than those due to the presence of a congenital sac. This, he says, is not a mere academic question, as the treatment to be adopted must depend largely upon its appreciation.

The Treatment of Lupus.—After a recapitulation of the methods in common use, Dr. Dreuw describes his own method, as follows: The lupus patch which is to be treated is frozen by means of ethyl chloride (or by carbonic acid gas if a deeper effect is desired) till it is snow white. Upon the frozen surface crude hydrochloric acid is rubbed in briskly and with a certain degree of force. According to Unna it is advantageous to saturate this crude hydrochloric acid with chlorine. The acid is applied in the following way. Cotton wool is wound round one end of a small wooden stick of about the size of a penholder; this is dipped in the crude hydrochloric acid and rubbed on the frozen surface, pressing slightly, till the nodules become of a grayish-white color (reaction). This grayish-white color appears first where nodules are and then in the skin surrounding the nodules. In this way a large surface can be treated at once by a succession of applications of the caustic. If the patch is very large it is best to administer chloroform. The spots are then similarly thoroughly frozen by preference with carbonic acid gas and then by the above-mentioned means the crude hydrochloric acid is energetically rubbed in. This freezing and cauterization under general anesthesia is especially suitable (1) in lupus multiplex and lupus exulcerans; (2) in lupus of the mucous membranes, the nasal cavities, the lips, and tuberculous abscesses and fistula (cauterize from six to eight times in rapid succession); and (3) where the freezing is not well borne by the patient (*e.g.* nervous and sensitive patients) or where very energetic cauterization is necessary—*e.g.* in tuberculous ulcers, lupus hypertrophicus, and verrucosus. The foregoing plan has various modifications of detail for certain bodily areas, as the nose, etc. All these points are mentioned at length by the writer. He summarizes the advantages of the method as follows: (1) It is simple, cheap, rapidly effective, and gives good cosmetic results. (2) It can be carried out at home without hospital treatment, and that is especially important for patients of limited means. (3) Complicated apparatus is not necessary, therefore the method can be applied by any practitioner. (4) The method can be applied in all forms of lupus and in all situations, with the exception perhaps of the eye. Favorable results are obtained by repeated cauterization, especially in lupus of the nasal cavity. (5) As a preliminary treatment for later Finsen treatment one gains time and gets favorable results.

British Medical Journal, July 13, 1907.

A Case of Pyonephrosis, Containing Typhoid Bacilli in Pure Culture.—The patient of F. L. Greaves was a man of thirty-six years who had had typhoid fever six years before coming under the author's observation, with a relapse. During this illness he said he had had difficult micturition, passing masses looking like liver tissue and later thick urine containing mucus. Some four months before the date of the author's initial observation of the case he had had pain and swelling in his left groin, with some vomiting and emaciation. When seen a large swelling extended from the left costal margin to about two inches from the iliac crest. It was tender, smooth, and rounded, did not descend on respiration and gave a slight thrill to the palpating fingers in front, if light percussion was made in the loin. No fluctuation was made out. Urine practically normal. By the segregation of the ureters no urine was obtainable from the left half of the bladder. Abdominal incision through the lumbar area and opening of the mass discharged pus. A large calculus was found in the left ureter. Recovery was uneventful. The only organism found in the pus, and that in pure culture, was the bacillus of typhoid. The Widal test was then tried on the blood and a positive result obtained. The calculus was nearly entirely phosphatic; although the center contained both phosphates and oxalates, the latter predominating.

Spreading Peritonitis Cured by Pelvic Drainage, Fowler's Position, and Rectal Instillation of Saline Solutions.—In reporting this case C. H. Whiteford uses the term "spreading peritonitis" in the sense of a peritonitis

in which there are no lymph barriers, but in which the inflammation has not yet invaded the entire peritoneal cavity. His patient was an anemic, unmarried woman of twenty-one years, with a history of three days' illness. Diagnosis was made of perforated, gastric, or duodenal ulcer. The method of treatment followed is indicated in the above title. Healing of the wound was completed on the twelfth day. The author highly extols the advantages of the Fowler position and, incidentally, of ether as an anesthetic in these cases, considering it most superior to chloroform. He says that surgeons who cannot operate during ether anesthesia, because of the increase in the respiratory movements, might with advantage pay a visit to the United States, where ether is used almost exclusively, and where nothing is heard of "abdominal excursions," and adds that for cases of septic peritonitis ether, especially if given by an expert, is almost ideal.

The Duty of Restoring Hearing by Operation in Chronic Aural Suppuration.—C. J. Heath relates a series of cases with comments thereon. He claims that the situation is analogous to that obtaining in appendicitis. No careful surgeon, says he, waits for abscess in abdominal appendicitis, nor, in Heath's opinion, should he wait for it in the ear. Just as removal of the appendix will eradicate the danger there, so timely elimination of the aural appendix will usually restore the ear to function and safety. The author finally came to the conclusion that if the antrum could not recover its health when there was no tympanic obstruction to its drainage, then the operation known as ossiculectomy (that is, removal of drum membrane and small bones), with the object of influencing the disease in that cavity, was futile, in spite of the sacrifice of the vibrating apparatus and consequent certainty of defective hearing. Treatment of the tympanum through the meatus, by dealing also with the effect and not with the cause of this disease, was usually found equally ineffective, and in early cases even worse. The delays such proceedings must entail were found to give time for the affection to advance beyond the point at which restoration of hearing might be brought about by operation. During operation it was also found that slight disease may exist in the mastoid antrum, yet not be identified, because of the obscuring presence of blood, and that all hemorrhage must be prevented if trustworthy observations were to be made. Finally Heath says that inasmuch as it has been shown that the mastoid antrum and not the tympanum is the chief seat of danger and disease, the old treatment must be changed. Our faith in mere lotions must abate, as they do not reach the seat of the disease. Operations now bereft of their destruction of hearing and most of their former dangers will be earlier done.

Calcium Chloride in Hemorrhage.—A. C. Lambert reports the case of a Chinese gardener of forty years who came to have two upper molars extracted. There was no remarkable hemorrhage after their removal, and the man went home, but two days later sent for the author, as the sockets were still bleeding. He must have lost a good deal of blood in the interval, judging by the amount that continued to flow during the next twenty-four hours in spite of adrenalin, plugging, and the exhibition of various styptic remedies. The patient was then removed to hospital, and given calcium chloride, grains xxx, every hour for three doses, and continued thenceforward every four hours. The sockets were firmly plugged with compound tincture of benzoin gauze. After the second dose of calcium chloride the hemorrhage ceased. The drug was continued thrice daily in 15-grain doses for two more days, when the patient returned home. He had previously suffered severe hemorrhages from a cut finger.

Berliner klinische Wochenschrift, July 8, 1907.

Experimental Observations on Renal Edema.—Bence reports the results of a series of experiments undertaken to determine the part played by the injection of uranium nitrate in the production of edema in rabbits according to the method of Richter. It has been suggested that the kidneys under the influence of the uranium salt furnishes a product having the property of inducing edema. Bence removed both kidneys from the animals and then injected uranium nitrate, finding that edema was still produced and therefore apparently was not the result of substances formed by the kidneys. The experiment was then repeated without injecting the uranium salt, the animals receiving the same amount of water as before. Both peritoneal and pleural effusions were produced, and the author concludes that marked serous effusions may be caused in rabbits merely through the extirpation of both kidneys provided that the animal survives long enough and that the loss of fluid is compensated by the administration of sufficient water. The effusions may take place without any increase in weight, and even with a loss in weight and restricted water intake, so that it appears that in the genesis of edema a factor must be active which controls the distribution of water in the tissues, blood, and tissue spaces.

Münchener medizinische Wochenschrift, July 2, 1907.

Colon Bacillus Infections.—Fehling says that the possibilities of colon bacillus infection in pregnancy are numerous and that patients and midwives should be carefully instructed in regard to the toilet of the vulva. Properly carried out it is of great value in preventing infection, but if not correctly done it may lead to the opposite result. Fehling does not agree with the observers who consider the colon pyelonephritis of pregnancy a descending infection originating from the blood, but believes that it is rather an ascending process. In one instance infection followed in the case of a primipara who was obliged to go about for some time with her clothing wet with urine, and in another it was apparently the result of improper cleansing of the vulva while in the bathtub. In these cases the primary condition was one of cystitis and the urine contained the organisms in pure culture. The colon bacilli seldom enter the blood stream, though the author describes one case of fatal colon bacillus sepsis secondary to a pubiotomy. In two cases uterine infection took place with the presence of the organisms in the liquor amnii and in the fetal circulation.

Operative Gangrene of the Rectum.—Sudeck considers the occurrence of gangrene of the rectum after extensive resections of this portion of the intestine for carcinoma and the precautions necessary to avoid this complication. He points out that the rectum receives its main blood supply through the superior hemorrhoidal artery. The middle and inferior hemorrhoidal arteries may be ligated without danger of gangrene. The gut may be drawn down only a very little way, however, without cutting the superior hemorrhoidal artery, and in order to do a high amputation it is absolutely necessary to cut this vessel, as it comes off almost in a straight line from the aorta and prevents mobilization of the intestine. If it is divided the rectum may easily be drawn down as much as is desired. The anastomoses of the intestinal arteries are peculiar in the large size of the connecting vessels, so that at any moment the function of one artery of supply may be assumed by another. By injecting the mesenteric and hemorrhoidal vessels with a lead magma and then making radiographs of the preparations the author was able to show that there is a critical point in the course of the superior hemorrhoidal artery represented by the point of union with the lowest large anastomotic branch. If ligation is performed below the critical point the rectum will not receive an adequate blood supply and gangrene is likely to ensue. If, however, the vessel is tied above the critical point the anastomotic circulation will be sufficiently active to preserve the vitality of the intestine. In order to perform the ligation at a sufficiently high point it is necessary to do the operation from above, and the author suggests that the resection of the carcinomatous rectum be performed in two sittings, at the first of which the superior hemorrhoidal artery is tied high up through a laparotomy incision and the intestine loosened from some of its attachments, while at the second the resection is performed through the perineum.

The Treatment of Gastric Vomiting with Oxalate of Cerium.—Thos. Charles Augustus Sweetnam within the last few months has been using oxalate of cerium in cases of vomiting due directly to gastric disease. He usually gives six-grain doses three times a day in adult patients, combined with ten-grain doses of carbonate of bismuth. The results have been most satisfactory. In gastric ulcer pain is relieved and vomiting ceases almost at once. The same result occurs in chronic catarrhal gastritis. Although a permanent cure cannot be expected in cancer of the stomach, the symptoms are relieved and the patient's life is prolonged. Relief in cases in which the pyloric region is largely involved can be obtained by means of surgical treatment only. The writer has also used cerium oxalate in smaller doses in cases of acute gastroenteritis occurring in children, with good results. The action of this drug is probably the same as that of the bismuth salts. It may be used in all cases in which the employment of bismuth is indicated. In many cases in which bismuth fails or produces only slight results it may effect a speedy cure, or at least afford great relief.—*The Dublin Journal of Medical Science.*

Book Reviews.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors, Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D., of New York City. Complete in eight volumes. Volume III. New York: William Wood & Company, 1907.

The third volume of this work appears with commendable promptness. It includes Parts XI., XII., and XIII., and treats of Poisoned Wounds, Including the Bites and Stings of Animals and Insects, Injuries and Surgical Diseases of Bones, and Diseases and Injuries of Joints. The article on poisoned wounds, from the pen of Major Charles F. Mason of the U. S. Army, includes wounds made by poisonous insects and snakes, erysipelas, anthrax, malignant edema, tetanus, and poisoned wounds inflicted by implements of warfare. The article on Rabies in this section, written by Dr. George Gibier Rambaut, contains a description of the technique of rapid diagnosis of the disease in animals by examination for the Negri bodies. The author, although asserting that the presence of these bodies is pathognomonic of rabies, does not accept them as the protozoan cause of the disease, because, among other reasons, they are not found in the saliva of rabid animals, and also because the rabic virus, whatever it may be, passes through a Berkefeld filter, which the Negri bodies cannot do.

In Part XII. the subject of Fractures is treated by Dr. Duncan Eve of Nashville; Pseudoarthrosis by Dr. P. Turner Thomas of Philadelphia; Inflammatory Affections of Bone by Dr. George A. Peters of Toronto, recently deceased; Non-inflammatory Affections of Bone by Dr. Roswell Park of Buffalo; Syphilitic Disease of the Bones by Dr. J. Shelton Horsley of Richmond, Va., and Tumors Originating in Bone by Dr. Channing C. Simmons of Boston.

Part XIII. contains the section on Diseases and Injuries of Joints. The first article in this section, "Chronic Non-tuberculous and Nontraumatic Inflammation of Joints," is by Dr. Charles F. Painter of Boston; "Tuberculous Diseases of the Bones and Joints" is written by Dr. Alexander Primrose of Toronto; the closing article is on wounds of joints, from the pen of Dr. John Chadwick Oliver of Cincinnati. A copious index completes this volume of nearly 800 pages.

The illustrations, 311 in number, are deserving of special mention for their judicious selection and the excellence of their execution. There are also eight plates, showing the Negri bodies, the architecture of the upper end of the femur, the alterations occurring in bone after its normal function has ceased, changes in the form of a long bone due to forces applied from without, tumors of bone, and radiographs illustrating tuberculous hip-joint disease, tuberculous knee-joint disease, tuberculous ankle-joint disease, and tuberculous wrist-joint disease.

Most of the subjects treated in this volume, especially the elaborate article on tuberculosis of the bones and joints, are interesting to the orthopedist as well as to the general surgeon. They are all well handled and of an encyclopedic character, leaving nothing to be desired by the seeker after knowledge, whether his object is a careful study of the subject or simply consultation. The consulter will find his task lightened and his time saved by the carefully planned index. The promise of the first volume has been well sustained by the two succeeding volumes, and it is a safe prediction, based upon these three volumes—more short of half the work—that the completed system will offer a surgical treatise unequaled in the past and difficult of approach by any that may appear in the future. The editors have done their part well in the selection of the writers and in the fitting together of their several contributions so as to make of them a harmonious whole

The Treatment of Disease: A Manual of Practica Medicine. By Reynold Webb Wilcox, M.A., M.D., LL.D., Professor of Medicine at the New York Post-Graduate Medical School and Hospital; Consulting Physician to the Nassau Hospital; Visiting Physician to St. Mark's Hospital; Fellow of the American Academy of Medicine; Member of the American Therapeutic Society and of the American Medical Association; Permanent Member of the Medical Society of the State of New York; Honorary Member of the Connecticut State Medical Society; Vice-Chairman of the Revision Committee of the United States Pharmacopœia, etc. Philadelphia: P. Blakiston's Son & Co., 1907.

This is not merely a work on therapeutics, as the title might imply, but a complete treatise on the practice of medicine, including a consideration of all the arts and sciences embraced in this subject. But the title is well chosen as a protest against the now happily waning therapeutic nihilism which at one time, under the malign influence of a former pope [illegible] to blight American medicine. [illegible] the book the paralyzing statement that pneumonia is a self-limited disease that cannot be [illegible] by therapeutic measures on the contrary, the author [illegible] that creosote has the power to [illegible] in a large percentage of cases and [illegible] almost all the remaining cases. This paragraph stamps the work as one to be [illegible] by those who recognize the responsibility which rests upon them to do what they can to [illegible] disease and are not content to know what it is that has brought their patients to the pitiable condition in which they are and what the pathological condition is that will kill them unless something is done to arrest its progress. It is truly appalling to think of the number of valuable lives that have been sacrificed to the do-nothing policy—called "expectant treatment"—eloquently advocated by some so-called "authorities" and followed by their unreasoning disciples. Dr. Wilcox has had the courage to speak out against the despairing teaching of those pessimists, and for this he deserves the gratitude of the 100,000 physicians and their 75,000,000 patients in this country. Throughout the book there is a note of hopefulness (for example, "taking all into consideration the treatment of pneumonia is especially satisfactory") which we cannot but feel marks the beginning of a new era in American medicine, one that will hit from it the opprobrium that it is powerless in the presence of the acute infectious diseases.

The general arrangement of the work is the same as that of the ordinary treatise on internal medicine, the usual sections under each heading being definition, etiology, pathology, symptoms, diagnosis, complications, prophylaxis, and treatment; but pathology, though treated of at sufficient length, is relegated to a subordinate place, instead of being made the principal section, and prophylaxis and treatment are accorded the position of honor. One curious slip, which will doubtless be corrected in the second edition, which, if the book meets with the reception it deserves, will soon be called for, is the spelling empyema. In these days of simplified spelling and vanishing digraphs, the insertion of an æ, where it never in any chance could belong, is unexpected and startling. The author retains the digraph in such words as ætiology, hæmorrhage, œdema, œsophagus, and anæmia; with this we have no quarrel, indeed we rather regret the loss of these etymological sign-posts in medical literature, but it is doing violence to the Greek language to transliterate *eta* by æ. But that is a digression. Dr. Wilcox's book is one that cannot be praised too highly; it has its faults—other than etymological—but it has virtues which far counterbalance its defects, and we unhesitatingly recommend it to the serious consideration of medical students and to practitioners, young and old, whose first and foremost desire it is to cure their patients. The pure scientist, whose only interest is to study the nature of disease, may consult works on pathology, of which there is no lack, or some of the one-time popular works on practice, so miscalled, but to the practical man, whose aim is to cure his patients, "The Treatment of Disease" will be found most helpful and inspiring.

Applied Materia Medica. A Text-Book intended for the use of Nurses in Hospital Training Schools. Based upon the U. S. Pharmacopœia eighth decennial revision, 1905. By J. Henry Schroeder, Ph.G., M.D., formerly Lecturer on Materia Medica in the Jewish Hospital Training School for Nurses, Cincinnati. Second Edition. Cincinnati: The Robert Clarke Company, 1907.

The nurse who uses this as her text-book will certainly not be overburdened with any unnecessary details of Materia Medica. The index contains no reference to castor oil, codliver oil, ammonia, Epsom salts, antiseptics, the making of solutions, and many other things that a nurse may reasonably be expected to know something about. As an introduction to the study of Materia Medica, the book may be useful to the nurse, and the author is to be congratulated that (in the words of the Preface) his book "has become the accepted standard in all Hospital Training Schools for Nurses where modern and progressive teaching methods prevail."

Paraffin in Surgery. By William F. Luckett, M.D., Attending Surgeon Harlem Hospital, and Frank I. Horn, M.D., Surgeon Mt. Sinai Hospital. New York: Surgery Publishing Company, 1907.

In a neatly printed monograph, the authors take up the history of paraffin in its application to clinical surgery, treat fully of the technique of its use, and refer to the accidents which have followed its employment. They find only six authentic cases of the latter—four of pulmonary embolus and two of amaurosis, from thrombosis of respectively the ophthalmic vein and the central artery of the retina.

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal. Assisted by Thomas McCrae, M.D., Associate Professor of Medicine and Clinical Therapeutics in Johns Hopkins University, Baltimore. Volume I.—Evolution of Internal Medicine. Predisposition and Immunity. Diseases Caused by Physical, Chemical, and Organic Agents, by Vegetable Parasites, by Protozoa, by Animal Parasites, Nutrition, Constitutional Diseases. Philadelphia and New York: Lea Brothers & Co., 1907.

Although there are to be found those who are so thoroughly imbued with the modern spirit of ultraspecialism as to speak disparagingly of the encyclopedic systems of medicine or surgery, the real utility of such comprehensive works cannot justly be questioned, and the beneficent part played in the education of the profession at large by the great systems of the past more than justifies the attempt to duplicate the services they have rendered. It is with the greatest interest, therefore, that the progress of the present work will be watched both by those who are more nearly concerned in its pedagogical value by virtue of their connection with the schools, and by the great mass of practitioners who await its completion with the expectation of finding in it a guide, philosopher, and friend. The first volume to present itself before the medical public plays its part in a way that augurs well for the quality of those that are to follow. The scenario, so to speak, of the system has been skilfully devised so as to justify in almost dramatic fashion the right of the work to its title, for the subjects appearing in the inaugural instalment are well adapted to impress the reader with the ultramodernity of the subject matter. The chapters on the zoology of the protozoa, mosquitos, and venomous snakes should convey sufficient evidence of the far reaching ramifications of the medicine of to-day, while the perusal of the sections devoted to the autointoxications and diseases of metabolism reveals the complete ascendency of organic chemistry—formerly a humble handmaiden in medicine, but now rapidly becoming a most exacting mistress. It is almost a foregone conclusion that under the experienced surveillance of so popular an author as Professor Osler the system will take a form suitable to its function of providing the average medical reader with the data necessary for the understanding of the pathology of disease, though it is to be hoped that the senior editor's notorious therapeutic nihilism will not influence the contributors to neglect the subject of treatment in accordance with the most approved modern practice. It would be nothing short of a calamity if the tendency of this work should prove to be in the direction of therapeutic pessimism.

The introductory chapter is an essay on the evolution of internal medicine, written in Dr. Osler's customary agreeable style. We must take exception, however, to the undue prominence which he gives to laboratory work to the neglect of therapeutics. Of course we would not decry laboratory work, for it has even now become almost indispensable to the up-to-date physician, but its chief value, we might indeed say its sole value, is in the indications for treatment which it furnishes. Concerning it Osler says: "Asked the single most powerful weapon to-day in the hands of the profession against quackery of all sorts, I would answer: the little laboratory room attached to the office of the general practitioner." It does not seem to have occurred to the writer of this illuminating sentence that quacks have flourished because they cured the sick, or at least relieved some of their symptoms and so persuaded them for the time being that they were cured. The death-knell of quackery will come when the scientific physician also cures his patients and is not content to fold his hands and mumble the shibboleth of the therapeutic nihilist, "Time is a self-limited disease." Dr. J. George Adami contributes a very valuable chapter on inheritance and immunity, and the three following chapters on diseases caused by light, x rays, electricity, air, heat, and cold are by Dr. Alfred Goodman. Dr. David L. Edsall has written three chapters on the diseases caused by chemical agents; poisons, opium, and cocaine are discussed by Dr. Alexander Lambert; food poisons by Dr. Frederick G. Novy, and snake poisons by Dr. Hideyo Noguchi. Two chapters of practical importance are those on the autointoxications by Dr. V. C. Vaughan, and Dr. J. H. Wright contributes two chapters on diseases due to vegetable parasites other than bacteria. The succeeding chapters on the various protozoal diseases are by Drs. Charles F. Craig, J. W. W. Stephens, David Thomas, and Richard Strong, the section including a chapter on the zoology of the protozoa by Dr. Gary N. Calkins, and one on mosquitos by Dr. L. O. Howard. The important topic of the diseases caused by animal parasites is the work of Dr. Charles W. Stiles, and Drs. R. H. Chittenden and L. B. Mendel have jointly produced the one on metabolism in health and disease. Diabetes mellitus and insipidus, and gout are discussed by Dr. Thos. B. Futcher, obesity has been allotted to Dr. Jos. M. Anders, rickets to Dr. George F. Still, and the volume closes with an article on scurvy by Dr. Robert Hutchinson. The publishers have provided paper of good texture and surface, agreeable type, and substantial binding.

The Harvey Lectures. Delivered under the Auspices of the Harvey Society of New York. 1905-6. By Prof. Hans Meyer, Prof. Carl von Noorden, Prof. Frederick G. Novy, Dr. P. A. Levene, Prof. W. H. Park, Prof. Lewellys F. Barker, Prof. Frederic S. Lee, Prof. Lafayette B. Mendel, Prof. T. H. Morgan, Prof. Charles S. Minot, Prof. J. Clarence Webster, Prof. Theobald Smith, Prof. W. H. Howell. Philadelphia and London: J. B. Lippincott Company, 1906.

Since the first public lecture under the auspices of the Harvey Society was delivered in the fall of 1905 these discourses have become a highly appreciated feature of the medical life of the city. The idea of having men eminent in different fields of medicine and the closely allied sciences, sum up in the course of a single lecture the most important standpoints of their respective branches for the benefit of those of their colleagues whose general or special work lay in other directions, has shown itself as practical and valuable in execution as it was admirable in conception. In a brief notice it would be impossible to refer adequately to any one of these brilliant dissertations, and the effort to present a detailed conspectus of their import must be abandoned. Suffice it to say that the volume represents a collection of what are in effect essays on some of the most important problems and conceptions of modern medicine, whose authors are masters of their subjects and who have succeeded admirably in rendering some of their special knowledge available to the many. The Harvey Society deserves the thanks of the profession at large for having organized such a series and for having made it possible for all medical readers to share the profits of the undertaking.

A Text-Book of Pharmacology and Some Allied Sciences. Therapeutics, Materia Medica, Pharmacy, Prescription Writing, Toxicology, etc., together with Outlines for Laboratory Work, Solubility and Dose Tables, etc. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the Medical Department of Western Reserve University, Cleveland, Ohio. Second Edition, thoroughly revised and greatly enlarged. Philadelphia and London: W. B. Saunders Company, 1906.

The first edition of this well-known work has not only been thoroughly revised, but has been greatly enlarged, so that it has become a valuable reference book, while it still retains its value as a text-book for beginners in the study of medicine. Pharmacology proper has been treated in accordance with recent progress. The methods by which it is taught at the present time have necessitated elaboration of practical experimental methods. In this volume laboratory instruction and experimentation are made the basis of teaching, while the text itself is destined to play a distinctly subordinate part. As a result, the author has greatly extended his system of laboratory exercises, and outlines a very thorough course of instruction in which the student assumes, to a greater or less degree, the attitude of the original investigator. This series of experiments is in sufficient detail and is accompanied by such a comprehensive lot of explanatory notes as to assure a solid foundation of practical knowledge in this branch of medicine. The details of therapeutics are not considered.

Descriptions of technique and apparatus, as well as of chemicals, are sufficiently detailed for the needs of the beginner. Many additions which are of the utmost convenience are found, such as the dose table for animals, and the list of bibliographical references containing those most important for collateral reading, arranged both as regards subject matter and alphabetically.

The schematic outline of lessons emphasizing the most important drugs is of the greatest value. The Materia Medica has been revised according to the latest (the eighth) edition of the United States Pharmacopœia, as have the chapters on "Pharmacy" and "Assaying." Toxicology is treated in a general manner in one short chapter, the details being given under the heading of each drug. Complete tables for molecular weights, chemical formulæ, solubility, and dosage are given. The author's aim has been to present a text-book intended for both study and reference, and a thorough understanding of pharmacology is sought as a basis for the future teaching of clinical therapeutics.

Society Reports.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION.

Tenth Annual Meeting, Held at Atlantic City, N. J., June 3 and 4, 1907.

Special Report to the MEDICAL RECORD.

Monday, June 3—First Day.

THE PRESIDENT, DR. H. W. BETTMANN OF CINCINNATI, IN THE CHAIR.

The Evolution of Gastroenterology.—Dr. BETTMANN delivered this opening address (see page 169).

Incomplete Forms of Exophthalmic Goiter in Relation to Gastrointestinal Disorders.—Dr. J. P. SAWYER of Cleveland, in this paper, said that gastrointestinal processes were intimately associated with vasomotor conditions. These in turn were markedly affected by the hyperthyroidism which at present was recognized in exophthalmic goiter. This hyperthyroidism existed in many cases which did not show the "cardinal signs." Routine examination of all cases for diagnostic recognition of disturbed vasomotor function due to this cause might show its existence in patients not having the symptoms of goiter of this type developed to such a degree that attention would be attracted to them in the course of an examination made without having that point in mind. It was thought to show, at least in the writer's vicinity, the greater prevalence of the disorder than was commonly noted; also, that therapeutic procedures based on special examination of stomach contents and feces might be considerably assisted by measures adopted to meet the recognized development of exophthalmic goiter. Among these measures were climate, hydrotherapy, electricity, and various drugs, including the antithyroidin of Moebius and thyroidectin. Special note was made of the effects of atmospheric conditions, particularly of relative humidity. Note was also made of certain blood findings.

Dr. A. L. BENEDICT of Buffalo said the thyroid gland was very unstable in its functions, and especially in young girls we found all kinds of disturbances, some with goiter, some without, and in all these cases the personal equation of the examiner must not be lost sight of. The speaker referred to the comparative frequency of thyroid disturbance, not only in gastroenterology but also in general practice.

Dr. J. A. LIGHTY of Pittsburg said he had used thyroidectin in a number of cases, with somewhat doubtful results. Those cases in which it apparently had most effect were young girls at about the age of beginning menstruation, with enlarged thyroids and evidences of hyperthyroidism. Many of these, doubtless, would have done equally well without the thyroidectin.

Dr. J. KAUFMANN of New York City referred to the profuse diarrhea which was at times the only pronounced symptom of an incomplete exophthalmic goiter, and said that instead of being due to vasomotor disturbance, as suggested by Dr. Sawyer, it was possible that it was the result of the toxins which were such a prominent factor of exophthalmic goiter, and which were perhaps excreted by the intestines. Based upon that idea, he had employed colon irrigations in these cases with good results.

Dr. SAWYER, in closing, said his experience with antithyroidin and thyroidectin had convinced him that their effect was positive, but less effective when used alone than when combined with physical measures, and in the treatment of such a case he would rather do without drugs than without the latter. The aim of the treatment should be the vasomotor control. With reference to the diarrhea, he regarded it largely as a vasomotor phenomenon, incidental to which was the production of these toxins in the body.

A New Blood Test.—Dr. MAX EINHORN of New York City made some remarks on this subject and demonstrated the method. (See Vol. 71, p. 937.)

Cases of True Intestinal Dyspepsia.—Dr. MAX EINHORN of New York read this paper. He stated that by the expression "intestinal dyspepsia" we understood conditions in which the digestive function of the intestinal tract was disturbed. It was advisable to distinguish two large groups of intestinal disturbances: (1) Those which concerned all three classes of food substances, namely, albuminates, carbohydrates, and fats—dyspepsia intestinalis universalis. (2) Those affecting only certain classes of foodstuffs—dyspepsia intestinalis partialis. This second group might be further subdivided according to the varieties of foods, the digestion of which was disturbed. These functional disturbances of the intestinal digestion might exist without appreciable anatomical change of the digestive apparatus, or they might be associated with lesions of that tract. The idea of testing the functions of the intestine in a similar manner as those of the stomach prevailed among clinicians for a long time, but its execution was attended with great difficulties. By means of the bead test, which Dr. Einhorn demonstrated at a meeting of the Association a year ago, an approximate estimate of the work of the intestine became possible. The method was easy to apply and the results were sharply defined. By a large number of examinations, the results of which would soon be published, he had become convinced that the digestive functions of the bowels might be well judged by means of this test, and he saw no reason why it should not be utilized in the study of diseases of the bowel. In using the bead test, if we found a substance in the beads undigested, it should not be taken for granted that no digestion whatsoever of such substance might occur in the bowel. That would be wrong, for the same foodstuffs in liquid form might still be well digested. We could only conclude from this test that there was a considerable diminution of the digestive power for those substances.

Dr. H. W. BETTMANN of Cincinnati said he had used these beads in some forty instances, and the conclusions he had derived from them were very similar to those of Dr. Einhorn. In a certain number of cases where he had employed them, only the potato substance was passed unchanged, indicating a carbohydrate intestinal indigestion. Because of the simplicity of the bead test suggested by Dr. Einhorn, it would probably eventually have a wide application.

The discussion was continued by Drs. A. L. Benedict of Buffalo and J. C. Johnson of Atlanta, and was closed by Dr. Einhorn.

Gastric Disturbances Caused by Hernia.—Dr. MAX BALLIN of Detroit, Mich., read this paper. He stated that any and every kind of hernia caused more or less gastric or intestinal trouble. The common large inguinal herniæ, if reducible, were responsible for flatulence, constipation, pain in the back and groin; if adherent, all these symptoms became more pronounced. Omental adhesions in a hernial sac could make a patient so miserable by loss of appetite and indigestion that serious loss of weight resulted, and there were cases of supposed malignant disease where afterward radical operation of the hernia relieved all the intestinal disorders. It should be borne in mind that if in a hernia any adhesions existed between the hernial sac and its contents, a truss would usually aggravate all the symptoms by pressure on the unreduced parts. Generally speaking, in adherent hernia, a truss was contraindicated. Wherever located, postoperative ruptures were most troublesome to the patient, but Dr. Ballin said that the main object of his paper was to call attention to intestinal disorders caused by small herniæ that were not easily discovered. Of these, he considered in detail four kinds, namely: (1) The so-called incomplete inguinal hernia; (2) the small femoral hernia; (3) umbilical hernia; (4) epigastric hernia, in or lateral to the linea alba, and peritoneal

lipoma. Under the latter heading he included hernia protruding in or close to the linea alba between the xiphoid process and the umbilicus. These hernia occurred very rarely below the umbilicus and were apparently due to congenital or acquired defects in the linea alba, although some claimed that loss of fat was an important factor in their etiology. Others claimed that just the opposite, adiposity, predisposed to such weakness, the fat replacing to some extent the resistant fibrous tissue. Epigastric hernia and lipoma might exist for many years without causing any symptoms. Then, suddenly, symptoms might arise, the chief one being pain. Usually these epigastric herniæ, on account of their size and the peculiar lipoma formation and adhesions, were not benefited by trusses and bandages, and a surgical operation was indicated. In conclusion, Dr. Ballin said that many cases of obscure abdominal trouble, marked by colic and vomiting, could be caused by hernia, and that it was very important to look in all such cases for small ruptures. These could be of any of the known varieties, but of special importance in producing gastric symptoms were the small epigastric herniæ and the peritoneal lipomas.

Dr. Max Einhorn of New York City said that according to his experience these herniæ, especially those of the epigastric variety, were very frequent indeed. He probably saw three or four every week, and he did not think that one half or even one-third gave rise to any symptoms. In the majority of these cases he ignored the hernia entirely, and considered it a mistake, sometimes, to even call the patient's attention to its existence.

Dr. J. A. Lichty of Pittsburg said he had seen only two cases of epigastric hernia, and in those two instances the patients did not complain of any symptoms referable to the hernia.

Dr. J. C. Johnson of Atlanta said that in a case of epigastric hernia which he saw recently the chief symptom was periodical attacks of pain. This was the only case of epigastric hernia he could recall among several thousand examinations.

Dr. G. W. McCaskey of Fort Wayne said he was greatly astonished at the frequency with which Dr. Einhorn met with cases of epigastric hernia.

Dr. Charles D. Aaron of Detroit said a case of epigastric hernia which he reported ten years ago was that of a man who had been an invalid practically for fifteen years because of an epigastric hernia about the size of a marble, with an opening into the linea alba scarcely larger than the point of a pencil. He was completely relieved by an operation. These cases were not the kind where the opening was large enough to admit even the finger tip, and replacement was impossible.

Dr. J. Kaufmann of New York City thought there were cases of epigastric hernia which gave rise to serious trouble, and which could not be cured by putting the patients to bed. In any case that was giving rise to symptoms he would certainly advise an operation.

The discussion was continued by Drs. J. Fuhs of Brooklyn and G. W. McCaskey of Fort Wayne, and was then closed by Dr. Ballin.

The Gases of the Intestine, with Demonstration of an Original Apparatus for the Collection and Analysis of Stomach and Intestinal Gases.—By Dr. S. Basch of New York. The author stated that the study of the intestinal gases possessed interest mainly as a physiological and clinical problem, but the important role which they played in a number of abnormal conditions clothed them, especially, with more than theoretical interest. As was well known, the intestinal tract, after the very first ingestion of food, was never entirely free from gases. Throughout life there was a constant cycle of production and elimination. Under healthy conditions this balance of interchange proceeded without discomfort or marked disturbance, but if for any cause there was a derangement of its equilibrium, flatulence, borborygmi, meteorism, tympanites, and other conditions, varying in their significance from the merest discomfort to the severest gravity, might result. It was formerly held that the greater portion of the intestinal gases passed off per anum. This view was now known to have been erroneous, and it was conceded that in the healthy individual at least as much disappeared through absorption into the blood and expulsion by the respiratory tract. Under a mixed diet, the prevailing gas formed in the intestine was CO_2. The amount, naturally, was larger under a heavy than under a light form of diet. CO_2 being a product of fermentation, was most abundantly evolved in the earlier stages of both intestinal and fecal fermentation, while the hydrocarbon series, being the result of putrefactive decomposition, developed, in general, later. H_2S also increased as the fermentative changes were replaced by the putrefactive: It could not be quantitatively determined in these gas mixtures, but its presence was demonstrated by exposing strips of filter paper soaked with lead acetate solution to the gas.

Dr. S. J. Meltzer of New York City said that in view of the present tendency to ascribe a lot of trouble to the faulty digestion of proteids, it would be interesting to learn in what proportion the intestinal gases varied when the patient was on a proteid or carbohydrate diet.

Dr. S. Basch of New York City, in closing, said it had been shown that the carbohydrates were largely responsible for the production of carbonic acid gas, while the proteids were responsible for the production of marsh gas, ammonia, and putrefactive gases.

Lack of Gastric Mucus and Its Relation to Hyperacidity and to Gastric Ulcer.—Dr. J. Kaufmann of New York read this paper, in which he emphasized the fact that a lack of gastric mucus should be considered an unfavorable symptom, and that a diminished secretion of mucus and insufficient mucus covering deprived the gastric mucosa of its protection against all harmful influences, and particularly against the digestive activity of its own secretion. The routine examinations of stomach contents had heretofore been principally directed toward the study of the gastric juice and its disturbed secretion. A more careful study of the protective secretion of mucus and its disturbances should be systematically made. We were all familiar with the increase of mucus in certain gastric conditions, but too little attention had been paid so far to the decrease and the lack of secretion of gastric mucus. Dr. Kaufmann said his observations during recent years had convinced him that decrease and lack of secretion of gastric mucus was of frequent occurrence, and played an important rôle in the pathology of diseases of the stomach.

Dr. Max Einhorn of New York City said there were conditions under which there was certainly a diminished secretion of gastric mucus, and this was very frequently met with in achylia gastrica. In fact, it was very rare to find any mucus present in achylia gastrica. In that affection there was an absence of everything; there was no mucus nor gastric juice, and the food passed through the stomach unchanged.

Dr. S. J. Meltzer of New York City said the gastric mucus acted mechanically as a protective, in which function it was perhaps assisted by some chemical action. Foster had recently shown that mucus was capable of combining with hydrochloric acid.

Dr. J. C. Johnson of Atlanta said that clinically he had found that patients who complained of certain definite symptoms, accompanied by excessive hydrochloric acid and mucus, would be relieved of their symptoms with the removal of the excessive mucus. The speaker expressed the opinion that the question as to the possible protective value of the gastric mucus was still *sub judice*.

The discussion was continued by Drs. F. B. Turck of Chicago and G. W. McCaskey of Fort Wayne, and was closed by Dr. Kaufmann.

Demonstration of a Method of Estimating Percentage of Proteids, Fats and Carbohydrates in Food.—

By Prof. Irving Fisher of New Haven. In connection with this demonstration, the speaker stated that there had been previously two methods in use for estimating the proteids, fats, and carbohydrates in foods, which might be distinguished as the method of weight per cent. and the method of calories per ounce. By the first method, the weight of each food is multiplied by the percentage of weight of proteid, fat, or carbohydrate which it contains. The products give the weights of the three elements. The total calories were then found by multiplying these weights by the food value of proteids, fats, and carbohydrates per gram, and adding the results. This method was too laborious to be of much practical service to physicians. In the second method, a table was prepared expressing in calories the proteids, fats, and carbohydrates in an ounce of each given food. This method had the advantage that the proteids, fats, and carbohydrates and total fuel value were all measured in the same units, namely, calories. A simpler method than either of the preceding was to form a table giving the per cent. of total calories in the form of proteid, fat, and carbohydrate. This method had the advantage of being easily visualized by graphic representation, and of lending itself to quick computation by means of a mechanical diet indicator.

Dr. A. L. Benedict of Buffalo said Professor Fisher's demonstration had given a very clear illustration of what small quantities of food the average adult really required, and how much we ate in excess of that amount. To verify that fact, one had only to observe the average diner at his hotel table, where even in the bread and butter that he munched before his meal, and the olives he consumed between the courses, and the fruit and nuts and ice cream he took for desert, he had eaten more than his daily ration of calories.

Study of Urinary Acidity.—Dr. A. L. Benedict of Buffalo read a paper on this subject, in which he reported in detail his clinical deductions from a study of the urinary acidity. He was unable to verify the observation that there was an alkaline and an acid tide in the urine in the course of digestion, nor was he able to verify the observation in patients that rheumatism was associated with superacidity. In acute articular rheumatism, the acidity was not as high as we should expect. In numerous observations of the urine he had rarely found it alkaline, nor had he found the decrease in acid units after meals, as we should expect.

An Unusual Case of Ulcer of the Stomach.—By Drs. J. M. T. Finney and J. Friedenwald of Baltimore. In this case the clinical diagnosis of gastric ulcer was made, which was confirmed by the gross findings in the laboratory and subsequently by the microscope. At the operation a markedly indurated ulcer of the stomach was found, with enlarged glands in the mesentery. The case was thereupon regarded as one of cancer, and a gastrectomy was done, with the removal of a large portion of the stomach. The case was interesting from the fact that, notwithstanding the existence of a marked indurated ulcer in the stomach, the sympoms which were presented were by no means distinctive of that condition, and even upon direct inspection it could not be differentiated from carcinoma. The speaker emphasized the fact that all indurated ulcerations of doubtful character situated in the stomach should be regarded as carcinomatous, inasmuch as it is impossible in many of these cases to differentiate ulcers from carcinoma by simple inspection, and again, because in a certain number of these cases a carcinoma was apt to develop upon the indurated border of an old ulcer.

Dr. J. A. Lichty of Pittsburg said the case reported in this paper was very interesting on account of the fact that some enlarged glands were found in the mesentery. While he was aware of the fact that surgeons were inclined to consider these small enlarged glands in the mesentery as almost positive proof of a malignant condition, and a positive indication for a radical operation in cases which would formerly have been regarded as benign, he personally did not understand why these glandular enlargements should not be the result of an infection in the prescence of a good-sized gastric ulcer, and he was not convinced that they were necessarily an indication of a malignant condition.

Dr. J. Kaufmann of New York City said he had seen cases of gastric ulcer which caused enlargement and hardening of glands in the mesentery, and where a gastroenterostomy was performed and the future development of the case proved that the ulcer was of benign character.

Dr. G. W. McCaskey of Fort Wayne expressed the belief that every indurated ulcer of the stomach, after an exploration, should, if possible, be freely and liberally excised. The frequency with which cancer developed from an ulcer should not be lost sight of.

The Factors Concerned in the Healing of Peptic Ulcer.—By Dr. F. B. Turck of Chicago. The author premised his paper upon a reassertion of his former contention, based upon experiments on a large number of animals, that true peptic ulcer had for its most important factor certain alterations in the alimentary canal, with subsequent changes in the blood, characterized by diminution of the normal protective bodies, and that these etiological factors were general in character, and not local. The progressive microscopic picture revealed a process of breaking down—the cells themselves jagged and irregular in form, without round-cell infiltration; and a disintegrating and diminishing connective tissue structure. When the process of repair was instituted those cells capable of rehabilitation reasserted their physiological activity; those that had been injured beyond recall were carried away by a process of leucocytosis; new material for the formation of connective tissue was introduced, which progressively drew the edges of the ulcer together, acting in constricting bands. Hence the scar that remained. Similar factors that were active in the normal defense of the tissues were also concerned in the process of reconstruction. Processes of repair were impossible without restoration of the normal defenses of the blood.

Dr. Turck's paper was discussed by Drs. S. J. Meltzer of New York City and J. C. Hemmeter of Baltimore.

Demonstration of a Modification of the Boas Test for Blood in the Feces.—By Dr. A. L. Benedict of Buffalo. Gasoline was first added to the feces to extract the fats. Then old, ozenized oil of turpentine was added, and a fresh solution of guaiac. The test was just as delicate as the ordinary Boas' test, and a great deal simpler.

The Effect of Destruction of the Salivary Glands on the Gastric Secretion; a Possible Internal Secretion of the Salivary Glands.—By Dr. J. C. Hemmeter of Baltimore. The speaker stated that his attention was first attracted to this subject by the case of a woman who was suffering from septic parotitis which involved also the submaxillary and sublingual glands. Repeated examinations of the stomach contents in this case revealed an entire absence of hydrochloric acid and enzymes, with no proteolytic and no milk-curdling effect. Subsequently, the septic parotitis improved, and this was followed in turn by a restoration of the normal gastric juice. This case, Dr. Hemmeter said, brought to his mind the two cases of salivary gland disease and known as Mickulicz disease, which consisted of a bilateral induration of all the human salivary glands, resembling adenoma, and in which a chemical examination of the stomach contents showed this same deficit of hydrochloric acid and other gastric secretions. Influenced by a knowledge of these cases, the speaker said he undertook a series of experiments on three dogs with experimental accessory stomachs (Pawlow). After determining the proteolytic and milk-curdling power and the amount of hydrochloric acid in the secretion from the accessory stomachs of these animals, so as to learn what their gastric juice would accomplish under normal conditions, their salivary glands were removed. It was found comparatively easy to extirpate the submaxillary and sub-

lingual glands, but extirpation of the parotid was accomplished with great difficulty on account of the distance it extended backward underneath the skull. Still, even if a portion of the gland was left behind, its usefulness would be destroyed, providing its nerve and vascular connections were severed. It was found that extirpation of the submaxillary and sublingual glands had some deleterious effect on the gastric secretion, but after removal of the parotid the quantity of hydrochloric acid and the proteolytic power of the gastric juice gradually became less and less, until four or five days after the removal of the last portion of the salivary glands, the canine gastric juice no longer gave any evidence of hydrochloric acid, milk coagulating, or of proteolytic power, and the accessory pouch of the stomach secreted nothing but a serous liquid containing a trace of mucin. Upon removal of the accessory stomach there were no evidences of inflammation, and to all appearances the cells of the peptic ducts were normal. A second series of experiments was then undertaken. An esophageal fistula was produced upon a number of normal dogs, so that they could chew and swallow their food with apparent enjoyment. This food, however, was not permitted to enter the stomach, but was collected at the esophageal fistula and fed to other dogs who had been previously experimented upon by having their salivary glands removed, with consequent loss of gastric secretion. The introduction of this food into the stomach of these animals failed to excite any secretion of gastric juice. This experiment proved that the failure of gastric secretion after extirpation of the salivary glands was not due to absence of canine saliva, nor to lack of mastication. In order to corroborate these findings still further, the salivary glands of a number of healthy dogs that had been recently killed in the course of various experiments were obtained and ground up with quartz, and after a rather elaborate process a salivary extract was obtained free from proteid in the shape of a thick, opalescent, gelatinous liquid, which was injected into the superficial veins or peritoneal cavity of the dogs that had lost their power of normal gastric secretion after extirpation of their salivary glands. These injections were followed within one-half to two hours by such a resumption of the secretion of hydrochloric acid and ferments that the presence of gastric juice could be determined by the ordinary methods. This restoration was only temporary, however, lasting eight or ten hours, the period depending largely on the amount of the extract that was injected. It was also apparent that the injection of this salivary extract had a marked vasomotor influence, and the speaker said that in his efforts to produce a prolonged secretion of hydrochloric acid he sometimes injected too much, producing a surprising increase of blood pressure. When fed by the mouth, the extract had no effect on the secretion of hydrochloric acid. On the other hand, when injected, it was effective even after all the nerve supply of the stomach had been cut off. Dr. Hemmeter said he had not been able to isolate from this extract of the salivary glands the active principle, a substance like that obtained from the suprarenal gland. The speaker also referred to some experiments upon normal human subjects who were one day given a test meal which they were permitted to chew and swallow naturally, and the following day the identical test meal was poured into the stomach through a test tube. A chemical analysis of the gastric juice after the second method of feeding showed a considerable deficit of hydrochloric acid and enzymes. He also referred to Pawlow's psychic secretion. If a hungry dog even saw a piece of meat, it had the effect of exciting an immediate flow of gastric juice—the so-called psychic secretion (Pawlow) or *Appetitsaft*, which was brought about by the intermediation of nerves.

Dr. S. J. Meltzer of New York City said if Dr. Hemmeter's experiments could be verified, a new and interesting condition confronted us. The discovery of Bayliss and Starling established the fact that the secretion of the stomach produced in the duodenum a substance which they called secretin, and which stimulated the secretion of the pancreas. Now, Dr. Hemmeter found that a secretion of the salivary glands was essential to produce a secretion from the stomach. The substance Dr. Hemmeter found in the extract of the salivary glands apparently belonged to the group of bodies which Starling designated "hormones."

The discussion was continued by Dr. F. B. Turck of Chicago and Dr. J. C. Johnson of Atlanta, and was closed by Dr. Hemmeter.

Gastric Ulcer Complicated with the Symptoms of Cholelithiasis.—Dr. J. A. Lichty of Pittsburg read this paper, in which he offered the following conclusions: (1) The diagnosis of uncomplicated gastric ulcer should be made without difficulty. (2) When complications exist it may be impossible to form an exact opinion of the pathological condition in this region of the abdominal cavity before a laparotomy is done. (3) A careful and methodical anamnesis in these cases is of the utmost importance.

Dr. J. P. Sawyer of Cleveland said that for a number of years he had been following up a class of cases in which the symptoms at first were those of a catarrhal gastritis, and then, in the course of a few years, if not cured, they developed an infection of the gall-bladder or appendix, as shown at subsequent operation.

Therapeutics of Mineral Waters of the French Lick Type in Gastrointestinal Disorders.—Dr. G. D. Kahlo of Indianapolis read this paper, which contained his observations upon the therapeutic indications of alkaline-saline waters based upon a year's clinical experience at French Lick Springs, and the results of certain experiments made upon healthy subjects, together with a brief description of the water, and a general outline of the treatment. He had found the waters at the French Lick Springs especially valuable in gastric diseases, particularly after the abuse of alcohol, and equally favorable in hepatic disorders and hyperchlorhydria.

Dr. S. Basch of New York City said we had in the past made the mistake of sending too many of our patients abroad when we had so many excellent springs in our own country which compared very favorably with those in Europe. Unfortunately, at most of our springs there was a lack of proper attention to detail, not only in regard to the analysis of the waters, but also in regard to the general supervision of the springs. In Europe, the physicians who practised at such resorts were usually trained in physiology and body metabolism, while in this country that factor was almost entirely neglected. Furthermore, the patients were not kept under proper control. The hotels were usually on the American plan, and the patient did not attempt to restrict his appetite, and often drank the waters in unreasonable amounts. He thought the Association should interest itself in this important subject, and by arousing the proper interest, actual results could be obtained.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held April 16, 1907.

Dr. Glentworth R. Butler in the Chair.

The Comparative Value of Clinical and Laboratory Diagnosis. (a) On the Clinical Side.—Dr. Edward E. Cornwall of Brooklyn read this paper. He said that it was perfectly obvious that diagnosis was an essential part of the practice of medicine, indeed was fundamental. It had been defined as active judgment applied to the problems of disease. It attained its object with the aid of two methods. The first of these, the clinical method, was summed up in bedside observation. It called into play the four senses of the physician—sight, touch, hearing, smell. It included not only examination of the patient, but also inspection of his discharges. The specula and various

other clinical contrivances were of valuable aid. This method reached its conclusion by the process of deduction. It was a slow and deliberate process. In striking contrast to this was the laboratory method, which was quick, precise, and scientific. It was noticeable that the younger physicians of to-day, notably the recent graduates, relied unduly on pathological reports and were less observant than the physicians of a generation ago. The recent graduate still had the glare of the laboratory in his eyes. For the majority of diseases, however, there was no laboratory aid. Moreover, in many diseases it was important and frequently necessary to make a clinical diagnosis before laboratory diagnosis could be called into requisition. In tuberculosis an early diagnosis was of the utmost importance; in the largest proportion of cases it was possible to make an early diagnosis by the clinical method alone. He who waited for the discovery of tubercle bacilli in the sputum frequently permitted the disease to advance beyond the stage of incipiency and become less amenable to cure. The absence of the Widal reaction in typhoid fever, in the face of undoubted clinical symptoms, had very little value. In diphtheria undue reliance was not to be given to the presence or absence of the Klebs-Löffler bacilli in the throat. As Sahli observed, the physician who relied entirely on the cultural report was frequently deceived. There were cases of diphtheria during the course of which ordinary cultures did not reveal the presence of the characteristic bacilli. On the other hand, in many cases of follicular tonsilitis the bacilli were obtained from the throat. In these cases the bacilli played the rôle of passive "bystanders." In the early stages of chronic nephritis, when treatment was peculiarly available, it was possible to make a diagnosis, in some cases, even without the ordinary urinary evidences of the disease. A case presenting overaction of the heart, accentuation of the second pulmonic sound, and general increased tension in the arteries, without any other obvious cause, might be regarded, with just suspicion, as a case of nephritis, in the absence of the usual urinary changes. Such would subsequently reveal themselves. A case illustrating this point was cited. It was that of a lady thirty-five years of age, in whom occurred severe headaches, particularly coincident with the monthly flow, and in whom physical examination revealed a marked accentuation of the second pulmonic sound, with a blood pressure of 180 millimeters. Repeated examinations of the urine were negative. Finally a little albumin was discovered. In the case of malignant tumors laboratory reports were valuable, but they could not be trusted implicitly. Cases in which the pathologist made a diagnosis of benign tumor sometimes turned out to be malignant, and likewise cases which were characterized as malignant sometimes ran a benign course.

The Comparative Value of Clinical and Laboratory Diagnosis. (b) On the Laboratory Side.—Dr. GEORGE LAMB BUIST of Brooklyn read this paper. He declared that the clinical methods formed the basis of the art of diagnosis. He guarded against overestimating the value of laboratory diagnosis, and placed it where it truly belonged, as a valuable aid to the clinical diagnosis. The laboratory diagnosis furnished one of the symptoms in the clinical picture. The laboratory methods had their limitations. A reactionary attitude against them had been lately discernible. Too much had been expected of the pathologist. Pathological findings had to be considered in the light of the clinical symptoms. It was suggested that in many instances the pathologist knew too little about the facts of the case. It was desirable that the pathologist should more frequently visit the bed of the clinician and that the clinician should more frequently visit the bench of the pathologist. The speaker urged the importance of having in all hospitals a paid resident pathologist. The vocation of the professional pathologist was to be encouraged by more frequent patronage by the general practitioner. It was important that the latter should know how to prepare specimens properly for the pathologist. The addition of a few grains of thymol to a specimen of urine, preserved this indefinitely, and prevented disintegration of the casts. Sputum over twenty-four hours old was not good for examination, bloody sputum was markedly hemolytic. There was a positive value in the laboratory findings in the leukemias and anemias. The value of leucocytosis in diagnosis and prognosis was alluded to.

The Diagnosis and Treatment of Cardio-Vascular Renal Disease.—Dr. JAMES TYSON of Philadelphia, Pa., read this paper. He said that the need of the term was evident; the condition was of frequent occurrence, and the difficulties in recognizing its invasion and in its treatment were considerable. Bright was the first to recognize this condition. In a certain number of cases there was hypertrophy of the heart with thickening and hardening of the arteries. This arteriosclerosis occurred in two forms—a diffuse and a localized variety. To the diffuse variety the term angiosclerosis was applied. A satisfactory explanation of the cause of this condition was not yet vouchsafed. Bright attributed the thickening of the arteries and the hypertrophy of the heart to the altered quality of the blood due to the retention of toxic substances from failure of renal elimination. Sir George Johnson maintained that the thickening of the arteries was mainly muscular, and that this was the result of an attempt on the part of the arterioles to prevent impure blood from reaching the tissues, and owing to the increased peripheral resistance produced by the muscular spasm the general blood pressure was raised and the heart hypertrophied. In 1877 Ewald suggested increased viscosity of the blood as the cause of arteriosclerosis. As similarly maintained later by Clifford Allbut, an increased viscosity of the blood resulting from vicious habits of diet and exercise, caused an increased difficulty in the capillary circulation, an increased blood pressure, and vascular degenerative processes due to this overstrain. Thoma asserted that whenever from any cause slowing of the blood current took place the lumen of the vessel became narrowed so as to insure the maintenance of the normal rate of blood-flow. The cause of the initial slowing was attributed either to a primary weakening of the media and consequent dilatation of the vessels, or to an increased resistance in the peripheral vessels. The recent work of Pierce and Stanton on experimental arteriosclerosis showed that the hypertrophied changes in the media were really a reparative process to compensate for the weakening of the media due to the ingestion of poisons. The speaker referred to the arteriosclerosis associated with diabetes mellitus, syphilis, gout, overfeeding, alcoholism, and overexertion associated with alcoholism. Arteriosclerosis was almost invariably associated with hypertrophy of the left ventricle. The latter was an effort to compensate for the increased tension in the arteries. Nervous strain was frequently a cause of high tension, and therefore of arteriosclerosis. Stengel had recently alluded to the association of arteriosclerosis with neurasthenia and shock. Hereditary influence also played an important rôle. O. T. Osborne had attributed high tension in the arteries to the effect of the internal secretions—particularly those of the thyroid and suprarenal glands. In a series of 156 cases of nephritis N. B. Potter found hypertrophy of the left ventricle in 30 per cent., and arteriosclerosis in 22 per cent. In cardiovascular renal disease, which was the name given by the speaker to the peculiar association of nephritis, arterial thickening, and hypertrophy of the left ventricle, it was noted that cardiac murmurs were conspicuous by their absence; their presence had to be accounted for by some other cause than renal disease. In 1872 Gull and Sutton referred to the frequent association of renal and arterial diseases, and maintained that the lesions in the kidney were a part of the general fibrous overgrowth—that the morbid condition in the arterioles and capillaries was the primary and essential condition of Bright's disease. The speaker believed that this was the case in old persons. But he still believed that there were many cases of arteriosclerosis

secondary to renal involvement. Albumin and casts appeared earlier in the cases of primary renal disease. In general arteriosclerosis there frequently occurred transitory symptoms of vertigo, tinnitus aurium, amaurosis, etc. Where renal disease was associated more serious and permanent conditions were found. The renal disease was either primary or it was a part of general arteriosclerosis. In both cases the heart was hypertrophied. If a murmur was present it was probably a primary disease of the heart. The prognosis was favorable if the heart disease was primary. The treatment of cardiovascular renal disease included a restriction of diet and a prohibition of overwork. Drugs were to be given to counteract the contraction of the arteries. The iodides were useful for this purpose. The speaker referred to iodide of soda given in ten-grain doses twice a day and kept up continuously. Digitalis was not good. If the heart action was too powerful, tincture of aconite was useful. To produce dilatation of the arteries nitroglycerin in doses of 1/100 to 1/50 of a grain was good. In some cases rest in bed and a mild diet was necessary. In the primary heart cases liquids were to be restricted; if the patient was waterlogged and in danger of uremia he had to be purged and sweated.

The patient was to get two ounces of milk every two hours. With this treatment serious effusions frequently disappeared. In 1836 Bright advised incision of the legs. In chronic parenchymatous nephritis rest and diet were the same. Diuretics were useless. For its associated cardiac condition, digitalis and strophanthus were to be given in full doses of ten to fifteen minims of the tincture. Sparteine was valuable in doses of three-quarters to one grain every three hours. Citrates, tartrates, and acetates were indicated and were well borne. Purgatives were useful as an internal trocar. A useful drug was apocynum; apocynine was less irritating. The pill of digitalis, squill, and calomel was not to be forgotten.

THE WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held April 8, 1907.

DR. LEON LOURIA IN THE CHAIR.

A Case of Cystic Degeneration of the Chorion.—Dr. ALEXANDER SPINGARN detailed the history of this case and presented the specimen. His excuse for drawing attention to this case depended not only on the extreme rarity of the condition, but also on the fact that the clinical history of his particular case presented facts of peculiar interest. The patient was a well-developed primipara, 22 years of age, married five months, and in the ninth week of gestation. The family history had been good, and, apart from the usual diseases of infancy and childhood, she had always enjoyed exceptionally good health. Almost from the very beginning of pregnancy she had experienced morning sickness and vomiting, and these had continued and become rather excessive until three days before delivery. Beginning with the third week of gestation, there had been a steady, slight, bloody discharge from the vagina, described by the patient as a spotting of the napkin with a liquid having the appearance of prune-juice. This had continued for five weeks, at the end of which time there had occurred profuse metrorrhagia, accompanied with sacral and abdominal pain. At this time, when first seen, she had shown no ill effects of her previous losses of blood. Her skin and mucous membranes had been of good color, and her pulse and temperature had been normal. Abdominal palpation revealed a uterus whose height was two-fingers' breadth above the symphysis. On vaginal examination the cervix was contracted, the uterus was slightly anteflexed, rounded and hard, fluctuation was absent, and no masses were felt at either side of or behind the uterus. The diagnosis of threatened abortion having been made, the patient was kept in bed, and the vagina was firmly packed with iodoform gauze. This was removed two days later. The bleeding and pains had ceased. The external os now admitted the finger-tip. Soon after the gauze had been removed vaginal bleeding again set in, and was accompanied with the discharge of minute, pinkish shreds. After a restless night, menorrhagia became severe and the sacralgia more marked. The patient had thus been bleeding, more or less profusely, for five days, after having merely stained the napkin for a period of five weeks. At 1 o'clock in the afternoon, after a severe attack of abdominal pain, she had suddenly become faint. She recovered in a few moments, and one hour later had a second and severe attack of syncope. Her vision had become dim and her limbs cold and numb. When the speaker arrived, one hour later, he found the patient in a condition of semiconsciousness, with pale skin and mucous membranes, and a pulse rapid and weak. There was no external bleeding sufficient to account for the profound shock. The uterus had enlarged quite perceptibly since the previous day, and had the size of a four months' pregnancy. With the aid of vigorous hypodermatic stimulation, the application of external warmth, and the Trendelenburg position, the patient gradually rallied. Morphine was administered. The symptoms had evidently been those of internal bleeding, and had been strongly suggestive of an ectopic pregnancy. But there was no tumor to be felt, nor was there any marked degree of abdominal tenderness. That evening the patient had a severe chill, which was followed by a rise of temperature to 104.4°. Early the following morning the latter had gone down to 98°, but a severe rigor occurred, after which the temperature rose rapidly to 103.4°. The same morning severe labor pains set in, and vaginal examination revealed a cervix sufficiently dilated to admit two fingers. A soft, slimy mass was felt in the canal of the cervix. When removed this had the appearance of boiled tapioca, revealing the characteristic vesicles of cystic degeneration of the chorion. The speaker determined to deliver the patient at once, and with his left hand pressing on the fundus uteri, and with two fingers of his right hand in the anterior fornix of the vagina pressing upward in the body of the uterus, he was able to squeeze the uterus between his two hands, and succeeded in delivering the entire ovum. This was about the size of a large orange, and was completely covered with the characteristic, pinkish, grape-like vesicles, suspended on pedicles. In the center of the mass was the blighted ovum, surrounded by its amnion, and having the size of a hen's egg. The delivery of the ovum was accompanied with the passage of a number of blood-clots and a moderate amount of bleeding. The body of the uterus remained hard and contracted, and no appreciable hemorrhage subsequently occurred. The temperature fell to normal the same day. The uterus rapidly underwent involution and the patient made a good convalescence, with no rise of temperature nor excessive bleeding.

Bronchoscopy, with a Demonstration of the Instruments Used and Their Application.—Dr. EMIL MAYER of the Borough of Manhattan read a paper with the above title. In connection with the paper he presented a half-dozen specimens of various foreign bodies that had been removed from bronchi of patients in the City of New York within the past year. These consisted of glass-headed pins, pieces of bone, a piece of copper, an orange seed, and a coin, the latter taken from the esophagus by means of the esophagoscope. The speaker stated that in the direct effect of life-saving from the result of inhalation of foreign bodies, the perfection of the bronchoscope was of enormous value, and that the profession was under lasting obligations to Professor Killian for his valuable aid in this direction. While from the very nature of things direct bronchoscopy must be always in the hands of those whose hands were trained to enter the larynx, and whose eyes had been accustomed to examinations through small apertures, yet it was incumbent upon the general physician to know what advances had been made in this particular field; for to the

latter would arise the question, upon the inhalation of a foreign body, how promptly should attempts be made at its extraction; and, secondly, should the extraction be performed with or without preliminary tracheotomy. To aid in the solution of these questions, the speaker stated, as a result of his experience, that foreign bodies of a plugging character should be promptly removed; metallic or other substances not occluding the bronchi might safely wait an opportune time. The removal of the foreign body was always to be attempted by way of the mouth and larynx, except in the case of very young children, whose larynges were too small for the introduction of the tube; here tracheotomy had to be performed and a large tube inserted. The endoscopic tube had served as an excellent substitute for the Killian. It was not alone for the removal of foreign bodies that bronchoscopy was useful, but also for its exceeding value as an added means in diagnosis. Among these were the endoscopic picture of the trachea and bronchi; the discovery of inflammatory processes, as in tuberculosis, syphilis, scleroma, lepra, stenosis following inflammation of the adjacent lymph glands, and tumors of the trachea and bronchi. Among the latter were the many needed examinations that were made in cases of goiter. The speaker concluded his remarks with a demonstration of the method of performing bronchoscopy, and of extracting foreign bodies with the aid of a phantom, and the Killian instruments and the Kierstein headlight for illumination.

Cerebrospinal Meningitis.—Dr. William Browning of Brooklyn read this paper. He referred to the constant sporadic character of this disease and its occasional epidemicity, resembling in this respect the ordinary run of infectious diseases of childhood. In Brooklyn, relative epidemics occurred in 1869, 1872, 1873, in the early '90s, and in the last couple of years. The bacteriology of the disease was discussed. There were a limited number of cases in which no organism whatever had been reported. It had been lately presumed that the meningococcus often disappeared after a little time, in some way, as a result of its own activity; but the trouble that it had already started continued, even to a fatal termination. The fluid obtained by lumbar puncture was always more or less turbid. Cytological examination of the fluid was, as a whole, so far not important, but the leucocyte count usually showed a marked increase. Rarely did the infection spread from person to person, only one case (that of a nurse contracting the disease) occurring in the speaker's experience. Outbreaks were prone to develop in the crowded quarters of ships, barracks, jails, and asylums. In Brooklyn the disease was more frequent along the water front. Indoor confinement, enforced by continued inclement weather, favored the development of the disease. The incidence of the infection was usually preceded by some inflammation about the upper air passages, which were becoming generally recognized as the usual avenue of infection. The onset was frequently sudden, with a chill, or only malaise. Convulsions, early coma, and high fever indicated a bad outlook. Other symptoms were headache, vomiting, rise in temperature, retraction of the head, and painful stiffness of the posterior neck muscles, which was perhaps the most distinctive of any of the symptoms; varying degrees of somnolence, all the way to coma; muscular spasms, tremors, and contractures; great lassitude, and subjective prostration; moaning or active delirium; slow pulse (at any rate, out of proportion to the temperature); tâche cérebrale, Kernig's sign, which indicated a hypertonicity of the muscles; a purpuric rash developing on the third day or later; photophobia; general hyperesthesia; strabismus, and various pupillary changes; occasional sudden deafness or blindness, and rapid emaciation. Differentiation from tuberculous meningitis was usually easy. There were many cases of meningismus and serous meningitis presenting all the symptoms of epidemic meningitis, occurring with special frequency in ear troubles, with a collection of sterile fluids somewhere in the middle of the brain, some of which recovered after supplying a vent to the fluid. The duration of epidemic meningitis was widely variable, and the mortality was probably 50 per cent. Sporadic cases and those occurring during the ebb of an epidemic were the more favorable. Some light cases were overlooked. Sequelæ, both direct and indirect, were numerous, the former including the acute early hydrocephalic distention recently described by Koplik. Convalescence was slow. In treatment, careful nursing was of importance. Neither theory nor practice warranted the icebag to the head and spine, and even the cold coil had a very limited value. Warmth to the surface below the neck was useful and rational, acting to draw blood to the surface and away from the intensely congested inner structures, reducing the intracranial pressure and soothing the irritated sensory organs. The hot packs were a good means of applying this treatment, but the best was by means of long sacks of stuffed dry bran, which could be laid along the lower extremities and up to the axillæ, and did not cause burns. Extreme peace and quiet were of the greatest value. The use of opiates was indicated—not merely the mild and rather depressant sedatives, as bromide, chloral, but the preparations and alkaloids of opium. The use of iodide of potassium had no special value in the acute stage, or against the infection itself; but it was valuable for the absorption of fluid and the relief of hydrocephalus. Lumbar puncture had a therapeutic as well as diagnostic scope. It was first introduced from Germany to this country by the speaker. Its indication was symptomatic, for the relief of injurious pressure due to accumulated fluid. The relief was often transient. The use of a special serum promised to help.

Pathological Society of Philadelphia.

At a stated meeting held June 13 Dr. Allen J. Smith exhibited a specimen of "Aneurysm of the Arch of the Aorta," with laceration of the inner coats of the dilatation, the formation of a dissecting aneurysm, and the escape of about 600 c.c. of blood into the pericardial sac. Adhesive pericarditis had resulted and the wall of the right ventricle had suffered a marked degree of fatty infiltration, almost wholly displacing the muscular structure of the ventricular wall. The specimen came from an elderly man who had been operated on about a year previously for cholelithiasis and a fistula of the gall-bladder had been permitted to remain. A diagnosis of carcinoma of the pancreas had been made and this was found after death to exist, together with the presence of a calculus in the common duct and another in the hepatic duct close to the liver. There had been no jaundice, and the contents of the duodenum were stained with bile, and bile also escaped through the fistulous opening. Dr. Smith exhibited also a specimen of "Daughter Echinococcus Cyst." The specimen came from a native American, who had been operated on and some 30 or 40 cysts evacuated from the mother cyst. Hooklets were not discovered in the contents of the cysts, but a scolex with its suckers in one of the daughter-cysts was visible. Dr. F. Hurst Maier presented a specimen of "Fibroid Uterus." One of the growths had undergone necrosis and the other hyaline degeneration. During life an offensive discharge had taken place, in addition to metrorrhagia, and the presence of malignant disease was suspected. Dr. W. T. Cummins exhibited a specimen of "Hypernephroma." The nature of the growth had been diagnosticated during life and no metastasis was discovered. The affected kidney was largely replaced by new growth, although the remains of the pelvis were still visible. Section disclosed the histological appearances of hypernephroma, and also the presence of a yellowish pigment, which it was thought might be adrenal secretion or perhaps modified blood-pigment. Drs. W. M. L. Coplin and R. C. Rosenberger described "Cases of Death from Poisoning by Emanations from Molds." Two men that

entered the hold of a steel vessel containing rags were fatally overcome and a third man who voluntarily went to their rescue was overcome but was resuscitated. This man stated that he had no sense of suffocation or of discomfort, and no air-hunger, but that he had an overwhelming desire to sleep. The rags were examined and found to contain no poisonous ingredient and likewise no pathogenic microorganism. The steel bottom and sides of the hold, however, were found to be lined with great masses of mold, which on culture on bread-paste yielded a growth of mold and microorganisms, which evolved a gas that proved fatal in 30 seconds for white mice. There was no evidence of the presence of carbon monoxide or carbon dioxide, and nothing of a positive character was learned from examination of the blood. Drs. J. N. Henry and R. C. Rosenberger read a paper entitled "A Case of Suppurative Cerebrospinal Meningitis Caused by the Typhoid Bacillus in Pure Culture, without the Customary Intestinal Lesions of Typhoid Fever," and they exhibited gross and microscopic specimens of cord and brain. The patient was a colored man who presented during life symptoms of cerebrospinal meningitis, with the presence of bacteria morphologically identical with the typhoid bacillus in the fluid obtained by lumbar puncture. After death the lesions of a purulent cerebrospinal meningitis were found, and in these, as well as in the blood, typhoid bacilli were demonstrated. There was an absence of the classical intestinal lesions of typhoid fever, although the mesenteric glands and also the spleen were slightly enlarged. Dr. D. Rivas presented a communication entitled "A Contribution to the Study of the *B. typhosus* and *B. coli communis* in Drinking Water." He pointed out the difficulty of detecting the typhoid bacillus in water and the significance of the bacterium coli as indicative of pollution. For the demonstration of the typhoid bacillus large quantities of water must be used and the culture medium must be of such a character as to favor rather than to inhibit the growth of the microorganism.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.*

Board of Medical Examiners, South Dakota.

January 9 and 10, 1907.

CHEMISTRY.

1. Define an atom, a molecule, chemical affinity, chemical action, atomic weight.
2. Phosphorus—state its source, enumerate its properties, and name some solvents.
3. What is the difference between a salt, an acid, and an acid salt? Give an example of each.
4. What is the ordinary source of glycerine? Give its formula. Write an equation showing the process of its preparation.
5. Give in detail your method of examination of urine for three abnormal constitutents, and state the clinical significance of each.

EYE, EAR, NOSE, AND THROAT.

1. Give symptoms and treatment in detail of lachrymal stricture.
2. Define mydriasis, myosis. Name some drugs which produce each condition. What is the Argyll-Robertson pupil? In what diseased condition is it found?
3. What are the diseases of the middle ear? Outline your treatment of any one disease. What complications are liable to occur?
4. Give symptoms and treatment of abscess of frontal sinus.
5. Define dysphagia, aphonia, dysphonia.

JURISPRUDENCE AND TOXICOLOGY.

1. How could you determine whether death was due to freezing or that the freezing had occurred after death, in a body found frozen?
2. Describe one or more chemical tests for blood that may be used in investigating suspected blood stains.
3. What is a "live birth," medicolegally? How would you determine whether a dead infant had lived or was "dead-born"?
4. What post-mortem appearances would indicate poisoning by phosphorus, arsenic, strychnine?
5. Give the symptoms, treatment, and post-mortem appearances of poisoning by carbolic acid.

PRACTICE AND THERAPEUTICS.

1. Differentiate toxic effects of strychnine and tetanus poison.
2. Diagnose bronchopneumonia.
3. Inform me on rheumatoid arthritis.
4. How can you make early diagnosis of tuberculous infection?
5. Mention two remedies which are used to check the secretion of milk.
6. Give symptoms and treatment of migraine.
7. Differentiate organic and functional heart murmur.
8. Give diagnosis, prognosis and management of aneurysm of the thoracic aorta.
9. Mention diseases in which the patellar reflex is exaggerated.
10. Differentiate scarlet fever and measles and suggest treatment for both.

PATHOLOGY.

1. Mention a few symptoms caused by toxins produced within the body.
2. Describe gliomata.
3. What do you understand "Wallerian degeneration" to signify?
4. What pathological conditions increase the elimination of urea?
5. Define hyperinosis, hydremia, melanemia, and hemoglobinemia.
6. Name some of the causes of active hyperemia.
7. What conditions give immunity from the pathogenic action of bacteria?
8. Amyloid degeneration—what do you know about it?
9. Give the pathology of locomotor ataxia.
10. What is embolism, a thrombus, an infarct?

PHYSIOLOGY.

1. Describe the functions of the kidneys, and name the products excreted.
2. Tell what you know about osmosis, and give examples of some.
3. What is color blindness, and what colors are usually indistinguishable to a person so affected?
4. What is the variation of temperature, in health, between childhood and old age, and how is the normal temperature of the body maintained?
5. Describe the normal heart sounds, and explain cause of same.
6. What is the cause of stammering and stuttering?
7. What diseases are usually quarantined, and for what length of time?
8. How many different kinds of blood corpuscles in the human body, and what are their relative numbers in health?
9. Name the active principles of the digestive secretions, and explain how each affects the food.
10. Name and describe the normal respiratory sounds of the lungs.

ANATOMY.

1. How many bones in the human body?
2. Describe the meibomian glands.
3. What muscles are attached to the great trochanter of the femur?
4. Describe the tibia, and state what bones it articulates with.
5. How many bones in the hand? Name them.
6. Name and describe the salivary glands.
7. Describe the mammary gland, and give nerve and blood supply.
8. Where is the popliteal space, and what structures are contained therein?

*It is proposed in this department to publish from time to time the examination papers of the various State Boards, in order that a candidate may become familiar with the character of the examination and so in some measure free himself in advance from the nervousness and dread which the unknown inspires. In furtherance of the same object answers to some of the questions will be published in order to show the candidate what the examiners expect of him. Not all the questions of all the papers will be so treated, for the answers to many, especially in the anatomical papers, are obvious or can be found in the index of any textbook on the subject; the answers to other questions, especially in the surgical papers, must sometimes be omitted because of the space they would demand. The candidate for a medical license will not find in these answers a short and easy road to success in the examination, for he is not likely to meet the same questions in the papers placed before him by the examiners. The object of publishing the questions and answers is only, as noted above, to acquaint the candidate with the general character of these examinations and to inspire him with confidence in the result of his trial.

9. What cavities may require tapping, and for what diseases, and at what points should the punctures be made?
10. What structures would be severed in an amputation at the middle of the humerus?

OBSTETRICS.

1. Describe the indications of pregnancy at the beginning of the third, sixth, and ninth months.
2. Name the principal diseases and conditions during pregnancy said to be caused by that condition.
3. Give causes, diagnosis, dangers, and treatment of antepartum hemorrhage. Also of postpartum hemorrhage.
4. In vertex presentation, after dilatation, how would you tell the position from internal examination alone? Describe a given case.
5. When during delivery would you use an anesthetic, and how? When is it contraindicated? Name your choice of anesthetic, with reason therefor.
6. What do you do to prevent laceration of the perineum?
7. Describe a well-marked case of puerperal sepsis, giving time of invasion, symptoms, course, and treatment.
8. How would you treat a shoulder presentation with arm down?
9. What is involution, and how long does it normally continue?
10. How, and how long would you treat a babe apparently dead when born?

DISEASES OF WOMEN.

1. Describe the preparation for, and the manner of opening and closing the abdominal wall in a laparotomy.
2. Describe a uterine curettement and its dangers. When should it be employed?
3. Differentiate simple from gonorrheal vaginitis, and give treatment for each.
4. Describe pruritus vulvæ, giving causes and treatment.
5. Describe a case of endometritis, and give treatment.

BACTERIOLOGY.

1. Define immunity. Explain (*a*) how acquired, (*b*) how destroyed.
2. Name the three most important culture media.
3. Give method of staining gonococci.
4. Give the cultural and microscopic points of difference between the *Bacillus coli communis*.
5. Explain the Widal reaction.

SURGERY.

1. Classify burns. Give methods of treatment.
2. What is shock? How would you treat the shock accompanying a severe injury of an extremity? State conditions under which amputation would or would not be justifiable.
3. In what manner may operative work be affected by (*a*) alcoholism, (*b*) leucocythemia, (*c*) diabetes, (*d*) atheroma, and (*e*) good health?
4. Mention the characteristic symptoms of fracture of the clavicle, and give a method of treatment.
5. Differentiate elbow joint injuries, and describe method of reduction and after-treatment of backward dislocation of this joint.
6. What are the causes of abscess of the frontal sinus? Outline its symptoms, treatment, and prognosis.
8. What is osteomyelitis? Mention the different varieties. Describe a case of acute infective osteomyelitis, giving briefly its causes, diagnosis, treatment, and prognosis.
9. What is an aneurysm? What are its predisposing and exciting causes, and the usual locations?
10. Give symptoms, diagnosis, and treatment of gastric ulcer.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS, SOUTH DAKOTA.

January 9 and 10, 1907.

CHEMISTRY.

1. An *atom* is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule.

A *molecule* is the smallest quantity of any substance (element or compound) that can exist in a free state.

Chemical affinity is the attraction that exists between atoms, whereby they are united to form molecules.

Chemical action is the action of one substance upon another whereby chemical change is produced.

Atomic weight is the weight of an atom of an element as compared with the weight of an atom of hydrogen.

2. PHOSPHORUS.—*Source*: From the phosphates. *Properties and solvents:* It is a solid, with a valence of three or five, an atomic weight of 31. The molecule consists of four atoms; it combines readily with oxygen and is an active reducing agent. It exists in four allotropic conditions—the yellow, red, black, and white varieties; the two former are the most frequently met with and have different physical properties, as follows: The *yellow* "when freshly prepared, and at ordinary temperatures, forms a yellowish, translucent solid, which, on exposure to light, becomes more darkly colored and opaque. It has the consistence of wax. When exposed to the air it gives off white fumes and an odor of garlic. At 32° F. it becomes brittle; at 111° F. it melts to a yellowish liquid, and at 554° F., in the absence of air, is converted into a colorless vapor. In air, at 140° F., it ignites, burning with a bright flame and giving off dense white fumes and producing ozone. In the dark this form of phosphorus gives off a peculiar pale light. It is insoluble in water, sparingly soluble in alcohol, ether, and the fatty and ethereal oils; very soluble in carbon disulfid, from which solution it separates in the form of crystals. This variety is exceedingly poisonous.

"The *red* variety is red, brown, or dark yellow in color. It may be heated to 482° F. without melting, but at that temperature it is suddenly converted into the yellow variety, which ignites with an explosion. It fires much less readily than yellow phosphorus, and may be kept dry, while the yellow must be preserved under water. It has no odor or taste, and is insoluble in those substances which dissolve the other form. It is not luminous at ordinary temperatures."—(Witthaus' *Essentials of Chemistry.*)

3. A *salt* is a substance formed by the substitution of an electro-positive element for part or all of the replaceable hydrogen of an acid.

An *acid* is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element without the formation of a base.

An *acid salt* is a salt in which only part of the replaceable hydrogen of an acid has been replaced.

Examples: H_2SO_4 in an *acid;* Na_2SO_4 and $NaHSO_4$ are both *salts;* but $NaHSO_4$ is an *acid salt.*

4. Glycerin is obtained as a by-product in the manufacture of soap.

Its formula is $C_3H_5(OH)_3$, or $\begin{matrix} CH_2OH \\ | \\ CHOH \\ | \\ CH_2OH. \end{matrix}$

$$\left.\begin{matrix}(C_3H_5)'''\\(C_{18}H_{35}O)'_3\end{matrix}\right\}O_3 + 3\left\{\begin{matrix}K\\H\end{matrix}\right\}O = \left.\begin{matrix}(C_3H_5)'''\\H_3\end{matrix}\right\}O_3 + 3\left\{\begin{matrix}(C_{18}H_{35}O)'\\K\end{matrix}\right\}O$$

Tristearin. Potassium hydroxid. Glycerol. Potassium stearate.

5. To examine for *albumin:* "The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered.

"The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of nitric acid."

To examine for sugar: First remove any albumin that may be present, then "render the liquid strongly alkaline by addition of sodium carbonate. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color."

To examine for indicanuria: "The urine is mixed with one-fifth of its volume of 20 per cent. solution of lead acetate and filtered. The filtrate is mixed with an equal volume of fuming hydrochloric acid containing 3:1000 of ferric chloride, a few drops of chloroform are added, and the mixture strongly shaken one to two minutes. With normal urine the chloroform remains colorless or almost so; but if an excess of indoxyl compounds be present the chloroform is colored blue, and the depth of the color is a rough indication of the degree of the excess."

Albumin is found in the urine: "(1) In fevers, as typhoid and pneumonia. (2) In valvular heart lesions, degeneration of the heart muscles, diseases of the coronary arteries, impeded pulmonary circulation, in pregnancy by pressure upon the renal veins, in intestinal catarrh and in Asiatic cholera. (3) In purpura, scurvy, leukemia, pernicious anemia, jaundice, diabetes and syphilis. (4) After taking Pb, Hg, I, P, As, Sb, chloroform, cantharides, oxalic, carbolic, salicylic or the mineral acids, turpentine and nitrates. (5) In large amounts in acute nephritis, and chronic parenchy-

matous nephritis; in small amount in chronic interstitial nephritis and amyloid kidney."

Sugar is found in urine as *"transitory glycosuria,"* "(1) in certain hepatic derangements, congestion, cirrhosis and amyloid degeneration; (2) in many diseases of the central nervous system, with tumors or hemorrhages at the base of the brain, in meningitis, concussion, fracture of cervical vertebræ, railway injuries, in epileptic and apoplectic seizures, and also in certain diseases of the peripheral nervous system, as in sciatica and in tetanus; (3) in acute febrile diseases, pneumonia, typhoid, acute articular rheumatism, scarlatina, etc., particularly during convalescence; (4) under the influence of many poisons, such as curare, chloral, carbon monoxide, morphine, arsenic, and the anesthetics. As *'permanent glycosuria'* (1) in lesions of the brain involving the floor of the fourth ventricle; and (2) in diabetes mellitus."

Indicanuria is found "in hypochlorhydria; in hyperchlorhydria of gastric ulcer; in conditions in which there is diminished peristalsis of the small intestines, as in ileus and peritonitis, not in simple constipation; also in conditions in which putrefactive changes occur in the body elsewhere than in the intestine, as in empyema, putrid bronchitis, gangrene of the lungs, etc." (From Witthaus' *Essentials of Chemistry.*)

EYE, EAR, NOSE, AND THROAT.

2. *Mydriasis* is the condition of extreme dilatation of the pupil of the eye.

Myosis is the condition of extreme contraction of the pupil of the eye.

Mydriatics: Atropine, homatropine, daturine, duboisine, hyoscyamine, cocaine.

Myotics: Eserine, pilocarpine, opium.

Argyll-Robertson pupil is the condition of the pupil in which it responds to accommodation, but not to light.

It is found in locomotor ataxia, general paralysis of the insane, and sometimes in cerebral syphilis.

4. *Abscess of frontal sinus.*—Symptoms: Intense frontal headache, which may become worse on lying down; pus may be discharged from the nose, chiefly on rising in the morning; pain on blowing the nose; the upper eyelid may be swollen; the mucous membrane of the middle turbinated bone will be found swollen and hyperemic.

Treatment: Establish free drainage; a spray of suprarenal extract will reduce the swollen and hyperemic mucous membrane; the anterior end of the middle turbinated bone may require removal, the frontal sinus may require to be opened and curetted. (And see below, SURGERY, Question 6.)

5. *Dysphagia* is painful or difficult swallowing.

Aphonia is loss of voice due to some peripheral lesion.

Dysphonia is an impairment of voice; or pain or difficulty in speaking.

JURISPRUDENCE AND TOXICOLOGY.

1. The post-mortem changes in death from freezing are not sufficiently characteristic to justify a positive opinion on the subject. But if the body were found putrefied, it would be evidence that death was not due to freezing, for intense cold hinders putrefaction. So, too, the posture of the body might afford some aid; if the body is found in a crouching posture, death was *probably* due to freezing, as that attitude is characteristic.

2. Let some of the stained material soak thoroughly in a very small quantity of saturated solution of sodium chloride. Put a few drops of the fluid on a slide, cover On cooling, hæmin crystals form, and can be seen under with a cover-glass, let evaporation occur, allow a drop of glacial acetic acid to enter from the side, and gently warm. On cooling, hæmin crystals form, and can be seen under the microscope.

3 To constitute a "live birth," there must be (1) complete extrusion of the child from its mother's body, and (2) some certain sign of life. The latter would be established by one or more of the following: pulsation of the cord, beating of the child's heart, motions of the limbs, twitchings of the muscles, wrinkling of the brows, puckering of the face, opening of the eyes, even if respiratica does not take place. (From Witthaus and Becker's *Medical Jurisprudence*, etc.)

PRACTICE AND THERAPEUTICS

1 In *strychnine poisoning* there is a history of taking strychnine; the symptoms develop rapidly; the spasms occur early; muscular symptoms commence in the extremities, and the muscles of the jaw become involved late, if at all; there is muscular relaxation between the convulsions.

In *tetanus* stiffness of the neck and muscles of the jaw with trismus of the masseters soon develop; risus sardonicus is present; the body is thrown into a condition of opisthotonos or emprosthotonos; the muscular rigidity is persistent, the paroxysms are very painful.

4 The early manifestations of pulmonary tuberculosis are: (1) *Physical signs*: Deficient chest expansion, the phthisical chest, slight dullness or impaired resonance over one apex, fine moist râles at end of inspiration, expiration prolonged or high pitched, breathing interrupted. (2) *Symptoms:* General weakness, lassitude, dyspnea on exertion, pallor, anorexia, loss of weight, slight fever, and night sweats, hemoptysis.

5. Two remedies to check the secretion of milk: belladonna, and potassium iodide.

7. *Organic murmurs* are due to stenosis or incompetency of one or more of the valves of the heart.

Functional murmurs are not due to valvular disease.

Organic murmurs may be systolic or diastolic; may be accompanied by marked dilatation or hypertrophy, and there will probably be a history of rheumatism or of some other disease capable of producing endocarditis. Whereas a murmur, usually systolic, soft, and blowing, heard best over the pulmonic area, associated with evidences of chlorosis or anemia, and affected by the position of the patient, is a *hemic* or *functional* murmur, and denotes as a rule an impoverished condition of the blood.

9. The patellar reflex is exaggerated in: hemiplegia, lateral sclerosis, general paresis, transverse myelitis, injuries to the spinal cord, hysteria, neurasthenia, tetanus, and strychnine poisoning.

PATHOLOGY.

1. Chills, malaise, fever, vomiting, and symptoms of general poisoning.

3. "Suppose a nerve is cut across, the piece of the nerve left in connection with the brain or spinal cord remains healthy both in structure and functions; but the peripheral piece of the nerve loses its functions and undergoes what is generally called after the discoverer of the process, *Wallerian degeneration.* A nerve is made up of nerve fibers, and each nerve fiber is essentially a branch of a nerve cell; when the nerve is cut the axis cylinders in the peripheral portion are separated from the cells of which they are branches and from which they have grown. These separated portions of the axis cylinders die, and the medullary sheath of each undergoes a gradual process of disintegration into droplets of myelin, which are ultimately absorbed and removed by the lymphatics. At the same time there is a multiplication of the nuclei of the primitive sheath. This degenerative process begins two or three days after the section has been made. In the case of the non-medullated fibers there is no medullary sheath to exhibit the disintegration changes just alluded to, and the nuclei of the sheath do not multiply; there is simply death of the axis cylinder. The degeneration occurs simultaneously throughout the whole extent of the nerve; it does not start from the section and travel to the periphery." (Kirkes' *Physiology.*)

4. The elimination of urea may be increased in: acute fevers and inflammations, diabetes, severe leukemia, paralysis agitans, pernicious anemia.

5. *Hyperinosis* means an excess of fibrin in the blood, *Hydremia* means an excess of the fluid constituents of the blood.

Melanemia means the presence of a black pigment in the blood.

Hemoglobinemia means the abnormal presence of hemoglobin in the plasma of the blood.

6. Active hyperemia may be caused by: stimulation of the vasomotor nerves, injury to the walls of the blood-vessels, sudden removal of support, the action of certain drugs.

7. See below, BACTERIOLOGY, Question 1.

PHYSIOLOGY.

3. Color-blindness is the inability to distinguish clearly differences of color. Red and green are the colors usually indistinguishable to a person so affected.

4. The variation of body temperature, in health, is very slight; it is maintained between 98° and 99° F.

The normal temperature of the body is *maintained* by the thermotactic centres in the brain and cord keeping an equilibrium between the heat gained or produced in the body and the heat lost. Heat is *gained* to the body by (1) the muscles, during contraction; (2) the secreting glands; (3) the brain, during mental activity; and (4) by the ingestion of food and hot liquids.

Heat is *lost* to the body by (1) the skin, through evaporation, radiation, and conduction; (2) the lungs; and (3) the excretions (feces and urine).

5. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

6. Stammering and stuttering are due to a want of co-

ordination between the various groups of muscles concerned in the different actions that go to the make up of articulate speech. Imitation, adenoids, and fright are sometimes supposed to be contributing factors.

9.

DIGESTIVE SECRETION.	ACTIVE PRINCIPLE.	ACTION.
Saliva.....	Ptyalin.	Changes starches into dextrin and sugar.
Gastric juice.....	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
Pancreatic juice...	Trypsin.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.

ANATOMY.

9. (1) The *pleural cavity;* in the sixth or seventh intercostal space, midway between the axillary lines; or in the eighth intercostal space, near the angle of the scapula.

(2) The *peritoneal cavity;* on the semilunar line, or on the linea alba.

(3) The *pericardial cavity;* in the fifth left intercostal space, one inch from the sternum; or in the sixth left intercostal space, immediately to the edge of the sternum.

(4) The *subarachnoid space of the spinal cord;* in the middle line, between the fourth and fifth lumbar vertebræ.

(5) *Joints;* and (6) the *tunica vaginalis of the testis.*

10. Skin: fascia; muscles, biceps, coraco-brachialis, brachialis anticus, triceps; arteries, brachial, superior profunda, inferior profunda; veins, basilic, cephalic, brachial, superior profunda, inferior profunda; nerves, median, ulnar, musculo-spiral, internal cutaneous, musculo-cutaneous; bone, humerus.

OBSTETRICS.

9. By *involution* is meant the contraction and return of the uterus to its normal size after labor. It generally takes from six to eight weeks.

DISEASES OF WOMEN.

4. *Pruritus vulvæ* is a condition characterized by intense itching of the vulva and neighboring parts.

Pruritus vulvæ may be *caused* by:—parasites; diseases of the vulva, as inflammation, edema, vegetations, congestion, irritating discharges, lack of cleanliness, diabetic urine; it may also be of nervous origin, or idiopathic.

Treatment consists in removing the cause, if possible; cleanliness, fresh air, tonics, and general attention to hygiene; local applications of solution of bichloride of mercury, 1:2,000; or carbolic caid, 1:100; or lead and opium; dusting powders of bismuth subnitrate, calomel, or zinc oxide are also useful.

BACTERIOLOGY.

1. Immunity is the power of resistance of cells and tissues to the action of pathogenic bacteria.

(a) The conditions which give immunity from the pathogenic action of bacteria are:—(1) a previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

(b) Immunity can be destroyed by any condition which lowers the vitality of the tissues and thus causes lessened resistance to the action of the bacteria. Such are:—bad hygienic surroundings, exhaustion, exposure to cold, the action of poisons, diseases, injuries, etc.

2. Bouillon, gelatin, and blood serum.

3. The gonococcus stains with gentian-violet, and other basic aniline dyes; but it does not stain by the Gram method

4. The cultural and microscopic points of difference between the *Bacillus coli communis* and the *Bacillus typhosus* (of Eberth) are:

"(1) The motility of the colon bacillus is, as a rule, not very pronounced, sometimes absent; that of the typhoid bacillus is usually very active.

"(2) On gelatine plates the colon bacillus develops more rapidly and luxuriantly than the typhoid bacillus, and on potato it grows more abundantly, being almost always visible.

"(3) The colon bacillus coagulates milk with acid reaction within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

"(4) The colon bacillus causes fermentation with production of gas in media containing sugar; the typhoid bacillus does not.

"(5) In nutrient agar or gelatine containing lactose and litmus tincture and of a slightly alkaline reaction, the color of the colonies of colon bacillus is pink and the surrounding medium red; while the colonies of typhoid bacillus are blue and there is little or no reddening of the medium.

"(6) The colon bacillus produces indol in cultures of bouillon or peptone; the typhoid bacillus does not.

"(7) When a twenty-four-hour-old bouillon culture of the colon bacillus is mixed with the blood or serum of a patient suffering from genuine typhoid fever, in a dilution of one to ten or more, after the first week of the disease, the Widal reaction is negative; cultures of the typhoid bacillus treated in the same manner and examined in the hanging drop give the characteristic agglutination and clumping of the bacilli." (*Reference Handbook of the Medical Sciences.*)

5. The Widal serum reaction "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

SURGERY.

2. Shock is the name given to a sudden and general depression of the vital powers due to some strong stimulation (such as injury or emotion) acting on the vital centers in the medulla, and producing vasomotor paralysis.

Treatment of shock:—place the patient in the recumbent position, with the head low, apply warmth to the body, administer a stimulant, and give a hot saline infusion; morphine, hypodermatically, may be necessary for the relief of pain.

Amputation may be done if it is necessary to save the patient's life, or if the damaged limb is adding to or prolonging the condition of shock. Some surgeons (*e.g.* Da Costa) think that it is never wise to amputate during shock; others (*e.g.* Roswell Park) oppose this view.

6. Abscess of Frontal Sinus.—"The usual cause is an injury which may long antedate the symptoms. This injury causes or leads to blocking of the infundibulum; secretion accumulates and distends the sinus; and in some cases pus forms. In many cases the fluid slowly accumulates, and it requires years to produce marked symptoms. In other cases infection takes place, and the symptoms are positive and violent. If the outlet into the nose is not permanently blocked the fluid may discharge itself from time to time. In the chronic cases there is rarely much pain. The chief sign is a swelling of the inner or upper part of the orbit, which swelling progressively increases in size and displaces the eye. If at any time acute symptoms supervene, there will be pulsatile pain, discoloration, and tenderness.

"*Treatment:* In some cases it is possible to pass a trocar upward from the nose into the sinus, and so drain and irrigate. In most cases an incision should be made through the soft parts, and the sinus opened by a trephine or chisel. After the sinus has been opened it must be curetted, the opening into the meatus should be restored and enlarged, and a drainage tube is to be passed from the forehead incision into the nostril. Some surgeons open the sinus by making an osteoplastic flap." (Da Costa's *Surgery.*)

Prognosis is generally good; some cases get well spontaneously, and most cases recover when the obstruction is removed and drainage is reestablished.

7. The lymphatic glands along Poupart's ligament are enlarged in syphilis; in malignant disease of the external

genitals; in boils or other sources of irritation around the anus and perineum.

8. Osteomyelitis is an inflammation of the medullary canal of a bone, including both bone and marrow.

Varieties: Simple acute osteomyelitis; acute infectious osteomyelitis; chronic osteomyelitis.

9. An aneurysm is a pulsating sac containing blood and communicating with the lumen of an artery.

Predisposing causes:—atheroma, syphilis, old age, arteritis, alcoholism, male sex.

Exciting causes:—increased blood pressure (which may be due to severe labor, sudden strains, violent exercise, chronic interstitial nephritis); injury to the artery, and embolus.

Usual locations:—Thoracic aorta, abdominal aorta, popliteal, femoral, carotid, subclavian, innominate, axillary, and iliac arteries.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Sept. 1-6
Arizona*	Ancil Martin, Phoenix	Phoenix	October 7
Arkansas*	F. T. Murphy, Brinkley	Little Rock	October 8
California	Chas. L. Tisdale, 1870 Sutter Street, San Francisco	San Francisco	August 6
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	October 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov'ber 12
Delaware	J. H. Wilson, Dover	Dover	Dec'ber 10
Dis. of Col'bia	W. C. Woodward, Washington	Washington	October 10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov'ber 20
Georgia	R. Anthony, Griffin	Atlanta	October 8
Idaho	J. L. Conant, Jr., Genesee	Boise	October 1
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	October 22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept'ber 17
Kansas	T. E. Raines, Concordia	Topeka	October 8
Kentucky*	J. N. McCormack, Bowling Green	Louisville	October 2
Louisiana	F. A. La Rue, 211 Camp Street, New Orleans	New Orleans	October 15
Maine	Wm. J. Maybury, Saco	Portland	Nov'ber 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec'ber 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept'ber 10
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Lansing	October 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	October 1
Mississippi	J. F. Hunter, Jackson	Jackson	October 8
Missouri	J. A. B. Adcock, Warrensb'g	St. Louis	Sept'ber 10
Montana*	Wm. C. Riddell, Helena	Helena	October 1
Nebraska	Geo. H. Brash, Beatrice	Lincoln	August 7
Nevada	S. Lee, Carson City	Carson City	August 5
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	January 14
New Jersey	J. W. Bennett, Long Branch	Trenton	October 22
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec'ber 2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	October 1
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May 1908
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	October 1
Ohio	Geo. H. Matson, Columbus	Columbus	Dec'ber 10
Oklahoma*	J. W. Baker, Enid	Guthrie	Sept'ber 24
Oregon	B. E. Miller, Portland	Portland	
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec'ber —
Rhode Island	G. T. Swartz, Providence	Providence	October 3
S. Carolina	W. M. Lester, Columbia	Columbia	June 9, '08
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	January 8
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May. 1908
Texas			
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	October 7
Vermont	W. Scott Nay, Underhill	Montpelier	January 14
Virginia	R. S. Martin, Stuart	Staunton	Dec'ber 10
Washington*	C. W. Sharples, Seattle	Spokane	January 7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg	Nov'ber 12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	January 14
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 9

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Iowa.—The State Board of Medical Examiners issues two forms of reciprocal certificates: 1. Upon the basis of a written examination by a State examining board having reciprocal relations with the Iowa board; provided that the general average attained by the applicant was not below 75 per cent. The following States have been admitted under this reciprocity: Colorado, Illinois, New Jersey, North Dakota, Ohio, South Dakota, Virginia, Wyoming. 2. Upon a certificate issued by another State holding reciprocal relations with Iowa upon the basis of a diploma without examination; provided such diploma was issued prior to January 1, 1899, by a medical college recognized by the Iowa State Board of Medical Examiners, as in good standing when said diploma was issued. The following States have been admitted under this reciprocity: Georgia, Indiana, Kansas, Kentucky, Maine, Maryland, Michigan, Minnesota, Nebraska, Nevada, North Carolina, South Carolina, Wisconsin.

South Dakota has decided to discontinue reciprocity.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending July 27, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	346	143
Diphtheria	278	30
Measles	401	24
Scarlet Fever	180	14
Smallpox	1	1
Varicella	20	..
Typhoid Fever	81	14
Whooping Cough	47	10
Cerebrospinal Meningitis	20	8
Malarial Fever	.....	.....
Totals	1374	244

Helath Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended July 19, 1907:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
California, San Francisco	July 6–13	2	..
Illinois, Dundas	June 10–30	3	..
Tolono	June 1–July 19	5	..
Indiana, Indianapolis	July 7–14	2	..
La Fayette	July 8–15	2	..
South Bend	July 6–20	2	..
Kentucky, Covington	July 13–20	1	..
Louisville	July 11–18	3	..
Louisiana, New Orleans	July 11–18	1	1
Massachusetts, Boston	July 1–20	1	..
Lawrence	July 6–13	1	..
Michigan, Detroit	July 6–20	5	..
Minnesota, Stillwater	June 1–30	1	..
Missouri, St. Louis	July 6–13	1	..
St. Joseph	July 6–13	2	..
North Carolina, Greensboro	July 13–20	12	..
Tennessee, Memphis	June 29–July 13	4	..
Texas, San Antonio	July 6–13	1	..
Virginia, Richmond	July 6–13	1	..
Washington, Tacoma	July 6–13	1	..
Wisconsin, Milwaukee	July 6–13	2	..
SMALLPOX—INSULAR.			
Philippine Islands, Manila	June 2–9	1	Varialoid
SMALLPOX—FOREIGN.			
Africa, Lourenco Marquez	May 1–31	..	4
Austria, Vienna	June 22–29	1	..
Brazil, Bahia	May 25–June 29	36	..
Para	June 29–July 6	14	5
Pernambuco	May 1–15	..	48
"	May 15–31	..	6
Rio de Janeiro	May 26–June 16	5	1
China, Hankau	June 1–8	2	Foreign
Hongkong	May 25–June 1	5	3
Niuchwang	June 1–8	2	Foreign
Shanghai	June 1–15	10	56 Native
Tientsin	June 1–8	2	..
Ecuador, Guayaquil	June 22–29	..	2
France, Marceille	June 1–30	..	136
Paris	June 29–July 6	6	3
Great Britain, Liverpool	June 29–July 6	1	..
Greece, Piræus	June 29–July 6	1	..
India, Bombay	June 11–18	..	2
Calcutta	June 1–8	..	22
Italy, General	July 4	40	..
Turin	June 16–30	3	..
Madeira, Funchal	May 31–June 7	70	11
Mexico, Aguas Calientes	July 6–13	..	4
Portugal, Lisbon	June 22–29	7	..
Russia, Odessa	June 22–29	2	..
Riga	June 22–29	5	..
Spain, Barcelona	June 29–30	..	2
Madrid	May 1–31	..	3
Turkey in Europe, Constantinople	June 23–30	..	2
Turkey in Asia, Bagdad	June 1–8	..	Present
Bassorah	June 1–8	..	"
Damascus	June 15–22	..	"
YELLOW FEVER.			
Brazil, Manaos	June 30–July 6	..	1
Para	June 29–July 6	3	1
Rio de Janeiro	May 26–June 16	4	3
Cuba, San Nicolas	July 22	1	..
CHOLERA.			
India, Bombay	June 11–18	..	2
Calcutta	June 1–8	..	40
Kashmir Province	June 3–10	2,203	1,315
Rangoon	June 1–8	..	"
PLAGUE—INSULAR.			
Hawaii, Honolulu	July 22	1	1
PLAGUE.			
Brazil, Rio de Janeiro	May 26–June 16	5	3
China, Hongkong	May 22–June 1	10	9
India, General	May 25–June 1	42,705	38,992
Bombay	June 11–18	27,148	25,620
Calcutta	June 1–8	1	68
Madras	June 8–14	..	1
Rangoon	June 1–8	..	58
Persia, Bahrein Islands	June 8–15	..	Present
Bushire	June 8–15	..	"

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Original Articles.

SOME PLAIN TRUTHS ABOUT SYPHILIS.*

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When your courteous and able President selected this topic, and asked me to bring the subject before you, I felt somewhat embarrassed for several reasons. First, syphilis has been so thoroughly studied that I could not hope to present anything very new; and second, the subject is such a very large one that it would be difficult to compress into the allotted time the consideration of such plain truths as it might be of interest and value to recall.

But, as this is an association of practitioners in the various branches of medicine I concluded that he wished me to present the subject of syphilis in a practical way, emphasizing such points, which are plain truths, as may be of service in the recognition and treatment of the malady. For although much may be known about any disease, a certain gain is often had by reviewing our knowledge and crystallizing our views concerning it. It is with this aim that I shall attempt to address you this evening, bringing what I can of clearness of vision from one who is in daily contact with syphilis to some, perhaps, who meet with it comparatively seldom.

The first plain truth which I would bring forward is that syphilis is a much more common disease than is generally thought to be the case, not infrequent even in good circles of society, both in the city and country. Statistics may, of course, be misleading, and naturally vary very much with the class of practice from which they are taken; but as syphilis invariably affects the skin at some time during its course, the statistics taken from dermatological practice probably afford a more correct indication of its relative frequency than those from any other branch of practice. Now, of several hundred thousands of cases of miscellaneous diseases of the skin compiled from the practice of members of the American Dermatological Association, from various cities all over the United States, syphilis always figures as a causative agent in about 10 per cent., or even more, of the cases, while eczema forms from 25 to 30 per cent. In my own published statistics of 20,000 personal dermatological cases, in public and private practice, syphilis formed over 12 per cent. of all. Did time permit I could cite scores of cases where the disease had been unrecognized and neglected for a long period of time, in private practice both in cities and rural districts.

The next plain truth is the now well recognized fact that syphilis is not necessarily a venereal disease and that its existence in an individual by no means carries with it necessarily any stigma, or imputation of immoral or impure conduct; although, of course, in the very large share of cases the disease is undoubtedly contracted in illicit intercourse. "Syphilis in the innocent" is no longer a by-word, but the thousands of cases on record where the disease was acquired in as thoroughly an innocent a manner as tuberculosis, have placed the subject of its control or prevention by public measures on quite a different basis from that commonly considered some years ago.

It will probably never be possible to state accurately just the proportion of cases in which the disease is innocently acquired, as this proportion must vary greatly according to the standpoint and opportunities of different clinicians; but to those who are not very familiar with the literature of the subject it may be surprising and instructive to know to what extent this has been recorded by reliable observers.

From a study of syphilis observed in private practice Fournier stated that nearly 25 per cent. of the females contracted the disease innocently and undeservedly, while among the *married females* the disease was unmistakably traced to the husband in 75 per cent. of all cases; in discussing Fournier's paper, Ricord stated that the matter had not been at all exaggerated, but that he himself had met with fully the same percentage.* My own statistics present even a much larger proportion of innocent syphilis in females, in private practice, indeed a careful study and analysis of my cases shows that in somewhere near 50 per cent. the disease was acquired in a perfectly innocent manner, wholly apart from sexual transgression. This large proportion in females is, of course, made up mainly of cases of marital syphilis, where the wife contracts syphilis from the husband, who was infected before or after marriage, with also the not inconsiderable number of cases where innocent girls acquire chancre of the lip or mouth by kissing their fiancées, of which I have seen many, many instances; indeed in my statistics there were 50 per cent. more cases of chancre of the lip in females than in males.

But innocent syphilis is also not at all infrequent among males, and in the better classes of society, at least, this is true of from 5 to 10 per cent. of all cases, as has been repeatedly stated; finally, extragenital chancres are really much more common in both sexes than is commonly recognized.

Time does not permit us to enter largely into the subject of extragenital chancres, but the caution must be given not to overlook this source of infection when there is reason to believe that

*Read before the Medical Association of the Greater City of New York, May 20, 1907.

*Bulkley: Syphilis in the Innocent. New York, 1894. Pp. 28, 197.

syphilis is present and yet when there is no suspicion of venereal contagion. The modes and methods of innocent infection are so many, and often so unexpected and surprising, and the forms and appearances of extragenital chancres are so varied and often puzzling, that it is frequently a very difficult task to unravel the mystery of syphilitic inoculation; but with sufficient care and patience this can be done, and in many a case an otherwise distressing stigma can be lifted from an innocent person.

Another plain truth in regard to syphilis is that, certainly in its earlier stages, it is a contagious affection, in regard to which too much care cannot be exercised in order to prevent the infection of others, innocently or otherwise. Unfortunately we are not in a position to state with positiveness how long the contagious period of syphilis lasts, for of late years there has been more or less evidence produced that even the gumma, which commonly belongs to the later stages of the disease, is contagious. We know, however, that during the first year, or possibly two, there is great likelihood of the occurrence of moist lesions, principally on the mucous surface, which give off a virulent contagion, and that even the briefest contact with such, or the smallest amount of poisonous matter transferred on any object, can communicate the disease through an abraded surface.

When syphilis is under perfect medical control there is much less danger of the occurrence of these contagious lesions, but in neglected cases there is undoubtedly possibility of contagion even for many years. Great is the responsibility of the physician, therefore, who has the care of an individual with syphilis, that he may so impress these dangers upon the patient that the disease shall spread no further. It is strange indeed that in these enlightened days, especially since the more or less successful crusade against tuberculosis, there has not been the slightest attention paid to syphilis, which counts its victims by thousands, with untold danger to health and life. It would be interesting, did time permit, to bring to your attention some of the ravages which have been produced by syphilis, in years past, in the great and small epidemics of this disease which have occurred in remote districts, principally in Europe; and it would be instructive to recall how quickly these have been stamped out when once the real nature of the trouble was recognized and proper medical and sanitary precautions taken. As I have remarked often before, the great contagious disease syphilis has been *ignored* through *ignorance,* and *neglected* through *negligence.*

Another plain truth regarding the disease under consideration is that it is really a serious affection, which under unfavorable conditions is capable of inflicting a vast deal of damage and often irreparable injury, and even death. If the combined experience of those who have had much to do with syphilis could be given, a clinical picture of misery would be presented which would shock the medical and lay public into an earnest effort to control and check the spread of the disease. This is not an idle or rash statement of a syphilophobe, but is the calm opinion of one who for nearly forty years has been in almost daily contact with the disease in private and public practice, and is fairly well familiar with the literature of the subject.

I will not detain you with any detailed accounts even of the direful effects of the disease which I myself have observed and treated, as the scope of this paper is more general. But I must remind you how in neglected or unusually severe cases it may play havoc with any portion or organ of the body, even the most vital parts. You all know the very large share it plays in connection with locomotor ataxia, and the serious character of its brain lesions, as also those in the deeper structures of the eye, etc., and even the briefest mention of the many evil results which may come from the action of syphilitic poison would take much more time than can be now spared; the story of its relation to procreation, and hereditary syphilis, would alone occupy an evening. The truth therefore, is very plain, that syphilis is an important and serious disease, which should always engage most earnest attention, and that the physician should take great pains to instruct the patient, and, if necessary, even to frighten him, into giving proper and continuous care and treatment, sufficient to protect him against some of the more serious later inroads of the disease.

Another plain truth about syphilis is, that although it might be called a rebellious disease, as far as regards any natural tendency to recovery, it is yet very tractable if exactly the proper measures are carried out, in every respect, with perfect obedience and for a sufficient length of time.

When an intelligent patient first begins the treatment of a recently acquired syphilis, he generally expresses a perfect willingness to abide by every direction given, and promises to continue treatment faithfully, until such a time as the physician may direct its cessation; but, alas, how seldom is this actually the case! how few syphilitic patients are really discharged by the physician! and in how few instances can it be really said that the treatment has been perfectly carried out in every particular, for the fullest time which a wise and conscientious physician would desire!

It is a plain truth, therefore, that the laity, and I think also the medical profession, do not sufficiently realize the importance of a full and perfect treatment of syphilis, not only until the lesions present have entirely disappeared, but until sufficient time has elapsed, as recognized by those who know the disease best, for the elimination of the poison from the system. You all know that a full two years has been commonly considered the least time in which this can be accomplished by proper treatment; but some may not know that many of the best authorities are now regarding that as too short a period, and three, four, or even five years are judged necessary in some cases. Time does not permit us to go fully into this subject, but the profession should recognize that even as in the case of the spread of smallpox and other contagious diseases, the physician may be often responsible in a large measure for the spread of syphilis, if he does not adequately impress upon the patient the necessity of a full and proper treatment, as well as sanitary precautions, in such cases; for I am convinced that a good share of infection comes from imperfectly treated patients, who do not realize that until syphilis is entirely overcome they may communicate the disease through contagious lesions, mainly on the mucous surfaces, or may give the disease by heredity. Much of marital syphilis is thus acquired.

It has become pretty well established that alcohol is harmful to the syphilitic, indeed it has been shown that in a considerable proportion of the cases exhibiting late lesions of a serious character

these are due in a large measure to the baneful effects of alcohol on the tissues. This does not relate necessarily to very great overindulgence in alcoholic drinks, but occurs as well in those who have been moderate users even of wines, beer, etc.; the person affected with syphilis should, therefore, be a total abstainer, certainly during a period sufficiently long to have the poison thoroughly overcome by proper medical treatment.

Tobacco is not so actively harmful in syphilis, but the commonly accepted opinion that it had better be avoided is undoubtedly correct. In the early stages it pretty certainly increases the tendency to the development of contagious mucous patches about the mouth and lips, and in the later stages it increases the danger of cancerous degeneration in syphilitic lesions in the buccal cavity; by its effects upon the vasomotor nervous system tobacco may also act prejudicially in regard to some of the later effects of syphilis on the brain and nerve tissue.

Time does not permit us to dwell long on the subject of the treatment of syphilis, and, as in regard to so many other different diseases, there will probably always be more or less divergence of opinion in regard to many details of greater or less importance, in accordance with individual observation and judgment. But there are some facts, or plain truths, which it is well always to bear in mind. Mercury is still the one and only remedy which exercises a specific control over the disease. The forms and methods of its administration are very many, but it must be remembered that in each and every instance it is the mercury itself which does the good, the only question being as to the best method or combination whereby it may be made to permeate the system, with the least harm; so in many instances it is somewhat a matter of individual preference, based on experience, for one can generally, or at least often, do better work with a tool with which one is well acquainted than if one attempts to handle new ones continually, although recommended by ever so high an authority. My advice, therefore, is not to run after each novelty, but to adopt a good plan of treatment and stick to it, with such modifications as individual cases may demand. The dosage of mercury is a variable factor, and must vary with the case, and with the results obtained; the plain truth is that the individual must have sufficient of the remedy and for a sufficiently long time to overcome the poison.

The method of administration of mercury is a large subject which we cannot enter fully upon now; many modes have many advocates, and each has its advantages and disadvantages. The inunction method is relatively seldom used now in private practice, but in certain cases in hospitals and in infants, especially the latter, it is of very great value. Mercurial vapor, given in baths, is also rarely used, but at times serves a valuable purpose to effect rapid mercurialization. The administration of mercury by the mouth is, and probably always will be the common and favorite method of introducing the drug, and is that which I generally employ; but the plain truth is that, as ordinarily administered in general practise, it often fails in controlling the disease and its later effects as radically as could be desired. To be really effective it should be given to tolerance, the mouth being very carefully watched to avoid salivation; I constantly see patients with florid manifestations of syphilis who have been receiving only a quarter of a grain of protoiodide of mercury, three times daily, a totally inefficient dose.

The hypodermic administration of mercury is steadily gaining ground in the profession, and by many is advocated as the only proper method of treatment, in all stages of the disease; an opinion which I do not share, although I have had some little experience with it. It has its advantages and its disadvantages, which we have not now time to weigh, but the plain truth is that it is a valuable addition to our means of combating syphilis in many cases; we can certainly often produce very rapid effects thereby, and in instances where the brain or vital organs are involved this method of treatment has undoubtedly secured results which it would be very difficult to effect in any other manner. The details in regard to the preparations used, dosage, and technique of the operation have been so abundantly detailed in literature that I need not dwell on them here.

Iodide of potassium is constantly thought of in connection with the treatment of syphilis, but the plain truth is that of itself it has really no effect upon the syphilitic poison, although it is often erroneously given for this purpose; but as an adjuvant to mercury, in the removal of some of the later results of syphilis, it is of inestimable value; it also probably aids materially in effecting the rapid elimination of mercury from the system. All agree, therefore, that early in the disease it is of relatively little service, while late in the disease its value is incontestable. But many err in employing it then alone, whereas the plain truth is that more or less mercury is needed as long as there are any manifestations of the disease, indeed until the full time has elapsed, which experience has shown to be necessary to overcome the poison. The enormous doses of iodide of potassium which are sometimes given are commonly both useless and irrational, although, of course, in certain cases large amounts may be necessary to cause the absorption of effused products. But it is a plain truth that even in these cases much less of the iodide will be needed if mercury is used judiciously in addition, even in the latest stages of syphilis.

Another plain truth, which seems to be too often forgotten in practice, is that the patient is constantly to be regarded and treated, quite as much as the disease itself. Too many seem to regard only the infection, and from first to last administer mercury and iodide of potassium quite regardless of the patient's condition, and to the utter disregard of the diet and mode of life or the manner in which the bodily functions are performed. It must always be borne in mind that we have to do with a living animal organism, of marvelous complexity, into which a foreign poison has entered, and in which it multiplies, modifying materially the actions and functions of the component parts: and while administering the antidote to the poison one must continually bear in mind the many other elements which may tend to derange the health of the individual. For all recognize that the syphilitic virus acts very differently in different persons, and under various circumstances: the sad cases of malignant and galloping syphilis which one sometimes sees, have not so much to do with a greater quantity or virulence of the poison as with a depraved state of health and many errors of the system, which it is the duty of the physician to correct.

Finally a few words must be said in regard to

the plain truth concerning the supposed value of mineral springs in connection with syphilis. This matter has been repeatedly discussed in our dermatological circles, and I am confident that I speak the views of others who also know, when I say that their value and importance has been very greatly overestimated, both by the laity and by the profession at large. Indeed I would go further and say that much harm is often done by the false security which patients often have who have undergone what is often called a "cure" at one of these places; we all know that syphilis cannot be cured by any brief course of treatment, however severe; and yet, having had such a "cure," patients will often entirely neglect treatment until the disease insidiously attacks vital organs, often to such a degree that subsequent remedial measures cannot repair the damage done. True it is that many patients with syphilis do undergo these so-called "cures" with distinct benefit; but when the matter is carefully investigated it will be found that they have been submitted to very active and often heroic treatment with mercury and iodide of potassium at the springs, and to this the gain is entirely due; although it must be admitted that the change of air and scene, together with the natural hope and expectation of benefit, have contributed in some measure to the result. It would perhaps surprise you to know how very, very seldom those who understand syphilis best, ever advise a trip to one of the springs. I have seen very many syphilitics who have made the trip, often at great pecuniary sacrifice, who have subsequently acknowledged the mistake made, and I do not recall a single instance where I have regarded it necessary or wise for the patient to undertake this method of "cure" at any great personal sacrifice.

In closing this rather rambling talk upon some plain truths about syphilis I have to apologize for the brief and imperfect manner in which each point has been considered, as only a limited time was assigned me; for there are a number of them which could each be elaborated into a full paper. But in the spirit which I mentioned at the beginning, I have only tried to humbly fulfil the request of your honored president, and to put before you in a simple manner some of the plain truths and practical points concerning syphilis which are of value to keep in mind, and which form the basis of my daily experience with the disease.

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THE DIFFERENTIATION OF BLACK PIGMENT FOUND IN THE LIVER, SPLEEN, AND KIDNEYS FROM COAL DUST OR OTHER FOREIGN DEPOSITS.

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Pathologists all over the world have long been interested in pigmentations in the interstitial tissues of the various organs, and particularly the abdominal organs. This is of either an organic or inorganic character. The pigmentation to which I first, in 1882, called attention is the black pigment of soot and coal dust. I have had occasion to make and help to make some twenty-five hundred autopsies, with the view of determining (1) what this black pigment is which frequently is found deposited in the liver, spleen, and kidneys; and (2) its origin and causes.

During the years 1883 to 1885, both inclusive, I was appointed expert microscopist by my esteemed friend and teacher, Prof. von Recklinghausen of Strassburg, to make a thorough scientific investigation into this subject, in order to determine its

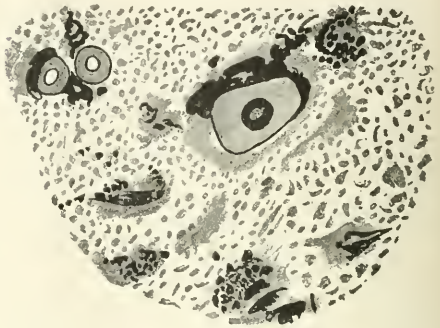

Fig. 1.—Microscopical section of the spleen with coal-dust deposits, anthracotic metastasis.

pathological character, its causes, and etiology; then to write a dissertation upon this subject. This, the title of which was: "Concerning the Black Pigment Found in the Liver, Spleen, and Kidneys," was originally published in 1885.

I have since then made some additional important discoveries concerning the differentiation and identification of the pigments frequently found deposited in the liver, spleen, and kidneys from soot and coal dust or other deposits, such as small minute particles of stone, sand, bone, slate, glass, wood, iron, and steel dust. These researches were made with the view to determine absolutely whether it is possible that these inhaled substances can eventually be found deposited in these abdominal organs, and how.

Dust is one of the great disseminators of diseases by carrying and depositing specific microorganisms in the lung tissue, there to develop, multiply, and by absorption produce infectious diseases. The effects of dust on the human being depend upon the following factors: (1) The kind of dust; (2) the

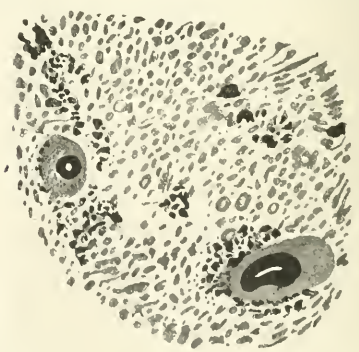

Fig. 2.—Microscopical section of the spleen with soot deposits.

amount of dust; (3) the constancy of its presence; (4) the susceptibility of the individual; (5) the promptness of its absorption by the lymphatics and the deposition in the lymphatic gland; (6) the chemical action or reaction on these tissues and

to what extent they are soluble in the secretions; and (7) the amount of irritation, *i.e.* inflammatory condition they may produce.

The composition of dust varies according to the locality and local conditions. For instance, in a city where much coal is burned the atmosphere is constantly loaded with small carbon particles; in

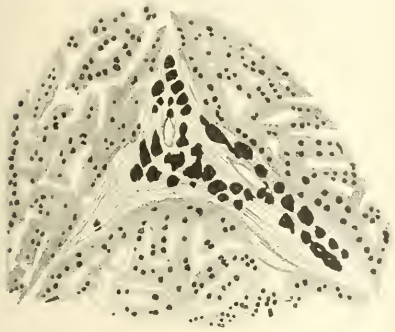

Fig. 3.—Microscopical section of the liver with coal-dust deposits.

stone works the dust consists almost entirely of fine particles of stone, generally very hard and with sharp edges; in factories, where metal is ground, we find a metallic dust, also with sharp edges.

It has been known for years that workers in stone and metal grinders suffer more frequently from bronchial and lung diseases than do individuals in other trades, and oftentimes such cases have been mistakenly regarded as tuberculous, when in fact they are mechanical inflammatory conditions. Coal miners suffer more from these diseases than do other miners, as the coal is very readily reduced to a fine powder with sharp edges. The deposit of coal dust in the lungs and bronchial lymph nodes (see Fig. 6) may be very great in amount, causing these organs to appear black, enlarged, and very tough and gritty on section.

The term given to deposits of dust in the lungs is pneumonoconiosis. This is the general name for such deposits, but I have given special names to the various kinds of dust. For instance, the de-

Fig. 4.—Microscopical section of the liver with coal-dust and soot deposits.

posit of coal dust in the lungs is called anthracosis; of metallic dust, siderosis; of stone dust, chalicosis; of clay, aluminosis; of bone, ossiocosis; of sand, silicosis; of wood sawdust, lignicosis; glass, vitricosis.

The inhaled dust particles are of two distinct classes, inorganic and organic.

In the first class, beside those above mentioned, are included the various salts which, when dissolved in the secretions, cause a chemical irritation. A good example of this type is the dust of the alkali deserts of our western states.

Fig. 5.—Microscopical section of the kidney with coal-dust deposits within an atrophied glomerulus.

To the second class belong the pollen of various plants, which, in peculiarly susceptible individuals, causes an intense inflammation known as hay fever, rose cold, etc. Then come the different microorganisms, and here I must mention first of all the tubercle bacilli (Fig. 7), besides many other pathogenic microorganisms, such as the streptococcus, staphylococcus, micrococcus, pneumococcus, Klebs-Loeffler bacillus, even that of typhoid fever, anthrax, and bubonic plague.

A dust-laden atmosphere may therefore contain many or different kinds of dust, and one or more different varieties of pathogenic microorganisms; they all have to travel one channel; that is, by the lungs, there to be deposited, eventually absorbed by the lymphatic vessels and capillaries, and ultimately deposited in the lymph glands at the hilus of the lungs, and then through certain inflammatory pathological changes at the hilus, finally, by perforation, carried by the blood-vessels and deposited in the abdominal organs.

It practically makes no difference what kind of dust one may have inhaled, it is driven to the lungs directly into the alveoli and here is the place where the first damage is done; the smaller dust particles are absorbed, as mentioned above, whereas the larger particles cut their way into the lung tissue, producing oftentimes hemorrhages and chronic

Fig. 6.—Coal-dust deposit in a lymph node.

bronchitis and pneumonia, and eventually become encapsulated.

No subject in pathology or pathological anatomy has caused more worry and confusion than the pigmentation of the abdominal organs, and many anato-

mists and pathologists have been engaged during the past century, and particularly during the last three decades, in trying to solve the problem, how the black pigmentation, which so frequently is observed in the liver, spleen, and kidneys, originates; if it can be looked upon as a transportation of some foreign substance, such as coal dust, etc., from

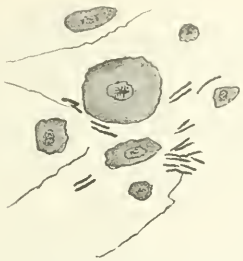

Fig. 7.—Tubercle bacilli in sputum.

other localities, or simply as an expression of some dyscrasia, especially the malarial dyscrasia.

In the first decennary of the past century this melanosed condition was considered quite normal, but since, in 1847, by means of the microscope, pigment was found in the spleen, and at the same time it was also discovered in the blood of the cadaver, the belief arose that it might have been brought about by intermittent fever, and the discoloration observed in melanemia was then denominated "melanotic pigmentation." Many authors, especially the French, were of the opinion that this black pigment was derived from the blood as the result of the destruction of the red blood corpuscles, the coloring matter of the blood (hemoglobin) being transformed into this black pigment.

These views were accepted until it was proven by chemical analysis and tests that this black lung pigment was identical with coal dust and soot. In 1878 Soyka narrated a case in the *Prager medizinische Wochenschrift* in which this black pigment in the spleen, liver, and kidneys was found to be identical with coal pigment; this being the first case cited in literature of which we have any knowledge.

Soyka's case was that of a man, seventy years old, afflicted with a high grade of pneumonoconiosis, in which he also found coal pigment in the liver, spleen, and kidneys. Soyka, however, believed that this coal dust passed through the bronchial lymphatic glands, then through the thoracic duct, and from there was carried into the blood and deposited in the above named organs. This hypothesis Weigert was right in disputing, with the remark that if the lymphatic glands were not continent every adult would have such deposits in different organs, which is positively not the case; every adult, however, possesses more or less anthracotic bronchial lymphatic glands; this black pigmentation is certainly not an expression of malarial dyscrasia, since in Germany the malarial forms from which melanemia is produced rarely ever occur, although a deposit of black matter in the liver and spleen is by no means infrequent, as Weigert and Roth have recently affirmed.

The latter author also expressed his views in a lecture published in the *Correspondenz-Blatt für Schweizer Aerzte*, Jahrgang XIV, 1884, to the effect that this pigment is probably carried by the blood, and he is of the opinion that this might be looked upon as a coal dust metastasis. Weigert expresses the same opinion in the *Fortschritte der Medicin*, No. 14, 1883, in which he asserts that the diffusion of coal dust and soot occurs through the blood-vessels, and states that in Leipzig, the home of the observer, severe malarial cases never occur, and that therefore for this reason alone and also because the spleens examined are oftentimes completely atrophied, the origin of melanemia (melanosis) should be excluded.

I have recently again demonstrated beyond a doubt through scientific examinations, and from chemical, microscopical, and bacteriological tests, and by comparison have proved absolutely that this black pigment, which frequently is observed in the abdominal organs, presents no material difference from inhaled coal dust and soot frequently found in normal lungs, especially in those of coal miners and chimney sweepers, etc. Concerning this black lung pigment, Knauff says, in Virchow's *Archiv*, Vol. No. 39, page 458: "I have never seen the lungs of adults that did not show a black pigmentation. The lungs of newly born infants, however, never contain black pigment; those of old people, as a rule, a large quantity."

It is well known that the English first expressed the idea that this black pigment which so plentifully exists in the lungs of coal miners and chimney sweeps is due to the inhalation of coal dust and soot. Pearson was the first (see Philosophical Transactions, 1813, page 159), after him Lecann and Melsens, to explain the chemical character of this black pigment contained in the lungs and bronchial lymphatic glands. They showed that the black mass examined burned without flame and without leaving any ash behind; furthermore, that it was insoluble in nitric, hydrochloric, and sulphuric acids or in caustic, potash, or soda, etc., and that it was only acted upon when placed in boiling water through which a current of chlorine gas was passed. It was therefore identical with coal and soot. Then by further chemical analysis it was found to consist of 96 61/100 per cent. of carbon and 83/100 per cent. of hydrogen; therefore nearly pure carbon. It was consequently no organic pigment.

Later, Pearson and Laennec expressed their views concerning the so-called physiological anthracotic lung pigment; however, Gregory, Marchall, Thomson, Rilliet, and others, during the early part of the past century, acknowledged the possibility of the introduction of coal dust, particularly soot, into

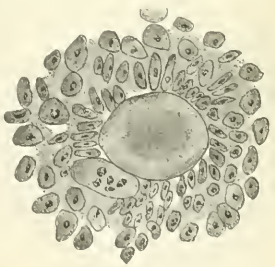

Fig. 8.—Miliary tubercle.

the lung tissue and the production of an exquisite pathological anthracotic lung, as seen in coal miners.

But it is only since Traube's accurate microscopical examination that it has become generally accepted that the discoloration of the lung is due

to the presence of coal dust within the air passages and alveoli.

Following this it was tried, and with success, to solve the problem by experiments, and it is my duty here to mention, above all others, the names of Knauff, von Ins, and Ruppert.

Knauff asserts (Virchow's *Archiv*, Vol. XXXIX, page 442, 1867) that in animals confined in the smoke chamber for a time, the inhaled coal dust penetrated to the extreme portions of the breathing organs; further, that the pigment for the most part adhered to the cellular elements, but free pigment also lodged in the alveoli. These cellular elements were partly free, partly more or less fixed to the walls. The filling of the cells with coal dust was, as a rule, incomplete. The same formations were also found lodged in the parenchyma beneath the surface of the alveoli. A narrow but distinctly visible strip of colorless lung tissue separated the lumen of the alveoli from the stratum containing the coal dust. The black particles either lay scattered and seemingly without definite order, or formed more or less connected lines. The arrangement of coal particles in ramifying lines appeared still more distinctly on the surface of the lungs. From these manifold branching lines connecting chains proceeded, so that the whole presented the appearance of a vascular system. And thus the design of the injected lymphatic vessels was traced by the coal dust. When an animal had been exposed to an atmosphere thickened with coal dust or soot, and the roots of the lungs were more closely examined immediately after death, the lymphatic canals appeared as gray lines, just as if India ink had been artificially injected. The liquid contents of the canals could be moved hither and thither by stroking and pressing, more easily, of course, towards the lymphatic glands than in the opposite direction because of the opposition offered by the imperfect valvular apparatus. On closer examination the gray contents were found to consist of fine granules of coal, partly free, partly enclosed in the cells, of exactly the same appearance as that in the lung parenchyma. From the above experiments the following was deduced: From the surface of the alveoli the coal dust and soot force their way into the parenchyma of the lung: there it must be supposed free communications exist, although the passages cannot be demonstrated. But that these passages may be traced was later shown by me ("Experimental Histological Research"), and I demonstrated that between the flattened, transparent epithelial cells lining the alveoli are minute openings, "stomata," leading from the cavity of the air cells into the lymph-lacunæ of the alveoli wall. These stomata are more distinct during expansion, *i.e.* inspiration, than in the collapsed state. Inspiration by its expanding the lungs, and consequently also the lymphatics, greatly favors absorption. Through these stomata, and also through the interstitial cement substance of the lining epithelium, may penetrate particles, such as soot from a smoky atmosphere, pigment artificially inhaled, even minute particles of iron, steel, glass, bone, stone, wood, or sawdust, then cellular elements, such as mucus or pus corpuscles, and germs that have been carried into the alveoli from the bronchi by natural inspiration. Then they pass into the lymphatic vascular system, close to its finest roots (the lymph-canaliculi of Recklinghausen) which, of course, are very difficult to demonstrate. From here they pass into the lymphatic vascular capillaries, and are gathered particularly where several lung alveoli meet, chiefly at the point of transmission of the infundibula into the alveolar passages. Just here the dust particles accumulate. The lymphatic vascular system mingles and intercommunicates in the subpleural, but especially in the peribronchial and perivascular tissues; and through these channels the dust particles move and are carried into the bronchial and tracheal lymphatic glands, and there deposited.

As Slavjansky proved (Virchow's *Archiv*, Vol. XLVIII, page 326) that lymphoid cells appeared in the lung alveoli after experimental inhalations of dust, in which especially cinnobar, ultramarine, indigo, and coal dust were used, or in animals compelled to remain for a considerable time in a dust-laden atmosphere. These lymphoid cells, together with the lung epithelia and particles of mucus were laden with the inhaled dust; moreover, free dust was found in the lumen of the alveoli as well as in that of the bronchiæ. On the other hand, the cylindrical epithelial cells of the bronchia were entirely free from dust. Further, Slavjansky pointed out that in rabbits that were subjected to artificial inhalation of cinnobar within three days cells containing this coloring material were found in the cortical layers of the lymphatic glands situated at the base of the lung. From all these researches it has been concluded that the dust, cinnobar, coal dust, etc., inhaled under artificial or natural conditions are driven into the distant extremities of the breathing canals, there received by the cellular elements, lymphoid, and mucus cells, perhaps also by the flat and transparent epithelial cells lining the alveoli, and these cells are then either absorbed by the lymph-canaliculi, or are conveyed into the lymphatic vessels. From the small lymph-canaliculi they are led into the lymphatic vessels and thence into the lymphatic glands situated at the base of the lungs and deposited.

Concerning the consequences of this deposition in the lymphatic glands, I wrote in the *Correspondenzblatt für Schweizer Aerzte*, Jahrgang XVI, 1886, as follows: "The changes vary according to the degree of discoloration of the lymphatic gland; if it is but trifling, it may be endured without further disturbances, but if considerable then local inflammation, lymphadenitis and perilymphadenitis may set in. In consequence of the latter, on the one hand, a development of cicatricial tissue, a common slaty induration of the tracheal and bronchial lymphatic glands; and, further, a shriveling and a destruction of the lymphatic structure may result; on the other hand, the process may become acute, and soon abscesses of the lympatic glands, with suppuration of the capsule and the neighboring tissue, may follow. The process may also spread to the neighboring organs, such as the bronchia, veins, arteries, heart, or pericardium, which may lead to fatal results; or the former indurated mass may soften, slough, and become a slaty pulp, which microscopically and chemically presents nothing else than anthracotic pigment in a free state or deposited in lymphoid cells; also cells of fatty degeneration, cholesterine, clots of necrotic tissue, at times also leucin and tyrosin, occasionally even lime. To this disintegrated united product I gave the name in 1885 of 'slaty cheese substance.'"

Should the process take on a chronic course, it is not seldom found in dissecting that the more or less enlarged, slaty, indurated lymphatic glands, on being cut into, present a striped appearance, obviously a product of the chronic inflammation of the gland tissue. The most varied local changes result from prolonged local inflammation of the lymphatic

glands. In regard to this Weigert has already declared that very soon inflammatory adhesions with the bronchia at the base (hilus), *i.e.* with arteries, veins, nerves, and lymphatic vessels will occur, and at times also with the vena cava inferior and superior, and occasionally even with the vena azygos dextra.

In 1885 I said that if the inflammatory process remains confined to the lymphatic gland and its capsule, calcification may result; even the entire gland, together with the capsule, becoming calcified *in toto*. These calcified masses may be conveyed by means of perforation into the air passages and out of these to the exterior; or they may cause an obstruction of the air passages and so directly lead to death by suffocation, or indirectly by secondary bronchopneumonia and hemorrhages. In regard to this there occur in the literature on the subject a few interesting cases: An observation of Edwards was described in the "Medico-chirurgical Transactions," 1854, Vol. 37, p. 151; a second case was published by Roth, *Correspondenzblatt für Schweizer Aerzte*, Jahrgang XIV, 1884; the third case was dissected and demonstrated by me, in 1884, in the presence of my highly esteemed teacher, Prof. Dr. von Recklinghausen. In this instance it appeared that the entire gland, together with its capsule, was calcified *in toto*, and this mass had penetrated the left principal bronchus, to the walls of which it was somewhat firmly adherent. Chemical analysis showed that this mass consisted, to a large degree, of carbonate of lime, gelatin-producing substance, and a trace of sulphuric acid.

The local changes resulting from the anthracotic indurations of the lymphatic glands are frequent, oftentimes complicated and manifold. They have been most elaborately described by Zenker (Handbuch der Pathologie, VII, 1, 2, Auflage, 1871, Anhang, page 66), and by Eternot (Recherches sur les affections chroniques des ganglions trachéo-bronchiques et les suites de ces affections, Geneva, 1879), and by Oekonomides (Dissertation über die chronische Bronchial-Lymphdrüsen Affection und ihre Folgen, Basel, 1882). From all these communications the following is deduced (Gaertner, 1885): If the chronic inflammatory process, adenitis, and periadenitis continue, it will not remain long confined to adhesions with the neighboring organs, such as the bronchia, arteries, veins, lymphatic vessels, and blood-vessels, even with the esophagus and the trachea, etc., but may, on the one hand, result in dilatation of these organs by retraction, or, on the other hand, in a contraction by compression. Furthermore, that the walls of the pulmonary vessels or bronchi may not only become necrosed and break down, but finally become perforated. At the site where this chronic slaty indurated lymphatic gland lies in contact with a blood-vessel or bronchus, the anthracotic pigment or any other foreign substances may directly enter the blood stream or the breathing passages, or such masses may be conveyed into and carried through the blood by means of the bronchial vessels (arteries and veins) which run along the bronchi and supply them with blood. This was demonstrated beyond a doubt by me in 1882, in 1885, and now again.

Here consequently lies the real etiological moment for the transportation of anthracotic pigment—coal dust, soot, or other minute substances, such as iron or steel, wood, bone, glass, sand, paint dust, even germs, etc.—into the various organs, especially the liver, spleen, and kidneys; also into the peripor-tal and mesenteric lymphatic glands, even into the marrow of the bone, by means of the blood-vessels. To this pathological process, if it contains soot or coal dust, I have given the name, in 1885, "coal dust, or anthracotic metastasis."

The occurrence of this coal dust metastasis in the liver and spleen is, according to the most recent investigation, by no means infrequent; eleven cases of this kind were investigated in one month by Roth. I had the opportunity, under the guidance of Prof. von Recklinghausen, from 1883 to 1885, of examining carefully 275 typical cases of this kind. These original researches were made and especially directed to the answering of two questions: (1) Whether the pigment deposited in the abdominal organs corresponded microscopically and chemically with that of the enlarged and for the most part slaty indurated bronchial and tracheal lymphatic glands; and (2) whether the pigment was always present in the abdominal organs, when such a gland had perforated the walls of a blood-vessel or bronchus.

If the abdominal organs contain anthracotic pigment it is by no means necessary that they should be changed; they may be normal in size, or they may be enlarged or atrophied, although the two latter changes are not the result of the deposit of coal pigment or any other foreign substances, since coal pigment produces no irritation whatever in the structure of these organs. The pigment is for the most part taken up by the cells and especially by the leucocytes. Within these organs it only occasionally leaves the cells and settles in them permanently (see Figs. 1 to 5).

Soot and coal dust deposition within the liver, spleen, and kidneys, or in any other organs or tissues (which I have called "anthracotic metastasis"), is now recognized by nearly all pathologists and anatomists as a distinct abnormal, *i.e.* altered physiological, condition, and is mentioned in nearly all the latest scientific works on pathology and pathological anatomy as a distinct pathological condition. I have given in detail and fully described what changes it must undergo and through what channels it must travel to be conveyed and deposited in these distant abdominal organs in order to form this secondary anthracotic metastasis.

Consequently coal dust and soot deposits within these organs as a rule do not do any great harm or damage, but all the damage is done at the base of the lung, just here at this very point where lymphadenitis or perilymphadenitis is set up or rather brought about by the absorption, infection, and constant irritation of this coal dust, or other foreign substances taken up into the lymphatic glands and its surroundings; eventually there occurs a perforation into an artery or vein, whereby the material is taken up by the blood-vessels and carried over the entire body and deposited at certain anatomical points, thus producing this secondary metastasis. But immediately surrounding these small perforations is the very place where all the serious damage is done, and this is as a rule the direct cause of death.

I will add that nearly every adult has more or less enlargement and induration of the lymphatic glands at the base of the lung, which is either of anthracotic or produced by dust particles loading the atmosphere breather by these individuals. This pathological condition should be called in accordance with whatever foreign substance it may have been absorbed and retained to produce it; then the same nomenclature should be applied to such deposits in the abdominal organs.

The Spleen.—In the spleen it lies principally along

the smaller arteries (perivascular) and in the marginal zone of the malpighian bodies, and it is also found in the perivascular lymphatic canaliculi and in the lymphatic vessels of the capsule. (See Figs. 1 and 2.) It is for the most part confined to cells, especially leucocytes, round cells, and the spindle-shaped and star-shaped cells. It presents a finely granular black pigment which is not affected by caustic soda or potash, caustic ammonia, muriatic, nitromuriatic, or sulphuric acids, or ferrocyanide of potassium. It is not affected by the various coloring materials which are used in staining the tissues. The coloring fluids which I have used especially are: carmine, Ranvier's picre-carmine, alum-carmine, Orth's lithion-carmine, borax-carmine, hematoxylin, and the various aniline colors, such as gentian-violet, methylene-violet, methylene-blue, fuchsin, and several others. This black spleen pigment corresponds exactly, as well microscopically as chemically, with the coal dust of the lungs and of the bronchial and tracheal lymphatic glands.

The Liver.—It is very rarely visible macroscopically in the liver. If it is present it assumes, as is well known and as Weigert has pointed out, a light gray color. Microscopically it is seen deposited especially in the periportal interacinous tissues along the smaller arteries and at times also within the cells of the tissue along the vena centralis, also in the lymphatic vessels of the capsule and in the periportal (interlobular) lymphatic ducts. (See Figs. 3 and 4.) It has never yet been possible for me to demonstrate a deposit of coal dust within Kupfer's star cells of the liver.

The Kidneys.—The deposit of anthracotic pigment in the kidneys is by no means a frequent occurrence, although it may exist abundantly in the liver and spleen. I was able, however, in several cases to discover it deposited, although scantily, within an atrophied glomerulus (Fig. 7). I think I am able to explain this anomaly by the fact that the kidneys are not only very abundantly supplied with blood, but that the blood in them changes rapidly, by rapid circulation. In the periportal and mesenteric lymphatic glands the anthracotic pigment is led by way of the perivascular lymphatic ducts, which fact may be determined because the capsule of the lymphatic glands and the peripheric lymphatic ducts are found laden with it. This black, finely granular pigment is not easily to be confused with bile pigment (bilirubin); it might more easily be confused with iron pigment, micrococci, fatty degeneration of the epithelium cells, with the so-called cells of fat particles (Gluge's corpuscles), or finally with the putrid products of the epithelium.

The iron pigment as it is found in pernicious anemia, I have demonstrated by ammonium sulphate, or, still better, by ferrocyanide of potassium and diluted muriatic acid.

The latter is preferable, since by its use the microscopic sections have a very intense shade of dark-greenish blue microscopically; and it may be seen even macroscopically; that is, the iron pigment is colored distinctly green or light blue. In order to produce lasting and beautiful microscopic specimens the following is the best method: Allow the sections to lie from eight to ten minutes in Ranvier's picro-carmine, then wash them well in distilled water; next place them for five or ten minutes in ferrocyanide of potassium, then for a few minutes in diluted muriatic acid; wash again; dehydrate in absolute alcohol, clear in origanum or bergamot oil, and embed in xylol. Canada balsam, or damar lac. If the cuttings are placed in glycerin the iron pigment very quickly (within three weeks) loses its blue-green shade, and it is then no longer possible to recognize iron pigment as such until the sections have again been successfully treated with ferrocyanide of potassium and with diluted muriatic acid.

The differential diagnosis between coal dust (anthracotic metastases, Gaertner) and micrococci is by no means easy. Both are finely granular and brownish black in color, both resist the various reagents, acids and alkalies; both lie for the most part within the smaller arteries. The difference exists, on the one hand, in that the anthracotic pigment lies principally within the cells, which is very unusual for the micrococci; and on the other hand—and this is the principal difference—in its relation to the different staining fluids, especially aniline dyes, and also to reflected and direct light. To distinguish anthracotic pigment from fatty degenerated epithelial cells, fatty particles, etc., it is sufficient to note that the anthracotic pigment is not affected by the agents that are used for recognizing fatty degenerations, such as with osmic acid, sulphuric ether, etc.

Finally, concentrated mineral acids serve to distinguish the anthracotic pigment from the putrid products of the epithelial cells, which, especially after treatment with acetic acid, under the microscope appear to be entirely black. In mineral acids the epithelium cells immediately dissolve, while the pigment, as before stated, remains unchanged.

It appears from my original pathological investigations, made during 1883 to 1885, and since then new researches and observations made upon the human subject by clinical and chemical tests and observations, from examinations upon the cadaver, and from experimental tests on rabbits, cats, and dogs with artificial and forced inhalations of cinnobar or other dust-laden atmosphere, that the intensity of the black pigmentation in the abdominal organs increased in exact proportion to the quantity of coal-dust and soot deposits in the bronchial lymphatic glands; so that it increases according to the amount of such deposits in the glands, and as the walls of the neighboring blood-vessels are penetrated and infiltrated at the point of perforation with this anthracotic substance from these enlarged indurated bronchial and tracheal lymphatic glands.

Since the cases of my investigation in this respect are of great importance and support the theory that the black pigmentation of the abdominal organs is anthracotic and not melanotic, I give here very briefly the results of my investigation of ten of the most typical cases examined.

Case I.—Hemorrhagic pleuritis, thrombosis of the pulmonary artery and gangrene of the surrounding tissues. The lungs are strongly affected with anthracotic pigmentation, the normal capacity as to the quantity of blood and air in them being diminished. The right lung is affected with senile atrophy and shows some vesicular emphysema; circumscribed slaty indurations are not apparent; on the contrary the lower lobe of the left lung is compressed to a great extent by a hemorrhagic exudation. The tracheal and bronchial lymphatic glands at the hilus are large and slaty, a few of them being of very solid consistence. Some of the same are adherent to the bronchi and blood-vessels near which they lie. A shrunken black lymph gland lies close to the right principal bronchus and is adherent to it. An incision being made, a small opening is found, leading into the interior of the gland. A second enlarged, slaty, indurated lymphatic gland lies close to the principal branch of the pulmonary artery and is firmly adherent to it. The lumen of

the artery is narrowed at that point where the solid black gland lies, and the wall itself is considerably pigmented and infiltrated by this anthracotic pigment. On opening the artery an autochthonal thrombus is found, which obviously came into existence through the contraction and the defect in the endothelium. The thrombus gave rise to the surrounding gangrene. A deposit of anthracotic pigment is found in the liver and spleen. (See Figs. 1, 2, and 3.)

Case II.—Cancer of the gall-bladder, with regional metastases in the liver and mesenteric lymphatic glands. Both lungs are strongly affected with anthracotic pigmentation; no particular indurations are present. The right lung shows croupous pneumonia, to which the patient succumbed. The left lung is, on the contrary, abundantly supplied with blood, but its capacity for air is greatly increased. The bronchial lymphatic glands at the base are very large, indurated, and slaty. One of them is extremely black and shrunken; it lies close to the principal branch of the vena pulmonalis, and is firmly adherent to it, the result of adenitis and periadenitis. The wall of the vein is completely penetrated by this black anthracotic pigment, which chemically and microscopically corresponds absolutely with the inhaled coal-dust of the lungs and that in the tracheal and lymphatic glands. An incision into the vein shows a small opening leading into the interior of the black lymphatic gland. In the spleen and liver is found a large deposit of pigment, especially of two kinds—brown and black. Macroscopically only brown pigment can be seen, which, under the microscope, was found to be strongly ferruginous (consisting chemically of hydrated sesquioxide of iron. Microscopically the black anthracotic pigment could be easily seen, deposited along the smaller arteries (perivascular), and in the outer zone of the malpighian bodies. (See Figs. 1 and 2.) In the liver the black pigment was deposited not only within Glisson's capsule, but also in the tissue cells along the vena centralis. (Figs. 3 and 4.) There was no anthracotic pigment in the kidneys; merely iron pigment.

Case III.—Embolism of the pulmonary arteries and a simultaneous slaty and brown induration of the lungs. Anthracotic pigmentation of the lungs is decidedly marked; the capacity of both lungs for blood is greater than normal, but that for air less. The edges of both lungs are slaty; the lower lobes, on the contrary, are indurated and quite brown. Infarctions or softenings are not apparent. The bronchi are somewhat dilated, but there are no cavities. The tracheal and bronchial lymphatic glands at the hilus are enlarged, solid, and slaty, a few of them being quite adherent to the neighboring bronchi and pulmonary arteries, the walls of which are more less infiltrated with coal pigment. An incision into the right principal bronchus shows a radiating cicatrix, in whose center there is a small opening which communicates with the existing cavity in the interior of this black gland. A second lymphatic gland lying close to the left principal bronchus is calcified *in toto* together with its capsule, and this mass has perforated the walls of the bronchus, but still clings rather closely to it. This is the case studied by me under Recklinghausen. The liver and spleen showed a condition of cyanotic atrophy, and a deposit of anthracotic pigment.

Case IV.—Exquisite slaty induration of both lungs (chalicosis). Anthracotic pigmentation is marked; both lungs are highly marbled with slaty indurated cicatrices; the capacity for blood is rather increased, but that for air is diminished; the formation of cavities, or softening, is not present. The tracheal and bronchial lymphatic glands at the base are very large, indurated and slaty; one of them is shrunken, entirely black, and lies close to the principal branch of the vena pulmonalis, and is adherent to it. At the point of junction the wall is considerably infiltrated with anthracotic pigment and slaty substances. An incision into the vena pulmonalis discloses at the place of the junction with this shrunken, slaty, black gland, a diverticulum, producing a traction-varix, evidently the product of chronic inflammation (lymphadenitis and perilymphadenitis chronica), with simultaneous shrinking of the glands. In the liver and spleen there is a deposit of anthracotic pigment and a chalicosis metastasis.

Case V.—Acute miliary tuberculosis of the lungs in a case of stonecutter by trade; pneumonia chalicosis chronica (Fig. 8). Anthracotic pigmentation of both lungs is only moderate, but highly marbled with fine tubercles of minute stone particles, to which I have given the name of "miliary stonecutter's tubercle." Slight, slaty induration, with marginal emphysema; no formation of cavities or infarctions. The bronchial and tracheal lymphatic glands at the base are enlarged, indurated, and slaty; some are adherent to the bronchi and the surrounding vessels, the walls of which are more or less infiltrated with anthracotic pigment and minute stone particles. On opening the bronchi and blood-vessels there is found a communication with the left principal bronchus. In the liver and spleen is found a deposit of black pigment; also very minute particles of stone—a "chalicosis metastasis."

Case VI.—Exquisite slaty induration of the lungs. The anthracotic pigmentation of the lungs is decidedly marked; the upper lobes of the right lung are almost devoid of air, and are considerably indurated with slaty cicatrices, in consequence of which bronchial cavities (bronchiectasis) have been formed. The quantity of blood in these lobes is diminished. On the contrary, the right lower lobe and the entire left lung have an increased capacity for blood, but are affected by vesicular emphysema. The bronchial lymphatic glands at the base are enlarged, indurated, and slaty; a few of them are to a great extent adherent to the neighboring bronchi and pulmonary arteries, the walls of which are somewhat infiltrated with coal pigment. A larger, black, lymphatic gland is somewhat softer than the others and adherent to the right principal bronchus, the wall of which at the place of juncture is greatly infiltrated with anthracotic pigment. An incision into the bronchus shows a steel-like, slaty cicatrix, in the center of which is disclosed an opening. In the liver and spleen there is a deposit of black pigment.

Case VII.—Edema of the lungs. Anthracotic pigmentation of both lungs is strong, but there are no special indurations; blood capacity is markedly increased; there is cyanotic congestion, and the capacity for air is diminished. The bronchial and tracheal lymphatic glands at the base are very large and black, but not especially indurated; a few of them have grown fast to the surrounding vessels, the walls of which are streaked with coal pigment. A large black gland lies close to the right principal bronchus and is adherent to it. An incision discloses a breach in the principal bronchus. The spleen is very large and fibroid in character (chronic splenitis fibrosa). Macroscopically the coal pigment is visible and is grouped principally along the arteries and in the periphery of the malpighian bodies, and lies

in the lymphatic vessels of the capsule as a black, finely granular pigment. In the liver the pigment is macroscopically not visible, but only microscopically; it is found especially along the smaller perivascular arteries, in the interlobular tissue, in the cells of the tissue along the vena centralis; also even in the larger perivascular lymphatic spaces and in the lymphatic vessels of the capsule. (See Figs. 3 and 4.) In the kidneys no pigment could be found.

Case VIII.—"Stonecutter's lung" (chalicosis pulmonum). Anthracotic pigmentation is marked, and the lungs are extensively dotted with little specks of almost stony hardness (miliary stonecutter's tubercles, Gaertner), but show no especial slaty induration; the blood capacity is increased and that of air diminished. Infarction or the formation of cavities is not present. The bronchial and tracheal lymphatic glands at the base are enlarged, indurated, and slaty; several of them are adherent to the bronchi and vessels, the walls of which are more or less infiltrated with coal pigment. A shrunken black gland is adherent to the right principal bronchus. The right bronchus being opened at the point of junction, a radiating, slaty cicatrix is disclosed, the center of which is disintegrated (necrosed) so that with a probe one can easily penetrate into the interior of the gland. Black pigment is deposited in the liver and spleen, with a decided chalicosis metastasis.

Case IX.—Slaty induration of the lungs. Exquisite anthracotic pigmentation of both lungs is quite marked; they appear almost black. The right lung is streaked with slaty indurated cicatrices and almost devoid of air, but rather well supplied with blood. Several bronchiectatic cavities are present. On the contrary the pigmentation of the left lung is a little less, as also are the indurations, but there is some marginal emphysema. The bronchial and tracheal lymphatic glands at the base are enormously enlarged; several of them are strongly indurated and black, and are adherent to the bronchi and the surrounding vessels, the walls of which are more or less streaked with anthracotic pigment. A larger black lymphatic gland is adherent to the principal branch of the vena pulmonalis, the wall of which is very strongly colored with coal pigment. An incision into the vena pulmonalis discloses an opening at the point of junction. In the liver and spleen there is a bulky deposit of pigment. In the latter it can even be diagnosticated macroscopically. In the kidneys there is a smaller mass of black pigment within a degenerated glomerulus; this proved to be anthracotic pigment (See Fig. 5).

Case X.—Exquisite vesicular emphysema of the lungs. Anthracotic pigmentation of the lungs is marked. They are not especially indurated, the blood capacity is rather normal. The bronchial and tracheal lymphatic glands at the base are enlarged, indurated, and slaty; some are adherent to the vessels and bronchi, close to which they lie and the walls of which are streaked with black pigment. A larger black gland firmly adheres to the principal branch of the pulmonary artery. An incision discloses a small opening which leads into the interior of this gland. In the liver and spleen there is a deposit of black anthracotic pigment.

Tuberculosis in London.—Notwithstanding its fogs and supposedly unhealthful climate, London has a lower mortality from tuberculosis than many other European capitals. In 1904 it was only 166 per 100,000 inhabitants, as against 257.5 in Berlin, 254 in Milan, 256 in Madrid, 314 in Vienna, 383 in Paris, and 387 in Moscow.

PROSTATIC CONCRETIONS, WITH SPECIAL REFERENCE TO ETIOLOGY AND TREATMENT.

By JOHN M. THOMPSON, A.B., M.D.,

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For many years contributors in the domain of genitourinary literature have had a noticeable predilection for the prostate gland; and while no part of the reproductive apparatus occupies a more conspicuous place in the current journals of the healing art to-day, still, in many respects the prostate remains an enigma. Among the various morbid processes associated with this gland,—which may be regarded as a barometer of the male generative function,—that of calculus is the one least determined and no doubt least familiar to the reader. For this reason the writer deems it a privilege to be able to report a very interesting and, it is to be hoped, equally instructive case, and to offer some remarks in connection with its etiology and treatment.

Etiology.—Among that large variety of functional nervous disorders which the late Dr. Beard classified under the central title of neurasthenia, the one commonly found in man was of a sexual type, in which the prostate was invariably a factor to be reckoned with. Beard's tireless investigations and profound study of this disease established the fact that it results from modern civilization, with its attendant excesses, indiscretions, and short cuts to the goal of ambition in all walks of life. For our purposes, it is merely essential to know that neurasthenia in the male is likely to be of sexual form, and the degree to which it has developed is determined generally and positively by the anatomical and physiological conditions of the prostate gland.

In the face of so many other problems pressing for solution from the viewpoint of the new school established by Pasteur, Lister, Koch, and others, it it not to be wondered at that calculi of true prostatic origin should be passed over slightingly; but when such eminent authorities as Sir Henry Thompson, Posner, Stein, and others, give assurance that this form of calculus is commonly found in the prostates of middle-aged and old men, and not infrequently during youth, surely, it behooves the physician to be on his guard.

In order to simplify matters, the causative factors may be divided into pathological and functional. Under the former are included all inflammations starting directly in the gland itself and indirectly from the extension of acute and chronic processes seated originally in other parts of the urogenital apparatus. The latter comprise the various agencies causative of derangement of function. Heredity, alcohol, climate, nationality, errors in mode of life—factors not to be overlooked in the formation of the more familiar forms of calculus, such as renal, hepatic, and vesical—all contribute to the causation of prostatic calculus.

It naturally follows, then, that since the prostate contributes the largest share of the secretion to the seminal fluid, the most important and direct factor in the formation of concretions in this gland is obstruction to the exit of its secretory product: the next formidable cause is retention. Inasmuch as the disturbance is associated with prostatorrhea (an excessive product), together with the fact that both obstruction and retention favor alkalinity, no doubt should obtain in the mind of the reader in regard to the probable outcome of these formative causes.

Symptomatology.—The cardinal signs of prostatic concretions seldom, if ever, betray themselves

subjectively during the early stage, in consequence of which fact the process may not be discovered until a comparatively short time before inevitable abscess formation. It devolves upon the physician, therefore, to look into the previous history, and to resort to an exploratory examination per rectum, should the proper opportunity present itself. Such history will disclose sexual weakness, with premature or deferred ejaculation, night emissions, fear of impending impotency, neurasthenia, fullness and throbbing in the rectum, with occasional spells of marked sexual ardor. Invariably the patient calls attention to something moving along the floor of the canal, and this proves to be the periodic escape of excessive secretion, known as prostatorrhea, pathognomonic and noticed after micturition and defecation. One should bear in mind, too, that these patients are subject to spells of melancholia, are in dread of complete loss of sexual power, and are disposed to brood over their hopeless future and to isolate themselves from society and even personal friends.

In the absence of sufficient evidence upon which to establish a diagnosis, however, one may resort to the microscope. Cylindrical cells, amyloid bodies, lecithin, and the characteristic Boettscher's crystals will remove all doubt as to the existence of prostatorrhea.

Composition and Unique Features.—Unlike the more familiar forms of calculi, as found in the liver, kidneys, and bladder, the true prostatic calculus is smaller, ranging in size from a small seed to a large bean, and far different in shape as well as in composition. At first they conform to the follicular cavity, but later, when the walls of adjoining follicles break down, two or more small concretions unite, forming an irregular, shell-like mass of a chalky, friable, and brittle consistency—qualities peculiar to their alkaline formation. Inasmuch as they result from the precipitation of constituents in the gland's secretion, they are composed of calcium, sodium, and ammoniomagnesium phosphates, together with granular detritus.

Treatment.—At the outset, let it be said that in calculus of the prostate the physician has an exceptional opportunity of employing the ounce of prevention that is better than the pound of cure; that while the therapy of this process is curative and expectant as well as preventive, successful results are to be looked for only by the administration of prophylactic measures. But no matter to what stage one may chance to find the process developed, three essential facts must be borne in mind, namely, (1) obstruction to the exit of the gland's secretion; (2) consequent retention; (3) persistent alkalinity. Accompanying these conditions one is likely to find a phosphatic, alkaline, fetid urine, charged more or less with bacteria.

In order to meet the above wants by proper and efficacious remedial measures, the two methods of treatment that suggest themselves are internal and local. The first calls for an agent capable of rendering the renal secretion acid, sterile, antiseptic,—in short an agent that will destroy every possible source of irritation and preserve the urine sufficiently to prevent all danger during the act of micturition; the second admits of whatever will serve the physician in overcoming obstruction and in eliminating the excessive product from which the concretions are formed.

Among the several remedial agents provided of late years in the materia medica of genitourinary disease the formaldehyde products have found the most general favor. In cases where an assured continuous antiseptic reaction was desirable, however, they have proved disappointing, in virtue of the small amount of the formaldehyde set free in the bladder; furthermore, in that large variety of urogenital disorders characterized by a fetid, strongly alkaline urine, they have failed to exert anything like the necessary therapeutic effect on the reaction. And when one considers that bacteria propagate in alkaline media and are inert in acids, it naturally follows that in order to promote as well as to preserve sterility in the urine, one must restore that acidity which Nature has provided to hold in solution those normal constituents that are not eliminated in an alkaline medium.

The scope of this paper will not permit of details in connection with therapeutic agents. Suffice it to say that the only preparation capable of liberating a sufficient amount of formaldehyde in the urinary tract, as well as of exerting the proper degree of acidity, is what may be called a reinforced hexamethylen-tetramin, formed by the addition of anhydromethyleno-citric acid to the latter. By reason of this acid larger quantities of formaldehyde are set free than when hexamethylen-tetramin is employed alone; furthermore, when the latter unites in the renal tract with a strongly alkaline urine such relatively small quantities of the formaldehyde appear to separate that one is scarcely able to determine its presence in the urine; hence it is that, as many observers failed to obtain any perceptible antiseptic or sterilizing effect from the drug, it became necessary to reinforce it. This reinforced hexamethylen-tetramin is readily soluble in water, palatable, and when given in doses of 10 to 15 grains diluted, will be found to produce a marked change in the urine within an hour. (Chemically known as hexamethylen-tetramin anhydromethylen citrate.)

After close observation of many patients who have required treatment for prostatorrhea, it has been noted that the great majority have had an accompanying phosphaturia resulting from that excessive metamorphosis of nervous tissue so characteristic of all chronic disorders of the prostate. In fact, these patients were disposed not only to void an alkaline urine, but showed a tendency to alkalinity on the part of other secretory organs. Hence, it follows that the employment of a remedial agent that not only sets free the desired amount of formaldehyde to ensure sterility, but one, especially, that exerts its full therapeutic action in neutral, alkaline, or acid urine, must be regarded as the *sine qua non* of internal therapy.

In this connection, however, one can well afford to employ in some cases such dietary precautions as tend to promote acidity of the secretions. When possible, preference should be given to preventive measures, such as the prohibiting of foods that encourage alkalinity and the use of the simple acids provided in lime juice and in fruits.

In order to remove the retained product and to overcome obstruction of the ejaculatory ducts, no form of treatment will bear comparison with massage. Unfortunately, however, owing to the insidious development of this process, the remedy is limited in its employment. But during the incipient stage, should this maneuver not prove irritating, it can be relied upon invariably to remove the locked-up product which is the direct cause of the calculus formation. Each prostatic lobe should be treated gently and cautiously once a week, and the length as well as the intensity of the manipulation by the index fingers must be determined by those conditions which experience alone enables one to infer from an examination of the gland itself, and from

a knowledge of the various factors which in each individual case conspire to affect prognosis no less than treatment. When by reason of the advanced stage of the process—when marked tenderness is complained of, and, for that matter, in the absence of tenderness, when the concretions are clearly perceptible to the touch—the safest course to pursue is the expectant, with constant internal medication, scrupulous watchfulness of the patient, and a thorough examination of the urine and of the escaping prostatic product.

In the event of inevitable abscess formation, the last-mentioned plan of watchfulness and expectancy should be carried out, if anything, more closely, so that the surgeon's knife may anticipate Nature, which, by moving in the line of least resistance, unfortunately in this particular lesion, selects the rectal route for evacuation, thus rendering more probable resulting ischiorectal involvement.

Should one be fortunate enough to find the abscess "ripe," so to say, and by a timely and generous incision in the direction of the perineal raphé, to provide proper drainage, success will follow in due course. Before operation it will be expedient to relieve the portal circulation by free catharsis, and, of course, to render the urinary tract sterile, as suggested above; after operative interference, antiseptic irrigation and the strict adherence to modern surgical technique will be rewarded by desired results.

Case Report.—A strong, robust business man, aged fifty-four, married, considerably overweight, exceptionally active and energetic; habits, discreet and systematic; a total abstainer from alcohol for years; of nervous and emotional temperament. Previous history of urethritis and resulting stricture, for which meatotomy and urethrotomy were performed seventeen years ago, with good results. Other history negative. Urethra has admitted Nos. 27 to 30 F. sounds since the operation for stricture. Although not excessive or indiscreet in his sexual relations for the past seven years, he has noticed a thin, transparent, sticky discharge oozing from the meatus. At first it occurred periodically, and finally became constant, aggravated by sexual indulgence. At times he observed, too, derangement of the sexual function, with lack of ardor and deferred orgasm, followed by a tickling sensation simulating a tenesmus in the deep urethra. On October 14, 1904, he consulted the writer for the first time, when he sought advice and relief for an almost constant pain in the lumbar region and for the discharge at the meatus, several drops of which product he could force out whenever requested. Digital exploration per rectum revealed a chronic prostatitis of a mild character, due, no doubt, to the free escape of the excessive prostatic secretion, or prostatorrhea. There was apparent tenderness to the touch; no nodules, and not the slightest suggestion of the presence of impacted calculi.

In this connection it is reasonable to state that the calculi which escaped four months later were in all probability present at the time of examination; whether or not they escaped notice by reason of the writer's absolute indifference to the existence of concretions at the time of examination, it is difficult to say. However, it is interesting to know that both lobes of the prostate were treated by massage each week up to January 1, 1905, with the result that the lumbar pain and prostatorrhea entirely disappeared, while at no visit did the patient complain of pain or even discomfort from the massage.

On February 14, 1905, while the patient was suffering from what looked like an acute grip, the writer was summoned to his home, where examination disclosed acute abscess of the prostate with acute cystitis. During the next three days suppression of urine occurred, followed by marked edema of the genitals and adjacent tissues. Prompt removal of the retained urine was called for, and on February 18, after almost superhuman efforts on the part of the family physician and the writer, relief came at last, but not until several bougies and flexible catheters of various sizes had been introduced, followed by a silver catheter. At first it was found impossible to enter the bladder by gentle means; when sufficient force was exerted to puncture the prostatic region pus escaped sparingly. The introduction of a wire stilette revealed an obstruction, which, after careful manipulation, was found to be due to the concretions, three of them passing through the catheter, the largest becoming impacted and necessitating withdrawal of the instrument in order to remove it. The patient now voided urine, though with intense pain.

On the following morning, February 19, a consultation with Dr. A. T. Cabot resulted in the removal of the patient to the Massachusetts General Hospital, where a free perineal incision was made, only to find the prostatic abscess nearly evacuated. Free drainage and irrigation hastened recovery in a few days and discharge in six weeks.

Since the patient has left the hospital the urethra has admitted as high as a No. 30 F. sound; discharge is now absent, and more remarkable than all is the freedom from discomfort in the deep urethra and the marked improvement in sexual vigor.

Diagram of calculi in the author's case.

Remarks.—Before closing this paper it seems pertinent to mention certain facts which have come to the knowledge of the writer recently, inasmuch as they may throw some light on the etiology of this particular case and possibly lend some help in connection with others.

According to the patient's own testimony, long before the appearance of the prostatic discharge, he began to carry out a course of treatment for the purpose of nipping in the bud unmistakable evidence of rheumatic gout. To this end, among other means employed, such as modification of diet, abstinence from alcoholic drinks, land and sea trips, attention to personal hygiene by hydrotherapy and bathing, he drank daily from one to two quarts of piperazine and other alkaline waters, the effect of which was to overcome acidity in the renal secretion. Although unaware that the patient was resorting to any artificial help, the writer recalls distinctly with what surprise he found the urine alkaline each and every

time he resorted to uranalysis during the two years preceding the formation of the prostatic abscess. He also recalls the successful outcome of two cases during the past year suffering with prostatorrhea and incipient calculus formation, with a previous history similar to the case reported, in which urinary antiseptics, massage, and the promotion of acidity of the urine formed the basis of treatment.

Apart from resorting to such precautionary measures in relation to food, drink, exercise, etc., as are negative, preventive, and helpful to the physician in his efforts to attain a desired result, it must be granted that general constitutional effects are expected and brought about by internal medication. For example, in acute and chronic rheumatism the salicylates produce a decidedly prompt and efficient curative effect; in malaria, too, the action of quinine is no less apparent and satisfactory. For similar reasons, it is reasonable to expect that formaldehyde set free in the bladder will be absorbed into the circulatory apparatus to a sufficient degree to increase and to preserve the normal acidity peculiar to the secretory products of other organs. Furthermore, in the light of the writer's,—to be sure somewhat limited,—experience and observation in connection with the remote therapeutic action of this particular remedial agent, the result has been to restore a mildly alkaline secretion to its originally normal, neutral, or slightly acid condition.

In properly selected cases of incipient calculus formation in the follicles of the prostate gland, cases permitting of local massage to relieve the retained secretory product and to overcome obstruction to its outlet, the restoration and preservation of even slight acidity by internal medication form the principal indications to be met on the part of the physician.

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OPHTHALMIA OF THE NEWLY BORN.*

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The most important of the causes of blindness with which we have to do is that resulting from an infection of the eyes of the child at birth. Important—first because it is the most common cause of blindness; second, because it affects the young child, and a long lifetime of blindness may follow, and third, because it is preventable and curable in practically every case receiving proper care, and one of the most dangerous maladies to vision when treatment is neglected or delayed.

It is a veritable world plague. It occurs everywhere, and no country has yet succeeded in getting it under control. So widespread is blindness resulting from it that Magnus, who has made careful statistical studies concerning it, says that out of 2,528 cases of all ages of complete blindness in Germany, 10.88 per cent. were due to this cause.

In institutions the proportion is much larger. A committee of the Ophthalmological Society of the United Kingdom in 1884 estimated that about 30 per cent. of the persons concerned have lost their sight through the ophthalmia of the new born. While in Mexico ophthalmia neonatorum is said by Ramos to be the common cause of blindness, and 4,500, or 30 per cent. of the whole number are blind as a result of this preventable disease.

In the New York State School for the Blind, 30 of 149 pupils have lost their eyes from ophthalmia neonatorum, which is a rather smaller proportion than that found in institutions elsewhere. In the State of New York more than 600 now hopelessly blind from this cause might have been spared this dreadful calamity had simple prophylactic measures been employed at the day of their birth, while in the United States there are between six to seven thousand people who have been blinded by this disease.

For the four years preceding 1906 the annual proportion of new pupils entering New York State School for the blind who had lost their sight from ophthalmia neonatorum was a quarter of the whole number admitted, while of the class of 1905, in which there were more young children owing to the effects of your Commission to find them, over 26 per cent. of the whole had become blind, not one of whom needed to have lost his sight had simple prophylactic measures been employed.

This is a disease dependent upon an infection finding an entrance in the eyes of the child at or immediately after birth. Stephenson had shown that about two-thirds of all cases of ophthalmia in newly-born babies are due to the micrococcus of gonorrhea.* If the eyes are carefully cleansed at once, so that the infected secretion does not get within the lids—or if the germs be washed out with a simple solution before they have time to multiply—or if the virility of the microbes be destroyed by a solution which is in itself harmless in its effect on the eyes, the disease will not develop. But as one can never be sure that in inexpert hands the washing is complete and thorough, and as it is not easily performed, the latter method in every suspected case at least should invariably form a part of the toilet of the child.

As this disease occurs in about 0.5 of 1 per cent., or one in 200 of all births, and as the total number of births registered for 1906 in New York was 183,012, the frightful prevalence of the disease can be readily estimated.

It should be the purpose of the profession, therefore, to find and make known some agent which may be used by everyone who attends a case of labor, and to this end the American Medical Association, by means of a series of questions, sent out in circular form, has endeavored to determine the most efficient and most popular method.

As a member of the Committee on Ophthalmia Neonatorum, I sent out a large number of circulars relative to the prophylactic use of silver nitrate in these cases. The number of physicians replying was 113. Of these, 103 think that a solution of nitrate of silver is the most effective drug for the prevention of this disease, as well as the most inexpensive. In view of the fact that a 2 per cent. solution occasionally causes silver catarrh and that a 1 per cent. rarely does so, 94 thought it safer and better to select this percentage for recommendation.

In addition to these replies, a number wrote personal letters, from which I shall abstract the most important points. Seven physicians prefer argyrol and protargol, in solutions from 5 to 25 per cent. Four prefer boracic solution, one announced himself in favor of sterile water, and one other uses saline. Still another prefers boric-acid or salt solution, but thinks it dangerous to teach to medical students and the general profession. Four physicians think that the choice of method should be left to the doctor in charge of the case. Three would make it compulsory for almshouses, hospitals and dispensaries, but not for private cases. The 2 per cent. silver nitrate solution was preferred by three.

*Read before the American Gynecological Society, Washington, May 9, 1907.

*Ophthalmia Neonatorum, Its Etiology and Prevention. Transactions of the Obstetrical Society of London, Vol. XLV., 1905.

One goes on record as saying that he does not consider silver nitrate a prophylactic in all cases: another asserts that the vaginal canal always contains bacteria.

Incidentally, in reply to the proposition that a law be passed in each State securing the distribution through the various State Health Boards of small, sealed, inexpensive, light-proof, tubes or ampoules of the selected solution to be sent gratuitously to every physician and midwife on the passage of the law, and subsequently when required, or on filing of each birth certificate, 97 replies were in favor of such a law, 11 against it, and 5 were uncertain as to its advisability. Of the 11 opposing, 3 were not in favor of laws compelling physicians to perform an obvious duty.

In answer to the proposition that it shall be required by law that the birth certificate shall contain a statement signed by the accoucheur that some recognized procedure specified on the blank has been used in each eye of the newly-born on the day of birth, as a preventive of ophthalmia neonatorum; in the absence of this statement, should ophthalmia neonatorum develop, and the child lose the sight of one or both eyes, the accoucheur, whether physician or midwife, filing the certificate, shall be deemed guilty of criminal negligence, and shall be subject to such penalty as the State may exact. Eighty were in favor of such a law, 24 opposed, 5 were undecided, and 4 made no reply. Five remarked that this was too drastic a procedure, 1 considered the proposition none too strong, 5 remarked that it would bring physicians into trouble through damage suits, 1 thought it applicable for midwives and not for physicians.

In answer to the proposition that it shall be the duty of the State Health officers to place ophthalmia neonatorum on the list of communicable diseases, and failure of the attendant to report to the local Health Board each birth, the existence of ophthalmia neonatorum when present, and the fact that some prophylactic has or has not been used, shall be considered a misdemeanor, and subject the offender to such penalty as the State may exact. Ninety-one favored such a proposition, 16 were opposed to it, 2 were undecided, and 4 did not answer this question.

In answer to the proposition that it be strongly urged if the above program meets with general approval, that the president of each State Association be invited to appoint a Committee on Ophthalmia Neonatorum, whose duty it will be to collaborate with the State Board of Health in securing in the several States the enactment and enforcement of laws embodying the above propositions—97 were in favor, 9 against, and no answer was received from seven.

The conclusions from a study of these replies make it certain that silver nitrate as a 1 per cent. solution is preferred by obstetricians in the United States in a position to judge of the merits of the various measures employed.

An important objection to Credé's method is that it tends to increase eye morbidity by causing "silver catarrh." This has led to the use of argyrol and protargol. Zweifel uses the former and neutralizes with sodium chloride. His morbidity in over 5,000 cases has been but 0.23 per cent. Scipiades finds argyrol a certain prophylactic. From a number of other clinics come equally good reports as to protargol. Not only were the results less favorable, but more silver catarrh was caused by Zweifel's method than by any other single procedure. Hence, at the Hofmeier clinic, Credé's one per cent. is regarded as the best prophylactic.

My faith in the prophylactic power of the nitrate of silver method is so strong that I attribute all apparent negative or ill effects of the method to the presence of antepartum infection of the eyes, to unskilled application or to improper or inert solutions.

Does Credé's Method Cause Conjunctivitis?—Neither Leopold (in 3,000 cases) nor Rosthorn (in nearly 25,000 cases) ever witnessed this accident. Bischof maintains that conjunctivitis never results if technique is correct.

In regard to treatment, Alvarado sent out a circular of inquiry to colleagues (oculists) in all parts of the world as to relative merits of Credé's method on one hand and the substitution of protargol on the other. He received 31 replies, all but one in favor of Credé's. The exception was the Lyons clinic, where protargol is in use.

Ernst discusses Credé's method very briefly with reference to the conjunctivitis which it is said to cause. No gonococci are ever found in these cases. They are due therefore to the nitrate. He experimented with a 1.5 per cent. solution and still got the conjunctivitis. Finally he found that the one per cent. solutions were non-irritant. At the Cologne Maternity, from January 1, 1902, to July 1, 1904, Ernst employed the one per cent. solution in 1,111 births. Not a single case of ophthalmia developed.

The work detailed in this paper was performed for the purpose of determining, if possible, what strength of silver nitrate solution might be safely entrusted to the hands of students and midwives for the purpose of instilling into the eyes of the newly born in order to prevent ophthalmia neonatorum.

In considering this matter, the following characteristics were thought to be essential to the proper solution:

1. The solution must be one which will be germicidal to the gonococcus.

2. The technique of its application must be simple so that in the hands of the most careless or inexperienced student or midwife no harm can be done.

3. The solution must be of such strength that while it will prevent ophthalmia neonatorum it will not cause silver catarrh.

4. The solution must be stored in such a receptacle as (*a*) to preserve its strength, and (*b*) to permit of its being placed in the eyes of the newly born without possibility of mechanical injury.

1. *The solution must be one which will be germicidal to the gonococcus.*—The work of testing the germicidal effect of various strengths of silver solutions on the gonococcus was undertaken by Prof. James Ewing of Cornell Medical College. He assigned the task to Dr. John C. Torrey, one of his staff, the work being done in the Loomis Laboratory. Our thanks are expressed to both Drs. Ewing and Torrey for the complete report which here follows:

Test of germicidal effect of 0.5 per cent., 1 per cent., and 2 per cent. of silver nitrate on gonococus: Culture of gonococcus on ascitic agar 24 hours old was used in the tests.

1. Three drops of this growth was emulsified in 5 drops of sterile distilled water. To this was added 6 c.c. of 0.5per cent. silver nitrate (solution distinctly cloudy thereby). One large drop of this was

transferred to 15 c.c. ascitic broth tubes at the following intervals:

		Result 24 hours.	
I.	15 seconds ..	No growth.	Negative.
II.	30 seconds ..	" "	"
III.	45 seconds ..	" "	"
IV.	1 minute ...	" "	"
II.	Same operation with 1 per cent. silver nitrate:		
V.	15 seconds ..	No growth.	Negative.
VI.	30 seconds ..	" "	"
VII.	45 seconds ..	" "	"
VIII.	1 minute ...	" "	"
III.	Same with 2 per cent. silver nitrate:		
IX.	15 seconds ..	No growth.	Negative.
X.	30 seconds ..	" "	"
XI.	45 seconds ..	" "	"
XII.	1 minute ...	" "	"

Control. Distilled H_2O (sterile) used in place of nitrate solution:

XIII.	15 seconds	Growth.	Positive.
XIV.	1 minute.....	"	"

From these experiments it would appear that silver nitrate in 0.5 per cent. strength or stronger is quickly germicidal to the gonococcus.

2. *The technique of its application must be simple, so that in the hands of the most careless or inexperienced student or midwife no harm can be done.*—So far as I could learn from careful inquiry at a number of maternity hospitals, the general technique was to drop into the eye several drops of some silver preparation from a glass medicine dropper, and shortly thereafter to cleanse the eye with a second solution such as plain sterile distilled water, boric acid solutions of varying strengths, or normal saline solution, but nowhere could I find that a silver nitrate solution was used without immediately applying some other solution to neutralize or wash away the silver salt.

It would seem that it would be a dangerous practice to require the use of a preparation that necessitated after-neutralization for, in the various exigencies of the lying-in room, such after-neutralization or cleansing might be neglected or improperly performed and the eyes of a large number not infected with the gonococcus might be injured by the production of a silver catarrh. Therefore, if a solution which did not require after-neutralization could be supplied, a very simple procedure could be inaugurated thus: First, wipe the eyelids with a clean piece of gauze or cloth not previously used in the lying-in room. Second: drop into the eye the contents of receptacle containing the solution. This technique would be simple and, with proper receptacles containing just enough for one eye, would be perfectly safe. Furthermore, if it could be shown that some certain solution could be used with equally good results, whether neutralized or not, it would be the ideal solution. Then in case neutralization was neglected, the eye would still be protected from infection and no silver catarrh set up. Such a result seems to be found in the use of a solution of 1 per cent. silver nitrate, as is shown in the observations hereinafter recorded.

3. *The solution must be of such a strength that, while it will prevent ophthalmia neonatorum, it will not cause silver catarrh.* It was for the purpose of trying to find some solution which might be used without after-neutralization that would prevent ophthalmia neonatorum and at the same time produce no silver catarrh, that the following observations were made.

The cases observed were in the wards of the Manhattan Maternity Hospital and the Bellevue Emergency Hospital. The patients were from the average east side tenement-house district, some with histories of previous vaginal discharge, some with vaginal discharge on admission, and some with neither history nor sign of vaginal discharge.

The technique used in the eyes of the newly born from these patients was as simple as could be performed. In some cases as soon as the head was delivered, in others after the delivery was completed, with a clean piece of gauze the mucus was wiped from the eye and by means of a medicine dropper one to three drops of the solution were dropped into each eye. This method was followed out with solutions of silver nitrate of one-half of 1 per cent., 1 per cent., and 2 per cent., with the following results:

Solution	Subsequent Neutralization	Number Children	Result	Hospital
Silver nitrate, 1 per cent.	Boric acid solution.	1,000	25 cases mild silver catarrh longest reaction 3 days. No opthalmia.	Bellevue.
Silver nitrate, 2 per cent.	Nominal saline solution.	20	5 cases silver catarrh. Duration 2 to 3 days. No ophthalmia.	Manhattan Maternity.
Silver nitrate, .5 per cent.	No cleansing of eyes afterward.	35	No cases of silver catarrh; 1 purulent ophthalmia developed on 9th day. Treated argyrol 35 per cent.	Manhattan Maternity.
Silver nitrate, 1 per cent.	No cleansing of eyes afterward.	20	1 case silver catarrh. Duration 2 days.	Manhattan Maternity.
Silver nitrate, 2 per cent.	No cleansing of eyes afterward.	20	6 cases silver catarrh which yielded to boric acid solution in 2 to 3 days. No purulent ophthalmia.	Manhattan Maternity.

One thousand cases were treated at the Bellevue Emergency Hospital with a 1 per cent. solution of nitrate of silver, and this was immediately thereafter neutralized with a boric acid solution. There were no instances of ophthalmia neonatorum in this series. Twenty-five cases, or 2½ per cent., showed symptoms of mild silver catarrh, the longest duration of which was three days.

Twenty cases were treated at the Manhattan Maternity with a 2 per cent. solution of silver nitrate, and afterwards neutralized with normal saline solution. Of these five, or 25 per cent., developed silver catarrh, lasting from two to three days. No cases of ophthalmia neonatorum.

Thirty-five cases treated at the Manhattan Maternity with a 0.5 per cent. of nitrate of silver with no after-cleansing of the eyes. No case of silver catarrh resulted. One case of purulent ophthalmia developed on the ninth day, which was cured with 25 per cent. argyrol solution.

Twenty cases were treated at the Manhattan Maternity with a 1 per cent. solution of silver nitrate with no after-cleansing of the eyes. One case, or 5 per cent. developed a silver catarrh lasting two days. No ophthalmia.

Twenty cases were treated at the Manhattan Maternity with a 2 per cent. solution of nitrate of silver without after-neutralization. Six cases, or 30 per cent., developed silver catarrh, which yielded to treatment in two or three days. No purulent ophthalmia.

Of those cases in which one-half of one per cent. of silver nitrate was used, the eyes of 97 per cent. were perfectly normal after ten days, with no dis-

charge up to that time. A number of these were from mothers who had a purulent vaginal discharge on entering the hospital. The other 3 per cent. got up a purulent discharge about the ninth day and were then treated with argyrol and cold applications.

Of those cases in which 1 per cent. silver nitrate solution was used without after-neutralization, none of them had an after-discharge, with the exception of a blonde baby, which type of child appears to be more susceptible to the action of the silver salts than dark babies; at least this is the experience of the last seven years in the Emergency Hospital.

In those cases in which 2 per cent. silver nitrate solution was used the result was not so satisfactory. In the few cases tried a large per cent. showed signs of severe irritation, when the solution was not followed by boric acid solution.

The method which has most commended itself to the writer is the one now in use at the Emergency Hospital. It involves but one additional step in the technique, namely, that of following the installation of several drops of 1 per cent. silver nitrate in each eye, by a weak solution of boric acid. This method has been efficacious in several hundred cases, many of the mothers having been previously infected with the gonococcus. From the fact that a 1 per cent. solution may be used without after-neutralization, it would be perfectly safe to require the use of a 1 per cent. solution of silver nitrate, with after-cleansing by boric acid, and in the event of carelessness or negligence, even if the boric acid solution was not applied, there would no harm come to the eyes of the child.

4. *The solution must be stored in such a receptacle as (a)to preserve its strength, (b) to permit of its being used without possibility of mechanical injury.*—Ampoules, light-proof and hermetically sealed, as suggested by F. Park Lewis, M.D., in an article in the *Journal of the American Medical Association*, April 28, 1906, furnish something on the order desired.

Conclusions.—1. That silver nitrate solution of 0.5 per cent. strength when applied to the gonococcus for fifteen seconds or longer is germicidal to the organism. Therefore, any solution of equal strength or stronger would fill the requirements as far as germicidal power is concerned.

2. That the technique of administration consists simply of instilling the solution into the eye, requiring no after-neutralization.

3. That solutions of silver nitrate of 0.5 per cent. and 1.0 per cent. strength did not produce a silver catarrh, even though no neutralizing solution was used afterward. That solutions of 2 per cent. nitrate produced a silver catarrh in about 25 per cent. of cases, whether or not a neutralizing solution was used. Therefore a 1.0 per cent. solution, being germicidal and at the same time producing no silver catarrh, is recommended.

4. That some convenient receptacle should be used.

I wish to express my indebtedness to Dr. Raymond Hoobler of the Cornell Medical College for much valuable assistance in the preparation of this paper.

50 East Thirty-fourth Street.

The Risks of the Matutinal Drinker.—At an inquest held in an English city it was stated that there were signs of lead poisoning in the system of a man who had been a heavy drinker. The doctor explained that it was probably due to his having been an early-morning customer at public houses, as a consequence of which he would be served with the beer which had stood in lead pipes all night.

STERILITY IN THE MALE, ITS CAUSES AND SURGICAL TREATMENT.*

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It is only in the past twenty-five years that the subject of sterility in men has been carefully studied and valuable conclusions deduced. In earlier years unfruitful marriages were always ascribed to the wife, who in many instances was subjected to needless gynecological operations and treatment. If a man seemed well developed sexually, and was able to copulate in a normal manner, and had what seemed normal ejaculations of semen, he was considered potent, and failure to have offspring was always atrtibuted to some abnormal condition in the woman.

With the advance in genitourinary surgery the condition of the semen and seminal tracts has been carefully studied, with the result of proving that in a considerable number of cases, where copulation was effected and the appearance of the semen was normal on microscopical examination, the fluid was found lacking in spermatozoa or else these cells were nonmotile or degenerated. As a net result of many investigations it may be stated, in general, that in cases of unfruitful marriages the husband is the sterile member of the family in about one case in six.

According to Kehrer, the cause of childless marriages is now sought much oftener on the side of man than has heretofore been the custom. Kehrer, himself, gives the results in a series of 96 cases. In 3.12 per cent. there existed inability to copulate. In these cases there had been a preceding history of excessive masturbation. The men suffered from frequent pollutions, or their ejaculations were premature, and the penis could not be inserted into the vagina. Kehrer claims that impregnation may occur if a speculum be inserted into the vagina before copulation, and in several cases results were obtained by this maneuver. In 21.31 per cent. azoospermia, absence of spermatozoa, existed. In practically all of these cases there was a history of gonorrhea with unilateral or more often bilateral epididymitis. Azoospermia was also found where no disease of the sexual organs had occurred, and where nothing abnormal in the genital organs could be demonstrated. Oligospermia, paucity of spermatozoa, was demonstrated in 11.45 per cent. Here there was a history of gonorrhea with epididymitis, or syphilis. It will be seen from this series of 96 cases that 63 per cent. of the sterile cases had a history of gonorrhea with infection of the epididymis and prostate. Noeggerath found 8 sterile marriages in a series of 14 to be the fault of the male. Gross in 192 cases found the male deficient in 18 per cent.

Sterility in the male is due (1) to aspermia, nonsecretion of semen; (2) to azoospermia, where the semen does not contain spermatozoa; (3) to oligospermia, where the spermatozoa are few in number; (4) to conditions where the spermatozoa may be motionless or the motility be transient, or (5) to obstruction to the passage of semen to the urethra or seminal vesicles, and the escape of semen outside

*Read before the George Washington Medical Society, Washington, D. C.

of the normal channels, as in cases of hypospadias and fistula. Men with double undescended testicles are almost invariably sterile; so, too, is this the case in those whose testicles have received serious injuries causing destruction of the secreting structure or traumatic occlusion of the efferent ducts. This latter is a condition which obtains in cases of epididymitis; the exudated lymph fails to be absorbed, and becomes transformed into contracting connective tissue, which results in an obliteration of the tubes of the epididymis. Furthermore, the mouths of the ejaculatory ducts may be occluded as a result of operation for stricture, stone, or prostatic conditions. In the cases of azoospermia, absence of spermatozoa, the ejaculated fluid will present all the physical properties of normal semen, as regards smell, consistency, and so forth. Where we have small calibered strictures, the fluid is either forced back into the bladder or retained in the urethra behind the point of constriction, until erection subsides, whence the fluid slowly dribbles out. A few cases have been recorded where none of the reasons cited would hold, but these have been explained by the belief that the semen was perverted in quality or deficient in quantity, through constitutional depression or cachexia. Here the microscope would repeatedly disclose a state of azoospermia or oligospermia with the few spermatozoa showing but feeble motion or else complete absence of motion. And after no course of treatment other than that for the cachexia we would eventually find the presence of the procreative bodies and soon hear of an impregnation. Then, too, we are forced to consider the theory of apparent lack of affinity of the one cell for the other; we see this demonstrated in cases of a childless first marriage being followed on both sides by marriages resulting in a large family for each member of the former union. We hear of the so-called physiological and psychological question with which the stockbreeders have to contend at times, and which forces them to set aside a prized stallion of known abilities for one of inferior pedigree.

Next to gonorrheal infections, frequent masturbation and sexual excesses are the most frequent cause of sterility in the male. The prolonged and frequent overstimulation of the secreting structure of the testicles finally results in exhaustion of the organ the spermatozoa being imperfectly formed, even though the quantity and quality of the fluid may be apparently normal. The virility of the spermatozoa is often in direct proportion to the general physical condition of the patient. The oft-repeated shocks to the nervous system, which occur especially in masturbators, who take advantage of the time and place which are always convenient for their purpose, lowers the general physical condition, producing constitutional depression and cachexia, and thus affecting the virility of the spermatozoa. I have seen several of these cases perfectly cured by leading a hygienic sexual life.

In bilateral syphilitic and tuberculous disease, a considerable proportion are sterile on account of the destruction of the epididymis in tuberculosis, and the destruction of the testicle itself in syphilis. Another cause existing in this modern age is the x-ray. Workers in x-ray laboratories and physicians doing this work are the ones affected. One prolonged exposure has been known to cause sterility lasting three months. At first the spermatozoa are dead, and later disappear altogether. I know of seven workers in an x-ray laboratory in New York who have been sterile for over a year. I do not believe that any permanent cases have been reported from this cause. It is too early yet to say. One worker of my acquaintance was sterile for some months, but after keeping out of the rays for three months this defect disappeared and his wife became pregnant. When inflammation has attacked the greater portion of the prostate, so as to block up the ejaculatory ducts, after an orgasm there may be two or three viscid drops escape that contain principally pus cells and degenerated prostatic cells, but no spermatozoa. In other cases there may be so much pus present in the prostatic and vesicular secretions as to cause the death of the spermatozoa when they come into contact with this element of the fluid. The diagnosis of this condition should be made on microscopical examination by finding pus and dead spermatozoa in the fluid obtained by massage of the prostate and seminal vesicles.

I have seen several cases where the spermatozoa were nonmotile that were cured by treatment of the prostatic condition, and in one case so much pus was present that part of the prostate was excised (care being taken not to injure the ejaculatory ducts); the pus disappeared and the spermatozoa regained their motility. The term false aspermia or malemission is sometimes employed to designate that condition in which normal semen is discharged into the urethra, but does not reach the meatus, flowing back into the bladder to be discharged drop by drop from the urethra after the completion of coitus. This is commonly due to stricture, the caliber of which may be great enough not to interfere with micturition, when the circulation of the penis is unimpaired, but when the intense congestion incident to erection takes place, the caliber of the urethra is so reduced that no semen escapes.

The following case shows this very admirably. J. H. W. came to my office in September, stating that he had gonorrhea eight years before and an internal urethrotomy three years later; following the operation patient nearly bled to death, as he is a hemophiliac. He had had double epididymitis six years previous, and when I first saw this case I thought it a case of sterility due to epididymitis. The patient collected semen in a condom; the amount obtained was very small and proved on microscopical examination to be nothing but mucus. He had not complained of difficulty in urination, but on examination a No. 12 French bougie was the largest instrument that could be passed. After gradual dilatation the fluid ejaculated during intercourse appeared normal in amount.

As I have heretofore mentioned, the principal cause of sterility in men is bilateral gonorrheal epididymitis. Benzler in the *Archives of Dermatology and Syphilis* in 1898, in looking up the history of old soldiers who had gonorrhea while in the German army, found that among those who had been married three or more years 10.5 per cent. who had suffered from gonorrhea without epididymitis were childless; these were probably the cases with chronic prostatitis and seminal vesiculitis; 23.4 per cent. of those having unilateral epididymitis, and 41.7 per cent. of those having bilateral epididymitis, were childless. It will be seen from all statistics that epididymitis is by far the most common cause of sterility, and it is most common in the cases where both sides were involved, almost 50 per cent. being sterile. Statistics show that traumatic epididymitis, unless very severe, rarely leads to sterility. Orchitis probably never occurs in gonorrheal infections. I say this from results in twelve cases that I have operated upon, with acute epididymitis of the severe type, in none of which was the testicle itself involved.

In epididymitis it is well known that the globus minor is the portion of the epididymis most involved, and it is in this very portion that occlusion has the most dangerous results, as there is here but one efferent duct, while in the globus major the efferent ducts are numerous, and the obstruction of one or two would still leave open other channels. It was because of the known patulency of the globus major following gonorrheal epididymitis, when the globus minor and vas deferens in this region became occluded, that the operation of anastomosis of the vas deferens and the globus major was considered. The prognosis for the return of spermatozoa in these cases, unless operated upon, is positively hopeless.

Dr. Quinby of Boston has done some experimental work on guinea-pigs. He tied off the vas deferens at its exit from the globus minor, and then made an anastomosis between the globus major and the vas above the ligation, in the method recommended by Dr. Martin of Philadelphia (which is described later). Instead of using fine silver wire, very fine silk was employed.

In from 10 to 27 days three out of four of the pigs thus operated upon showed spermatozoa in the fluid ejaculated by means of electrical stimulation.

Two cases of sterility (following double gonorrheal epididymitis) under my care came to operation, one at the hands of Dr. Martin of Philadelphia, the other my own. In both instances Dr. Martin's method of procedure was employed, which I will describe. An incision is made through the skin and coverings of the epididymis, which is approached from the outer side so as not to wound the spermatic artery. The artery of the vas is pushed aside and a one-half-inch incision is made in the vas deferens on the level with the globus major, along its axis, care being taken to get into the lumen of the tube. A portion of the globus major is picked up between two fine forceps and an elliptical piece removed to correspond with the incision in the vas deferens. An examination of the fluid obtained by squeezing the globus major will show spermatozoa. Four fine silver wire sutures on curved intestinal needles are inserted, one at the upper angle of the wound joining the vas and the cut surface of the epididymis, one at the lower angle, one at the outer, and one at the inner side. When these are drawn out a perfect little pocket is formed by the spreading out of the cut vas deferens, and the elliptically cut globus major. The wound is then closed and dressed. It will be seen that the operation is not one of grave danger to life. It is one in which the existing condition cannot be made worse, but where, in fact, everything is to be gained and nothing to be lost. The first case was one referred to me by Dr. Wellington. The patient was a robust appearing man of thirty-eight, who had been married several years. His wife had been examined and no cause for sterility ascertained. He had had gonorrhea with double epididymitis some years before. Frequent examinations of the spermatic fluid showed no spermatozoa, but the fluid obtained was loaded with pus. The prostate and seminal vesicles had been the seat of chronic inflammation. The patient was operated upon by Dr. Martin, and the examinations after operation revealed live spermatozoa. This patient's wife has not given birth to a child, but has possibly succeeded in having a miscarriage.

T. D., twenty-nine years old, was first seen by me in February, 1905, being referred to me by Dr. Wall. The patient was a robust, healthy man of 235 pounds; he had had gonorrhea two years before and a double epididymitis three weeks later. There were numerous shreds in both urines. Examination revealed a large soft prostate and markedly enlarged soft vesicles; the fluid expressed by massage showed numerous pus cells. Patient was treated for six months, by which time the shreds had disappeared and the prostatic and vesicular fluid was free of pus. He was then married, and returned in about six months, complaining because his wife had not become pregnant. Dr. Thomas Kelley had been attending the wife, and said she was normal in every way. Examination of his semen showed no spermatozoa. It was thought possible that the absence of spermatozoa was due to frequent coitus. He abstained from coitus for two weeks and the semen still failed to show spermatozoa. He was kept under observation for two months, and repeated examinations proved the absence of cells that could possibly have been spermatozoa. He was advised, and consented to undergo an operation for anastomosis of the vas deferens and epididymis as his only chance for improvement. This was done one year ago at Garfield Hospital; recovery was uninterrupted, and he left the hospital in one week. Examination in one week showed no spermatozoa, but another examination a month after operation disclosed their presence in numbers. An examination of the semen on April 10, 1907, over a year after operation, showed the fluid filled with actively motile spermatozoa. So far no pregnancy has resulted in this case, but I continue to hope. Very few of these operations have been reported.

Dr. Martin has recently reported seven cases, four cases where spermatozoa appeared after operation, two cases not heard from, and one failure. One patient included in the four successful cases is the father of a healthy child. In some of Dr. Martin's cases the spermatozoa did not appear at once after operation, and in my case the spermatozoa did not appear until nearly a month. I believe this is accounted for by the slight inflammatory reaction following the operation causing occlusion of the vas deferens which disappears as the inflammatory exudate is taken up, thus allowing the vas and the ducts of the globus major to become patulous.

We know that after this operation in the majority of cases spermatozoa return to the fluid, and there seems no reason why fecundation should not take place. I might do well to quote Dr. Quinby's ending to his paper. The three main facts for employing this operation are: (1) The condition cannot possibly be made worse by operation; (2) there is double chance for success, as patency on one side is sufficient; (3) the operation has been found feasible.

1725 N Street.

Twisting of the Cord About the Neck of the Fetus.—Teobaldi Soli formulates the conclusions arrived at as a result of the review of the histories of 570 cases of twisting of the cord about the neck of the fetus seen at the maternity hospital at Turin. The condition is most unfavorable to the child. Its determining causes are deficient development of the fetus, too much amniotic fluid, and exaggerated movements of the fetus. Predisposing causes are primiparity and length of the cord. The condition is most frequent in posterior positions, and face presentations are very unfavorable. The size of the pelvis has little to do with this condition, but deformity by causing delay may be fatal to the child. Unfavorable factors are several turns made by the cord about the neck, as many as eight having been observed, marked development of the child, and length of labor. The danger to be feared is compression of the cord with interruption of the fetal circulation. The treatment is quick delivery by artificial means.—*Annali di Ostetricia e Ginecologia.*

MEDICAL RECORD.

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PUBLIC HEALTH IN GREAT BRITAIN.

DURING his visit to this country in the early summer Dr. Osler, late of Baltimore, was a guest of the Philadelphia Pathological Society at its semi-centennial meeting. In the course of an address which he delivered at that time, he took occasion to inveigh against what he called the backwardness or non-existence of preventive medicine in this country, and compared it in very uncomplimentary terms with what he seemed to regard as the perfection of public health administration in Great Britain. It appears, however, that the English in general are not so pleased with existent conditions as is the new Regius Professor of Physic at Oxford. Dr. Ronald Ross, writing in *Nature* of June 13, implies that British medical administration in India could hardly be worse than it is, and in Great Britain itself there is a feeling abroad that all is not as it should be in regard to the physical, and, it may be added, the mental, condition of the nation at large. Perhaps, all the countries of the old world are awakening, not without cause, to a sense of their physical and mental shortcomings, but in England the feeling is intense. Various public speakers in different spheres of life have on recent occasions inveighed against the apparent decadence of the British race. Among such speakers medical men have been somewhat prominent, some of these indeed having been unsparing in their denunciations of the defective manner in which the rising generation of Great Britain is being brought up.

The annual Congress of the Royal Institute of Public Health of Great Britain was held recently. The chair was taken by Sir James Barr, who, it may be remembered by those of our countrymen who visited Toronto last year for the meeting of the British Medical Association, delivered the very excellent address in medicine at that time. On taking the chair he made a very startling speech, and, although some of his points were perhaps overdrawn for oratorical effect, still his arguments in the main may be taken as founded upon fact.

In the course of his speech the Liverpool physician said that if the money spent in the treatment of disease were diverted to the preservation of health our large hospitals would not be half filled, purveyors of patent remedies and artificial foods might find a suitable place in homes for the destitute, the necessity for surgeons and specialists would largely disappear, and physicians and general practitioners would be fully occupied in advising their clientèle on the preservation of health.

In reference to artificial selection, the speaker said that it was possible to have some such process of selection in the human race, and the nation which would produce the finest race would win in the long run. He proposed that millionaires should be very heavily taxed in order to provide ample funds for the aged, and he went on to say that huge trusts and millionaires were a positive danger to society. The former, he thought, should be rendered illegal, and every time the latter accumulated a million he should be relieved of half of it. He advocated the regular medical inspection of all schools and school children. As a nation, care should be taken that healthy children received proper attention as well as the halt, the blind, and the degenerate. In conclusion, Sir James Barr said that he could scarcely finish without referring to the mania for operations in the present day. He had no fault to find with surgeons generally, as they frankly admitted that preventive medicine was no part of their business, but it was a great blot on preventive medicine that so much surgery should be necessary.

The condition of the young in London has aroused considerable alarm during recent years, and a few weeks ago efforts were put forth in the direction of checking one of the most serious causes of infantile mortality and ill health, which is so conspicuous a feature in the life of the British metropolis. Drunkenness among women is the cause to which allusion is made, and especially the pernicious habit of taking infants in arms to saloons and giving them stimulants. This evil has grown to alarming proportions in London, and, according to good authority, is a potent source of much mortality, bad health, and degeneracy. Distinguished physicians and leading men in other branches of life have taken the matter up, and measures are being set afoot with the end in view of invoking the aid of legislation to abate the evil.

Although in Europe generally, and perhaps in Great Britain in particular, the conditions of life in certain sections of the large towns are inimical to life and health to a greater degree than in this country, yet we must not unduly plume ourselves that we are altogether free from similar defects in our large cities. True it is that drinking among women in public resorts is infrequent in America, and that spirit-drinking by women in such places is practically unknown, while the custom prevalent among a part of the London female population of taking infants in arms to saloons and giving them strong drink is absolutely unknown on this side of the Atlantic. However, in many respects, the care of the public health in most American cities is greatly neglected, and in various points London will compare favorably with most places in this country. In so far Dr. Osler's remarks were perhaps nearly true, even though lacking in taste, if not in courtesy to his hosts. Yet, on the whole, the health administration in this city is little, if at all, behind that of London, and in some respects it is decidedly superior. Preventive medicine, that is to say, the use of every conceivable precautionary measure to ward off disease, is the medicine of the future, and although the day is still far distant when preventable disease will be a thing of the past, yet the strict care of the public health is the longest step in that direction.

PREVENTION OF POST-OPERATIVE THROMBOSIS.

Under normal conditions thrombosis takes place in all injured or ligatured vessels that do not close by contraction or retraction, or by the elastic pressure of surrounding tissues. In an artery the thrombus forms on the cardiac side of the injury, between the latter and the branch last given off by the artery. If it progresses beyond this point, small emboli may become detached and cause gangrene around the periphery of the artery they lodge in; this occurrence, however, is rare, as the extension has to take place against the blood current. In a vein a thrombus may form in the centripetal or distal end of the injured vessel, or in both. In the centripetal portion the thrombus extends only to the point where the vein, which has been cut out of the circulation, empties into the vessel of which it was a tributary. The blood current in the latter prevents its extension under normal conditions; the thrombus is cut short, being a simple healing thrombus causing no symptoms. If it is not cut short we get a progressive thrombus extending in the direction of the blood current, the kind from which emboli are usually broken off. Progressive thrombi are therefore nothing but an exaggeration of a normal process, a dangerous condition arising out of a normal healing process.

The existence of a progressive thrombus is easy to diagnose in an extremity, where it manifests itself by pain, swelling, and palpable veins; not so when it occurs in the abdomen where it usually causes only vague symptoms, which are frequently attributed to intestinal disturbances, the real condition not being recognized until embolism itself sets in. A gradual daily increase in the pulse rate, with normal temperature, is a valuable diagnostic sign when present. Embolism affecting the pulmonary artery, right heart, or a large branch of the pulmonary artery is easily recognized. If, however, very small pulmonary vessels are involved the symptoms of the resulting infarct are somewhat vague; we may not even get bloody sputum, and pleuritic symptoms alone may be present. The condition is then hard to differentiate from mild lung conditions, as we see them after operation, as a result of narcosis, or after exposure to cold; hence whenever slight pulmonary symptoms arise the possibility of progressive thrombosis with embolism must always be borne in mind.

Little can be done when a thrombus has become progressive, and still less when embolism sets in; the treatment then consists only in cardiac stimulation and absolute rest, unless the thrombus has become infected when surgical procedures may be resorted to. Our main hope lies in prophylaxis, as Witzel has pointed out in the *Deutsche Zeitschrift für Chirurgie,* No. 85, 1907. He bases his treatment upon the general causes of intravascular coagulation. After a sudden profuse loss of blood coagulation takes place more easily, hence hemorrhage predisposes to progressive thrombi; in a similar manner infections of simple wound thrombi and contusions of veins predispose to them. Good hemostasis, little handling of tissues, and asepsis are therefore necessary at all operations. Virchow has pointed out that a poor circulation may cause thrombosis in uninjured veins, and much more easily must coagulation take place on top of a simple wound thrombus which projects into a weakened and slowed circulation. A poor circulation may be caused by weak action of the heart, as we find to be the case in chronic anemia, etc.; hence everything must be done to keep up a good cardiac action; stimulants must be given before, during, and after operations if necessary; ether is preferable to chloroform narcosis; the operating table should be warm; hot pads should be used in the wound and hot bottles placed around the patient when he is put back to bed. It is, however, not the heart's action alone which keeps up a good circulation, contraction of muscles, the prelum abdominale peristalsis, and deep inspirations all aid in a good venous circulation, but it is just these which are put to rest in the post-operative treatment of most surgeons, partly because the patient is thus kept free from pain, and partly because rest and quiet are deemed necessary for the good healing of wounds. This may be true, but Witzel considers activity no drawback to healing, and the best prophylactic treatment we have against the formation of progressive thrombi. His patients are therefore permitted to get up as soon as possible after operations, after amputations of the breast on the first day, and after laparotomies on the second, third, or fourth day. When it is impossible to get the patient up early he recommends systematic breathing exercises, active and passive movements of the extremities, and massage. As tympanites disturbs the portal circulation and prevents deep breathing, cathartics are given early, in other words everything is done to exercise the natural functions of the body immediately after operation.

Framboesia Tropica.

While there are still many differences of opinion in regard to this curious disease of the tropics, little by little some of its mysteries are being cleared up. Castellani's discovery that the lesions of the disease regularly contain a spirochete which morphologically cannot be distinguished from the *Spirochæta pallida* has been corroborated by numerous other observers. Castellani considered that syphilis and framboesia were different diseases, and therefore gave to the organism he discovered in the lesions of the latter the appellation *pertenuis seu pallidula.* Huchinson and Scheube were of the opinion that framboesia represented a modified form of the disease, but this view has not met with universal acceptance, and notably the inoculation experiments of Baermann and Halberstädter on monkeys appeared to prove that the diseases are not identical. Some observers go so far as to disclaim for framboesia all relationship to syphilis, and look upon it simply as an infectious disease running its course purely as a local cutaneous affection. Schüffner (*Münchener medizinische Wochenschrift,* July 9, 1907), who has studied the disease during five years of practice in Sumatra, believes that many of these differences of opinion depend on insufficient periods of observation, and says that he now has a very different idea of the disease from what was the case some years ago. In 129 cases of framboesia studied during the past six months he found the *Spirochæta pertenuis* 104 times, or in 81 per cent. of the cases. He has reached the conclusion that the disease is infectious and that the contagion is transferred by contact

through some cutaneous lesion. While the course of the disease presents many analogies to that of syphilis considerable differences exist, notably in the character of the cutaneous eruptions and in the fact that lesions of the mucous membranes never occur, so that the identity of the two diseases cannot be upheld. Bone changes and a peculiar ossifying form of periostitis are particularly characteristic, and in many respects frambœsia manifests itself as a very complex condition. In its course it exhibits a striking parallelism to syphilis, and Schüffner thinks it is to be considered an independent disease, a sort of second syphilis, the two conditions having somewhat the same relation as tertian malaria has to the pernicious form.

Spontaneous Lesions of the Cervix in Abortion.

The discovery of a recent injury of the cervix in a woman in the process of abortion would, if the lesion were at some distance from the cervix, lead the examining physician to conclude that it was the result of an unsuccessful criminal attempt to empty the uterus. Even if the patient were already under the care of a physician the suspicion would be aroused that a no doubt justifiable but technically imperfect operative procedure had been undertaken. Several cases are on record, however, in which such lesions of the cervix appear to have been spontaneously produced, and Blumreich reports another in the *Berliner klinische Wochenschrift*, July 15, 1907, in which there is no doubt that the cervix was severely damaged as the result of peculiar local conditions. When first seen in consultation by the author the patient, who was a young primipara in the fourth month undergoing an abortion induced on account of a recurrence of previous attacks of appendicitis, gave no evidence whatever of any cervical injury, the only procedure that had taken place having been the introduction of a strip of iodoform gauze into the cervix. This was extremely rigid, and after slight further dilatation with Hegar's dilators a laminaria tent was introduced without occasioning further trauma. Some hours later exceedingly violent pains set in, and when the author examined the patient at the expiration of twenty-four hours it was found that the posterior half of the cervix had been completely torn away from the vaginal vault, while the fetus was projecting from the uterine end of the cervical canal. Blumreich explains the occurrence of this injury through the fact that the cervix was unusually undilatable, so that the very violent uterine contractions finally caused its upper thinned-out portion to tear through. Cases of this sort are undoubtedly very rare, but it is well to keep in mind that they may occur without any foregoing improper manipulation, a fact that may be of importance from the forensic standpoint.

The Importance of the Rectum in Gynecology.

Men with practical experience in this field are unanimous in their declaration that an intimate relation exists between the state of the rectum and the diseases peculiar to women. Current literature and textbooks on gynecology strangely enough make little mention of this fact, and it may be quite safely assumed that there is corresponding deficiency in the teaching of students in this respect. As pointed out in an article by Pantzer (*American Journal of Obstetrics*, November, 1906) there exists a clear anatomical and physiological relationship between the rectum and the female genitalia, so that any variation in the function of one is communicated to the other. In susceptible individuals this disturbance may border closely on the pathological. Thus it is a well-known fact that the excitation of the rectum during menstruation may result in diarrhea or constipation sufficiently marked to require attention. On the other hand, chronic constipation may likewise affect the quantity, frequency, and course of the menstrual flow. A number of pelvic conditions have also been described in which such interdependence between these two anatomical entities is evident, and greater attention should therefore be paid to the part which the rectum may play in the clinical picture. It is of distinct advantage, therefore, to place the rectal examination on a par with the vaginal in a given case of pelvic disease, and Pantzer also calls attention to the importance of rectal medication in such cases. As the remedies are absorbed by practically the same lymphatic channels which carry the bacteria and the various toxins, it is believed that the former thus exert a direct antitoxic and diluent effect upon the morbific bacteria. Rectal medication and feeding have undoubtedly been overdone, but there is no question that a distinct field exists for these procedures, and this will be extended as the intimate relation between rectum and female pelvic organs, already referred to, becomes more generally recognized.

Medical Attendance at Duels.

The presence of one or more surgeons has long been considered an essential feature of a duel conducted with due respect to the rather complicated code that is supposed to confer a certain pseudo-dignity to such affairs, and it is to be presumed that the medical men who have given their services on such occasions have troubled themselves very little in regard to the ethical or moral considerations involved in their attendance. It is clear, however, that the matter should not be passed over so simply, and that there may well be differences of opinion in regard to the propriety of a surgeon's appearing to sanction the method of settling personal disputes, for while it is the medical man's duty to relieve suffering and to accord the benefits of his art to any injured person, no matter what may be his own convictions in regard to the manner in which the traumatism was received, this obligation hardly requires him to attend a duel in the expectation that a patient will be provided for him to treat, or that the necessity for signing a certificate of death will arise. This is the stand taken by the medical society of Palermo, which has decided that its members will in future refuse to officiate in this capacity, and several other medical organizations are said to have expressed similar intentions. Perhaps the knowledge that medical aid could not be counted on except in the ordinary course of events would serve to reduce the number of encounters on the "field of honor" that often spring out of trifles, but end seriously or fatally for one or both contestants, and it would seem very desirable for medical societies in all countries where the conditions require it to follow the example set by this Italian organization.

The Time for Brain Work.—Hallopeau of Paris, in speaking of brain workers, advised them to take a nap after lunch and a long sleep after dinner. He suggested that a good plan would be to prolong the latter rest to about 1 o'clock in the morning, when a man could wake up fresh and be in the best disposition for furnishing three good hours of intellectual work.

News of the Week.

Veto of the Optometry Bill.—Governor Hughes, on July 26, vetoed the optometry bill, officially known as "An act to amend the public health law by defining optometry and regulating the practice thereof." In the memorandum filed with the bill, the Governor says: "It is the intent of this bill that the board of examiners in optometry to be appointed by the Board of Regents shall be selected from those nominated by the Optical Society. It is also provided that the prescribed course of professional study in schools of optometry shall be had in such schools as maintain a standard satisfactory to the board of examiners. These provisions remove from the jurisdiction of the Board of Regents matters which it is important should be placed in their control. If the practice of optometry is to have the recognition and regulation contemplated by this bill the appointment of examiners should not be limited to those nominated by a particular society, and the determination of the standards of professional schools should be unequivocally left to the proper State authority. This is the policy established by the law enacted this year regulating the practice of medicine, and in my judgment it is unwise in legislation along similar lines to adopt a different principle."

An Anti-Meningitis Serum.—It is reported from Castalia, Ohio, that Dr. Simon Flexner of the Rockefeller Institute in New York, has elaborated a curative serum for the treatment of cerebrospinal meningitis. This serum has been administered with striking success, it is said, during an epidemic of the disease in the Ohio town.

New Rule Governing Vaccination in Pennsylvania.—By the action of the Advisory Board of the Pennsylvania State Health Department a person who has been vaccinated unsuccessfully three times, at intervals of two weeks, may for the time being be considered immune to smallpox. Further, persons that have a written certificate from a registered physician that two such attempts to vaccinate have been faithfully made, and a second certificate from a physician of the State Department of Health or a board or bureau of health, or a sanitary committee of a city or borough, may be admitted to school for one year without violating the spirit of the law, the object of which is simply to prevent the spread of smallpox.

Intemperate Legislation in Georgia.—Both houses of the Georgia legislature have passed an unusually drastic bill prohibiting the manufacture and sale of alcoholic beverages, and the Governor has affixed his signature, making it a law. Under the provisions of this bill no whisky, wine, beer, or other intoxicating beverage can be legally sold in the State after January 1, 1908. The liquids named are absolutely barred, but provision is made whereby licensed druggists may sell and furnish pure alcohol for medical purposes only upon written prescription of a legally practising physician. The bill requires that no prescription calling for alcohol shall be filled except upon the day upon which it is dated and issued or upon the following day. Within ten days after the same is filled by the druggist he shall file the prescription for record with the ordinary of the county in which it is filled. The record containing such prescription shall be open to public inspection. Upon any prosecution under this act the burden of proving the defence that the sale was of pure alcohol under prescription shall be upon the defendant. No druggist who is also a practising physician will be permitted to fill his own prescriptions, nor can they be filled at any drug store in which the said physician is financially interested, and no prescription shall be refilled.

Christian Scientist Sentenced to Imprisonment.—The Court of Special Sessions has sentenced to thirty days in the penitentiary the father of a six-year-old child, who allowed her to die of bronchopneumonia without medical aid, trusting in the efficacy of Christian Science treatment. The man's conviction resulted from his own admission. He confessed on the stand that he did not believe in medical treatment or in the use of drugs, and asserted his belief that only prayer healed. He was charged with violation of Section 288 of the Penal Code, which makes it a misdemeanor for a person willfully to omit, without lawful excuse, to perform a duty by law imposed upon him, to furnish food, clothing, shelter, or medical attendance to a minor. The Christian Scientists have announced their intention of using every resort to have the judgment reversed, while the District Attorney's office considers the decision of great importance, and will oppose such action vigorously.

A Lost Diploma.—A physician of Omaha, Neb., four years ago submitted his Harvard Medical School diploma to the Nebraska State Medical Board at Lincoln. It was shipped back to him by express, but never reached him, and as the college refuses to issue a duplicate diploma the doctor is suing the express company for $20,000, alleging that the loss of the diploma will prevent his practising in any other State.

Bellevue Patients to Pay.—The board of trustees of Bellevue Hospital has made a rule providing that any patient who has more than $50 value in his possession when taken to Bellevue and Allied Hospitals may be charged $1.50 a day for treatment in the institutions. This charge will be continued only until the person is reduced to $50. The rule was made in order to protect the needy poor, as it was found that many persons were occupying beds in the hospital who could well afford to pay for treatment.

Physician Sues Apartment-House Owner.—A Newark physician is suing the landlord of an apartment house for $5,000 damages on account of an alleged attack made upon the physician because he entered the apartment building through the front door. The physician was called to see a patient in the house, but the owner happened to be in the hallway, and a controversy arose as to the right of a physician to enter by the front entrance instead of by the servants' and tradesmen's door, the landlord finally assaulting the doctor. Efforts are said to have been made in other cases to compel physicians to enter by the back doors when making calls on patients living in apartment houses.

Railroad Fatalities in This Country.—The Interstate Commerce Commission has given out the statistics relating to the casualties to passengers and railroad employees during the quarter ending March 31, 1907. The total number during this period was 20,563, as compared with 20,944 reported in the preceding three months—a decrease of 381. The total number of passengers and employees killed in train accidents was 421, and the number of injured 4,920, 53 less in number killed and 20 less in the number injured, as compared with the record of the preceding three months. The total number of collisions and derailments in the quarter was 3,091 (2,078 collisions and 1,913 derailments), of which 323 collisions and 229 derailments affected

passenger trains. The damage to cars, engines, and roadway by these accidents amounted to $3,536.110.

Registration of Communicable Diseases in Pennsylvania.—A rule has been adopted by the Advisory Board of the Pennsylvania State Board of Health requiring physicians in rural districts to report every case of communicable disease under their observation to the township health officer, who will arrange for the necessary isolation and protection of the community from infection.

First Aid Instruction for Railroad Employees.—The employees of the Pennsylvania Railroad, numbering 198,000, are to be given a course of practical instruction in first aid to the injured. For this purpose a series of lectures will be delivered at various points along the lines under the direction of the company's medical examiner.

A Refuge for Victims of the Sleeping Sickness.—Philanthropy has seldom been more nobly illustrated than by the Roman Catholic missionary station at Saint Trudon on the Congo. For three years this mission has paid to the natives one franc for every sleeping sickness patient brought to it. The unfortunates were being driven from the villages to perish in the forests when humanity interposed to assuage their sufferings, even though their lives could not be saved. The Catholic fathers and sisters are still attending them in the hospital enclosure they provided, and every victim of the dread disease is made as comfortable as possible and receives a decent burial at the end.—*The Sun.*

An Increase in the Size of the Coming Race?—At the meeting of the British Medical Association at Exeter last week, Sir Victor Horsley spoke in favor of making a system of periodic measurements part of the general scheme of medical inspection of school children. In this connection it was stated that at Marlborough, where annual measurements have been recorded for twenty years, the average size and weight of the boys has been steadily increasing. From a comparison of these statistics it appears that in 1906 the boys 14 years old were about 5 pounds heavier and nearly 1½ inches taller than those of the same age in 1886. The 16-year-old boys of the present date keep up in proportion, being three-quarters of an inch taller and 8 pounds heavier.

A New Schematic Eye.—For enabling its students to acquire the technique of ophthalmoscopic examinations, the Chicago Eye, Ear, Nose, and Throat College has installed an equipment of schematic eyes. They are built on the model devised by its president, Dr. W. A. Fisher, who has long recognized the need of a means of teaching the use of the ophthalmoscope.

New Hospital for Tuxedo.—Plans have been made for the erection of a $100,000 hospital in Tuxedo under the direction of a committee composed of members of the summer colony.

Professor von Leyden has resigned the Chair of Special Pathology and Therapeutics in the University of Berlin, his retirement to take place at the close of the current semester. Prof. W. His, a son of the famous anatomist and embryologist, has been appointed to succeed him.

Iowa State Homeopathic Journal.—The Iowa State Homeopathic Medical Society has decided to publish a monthly journal under the editorship of Dr. G. A. Huntoon, the secretary of the association.

Chicago School of Sanitary Instruction.—Articles of incorporation have been granted for a school bearing this name, with Health Commissioner W. A. Evans, Assistant Health Commissioner Reilly, and Dr. J. Biehn as founders.

Pennsylvania State Medical Examinations.—Of 367 applicants for license to practise medicine in the State of Pennsylvania, only 39 failed to pass the formal examination. This is the smallest number of failures since the medical examination act has been in force.

State Board of Medical Examiners.—At an adjourned session held in Albany on August 1, the recently appointed State Board of Medical Examiners adopted rules for its guidance in marking the papers of applicants for licenses. The rules are said to involve few changes from those of the old board.

Obituary Notes.—Dr. EDGAR ELTING of Kingston, N. Y., died on July 27, at the age of seventy-nine years. He was descended from a long line of physicians, some of whom served in the Revolutionary Army. In 1884 Dr. Eltinge removed to Brooklyn, where he practised for twenty years. About three years ago he gave up active work on account of failing health and returned to Kingston.

Dr. LUCY HALL-BROWN of Brooklyn died on August 1 at Los Angeles, Cal. She was graduated from the University of Michigan in 1878, and continued her medical work abroad. She is said to have been the first woman entered in the clinics of St. Thomas's Hospital, London. For some years she was superintendent of the Massachusetts Reformatory. In 1887 she began practice in Brooklyn, and became prominent in medical circles.

Dr. WILLIAM T. HOWARD of Baltimore died on July 31 at Narragansett Pier, R. I., at the age of eighty-six years. He had been a resident of Baltimore since 1866, in which year he was appointed adjunct professor of physiology in the University of Maryland. A year later he was made the first incumbent of the new Chair of Diseases of Women and Children. About ten years ago he retired from active work and was made professor emeritus.

Dr. G. R. GWYNNE of Lebanon, Tenn., died suddenly of heart failure on July 23, at the age of sixty-four years. He had lived in Lebanon all his life, and was an active member of the County Medical Association. For years he was city health officer of Lebanon.

Dr. RUDOLPH L. DODGE of Portland, Me., died suddenly while in his automobile on July 28. He was born in Scarsport in 1840, and, after having served as second lieutenant through the Civil War, he entered Bowdoin Medical School, from which he was graduated in 1874. Since this time he had practised in Portland.

Dr. JOHN C. BUDLONG of Providence, R. I., died on July 24 after a long illness. He was born in Cranston in 1836, and was a lineal descendant in the seventh generation of Roger Williams. He was graduated in medicine from the Hahnemann Medical College in Philadelphia in 1863, and served through the latter part of the Civil War as division surgeon. He then began the practice of medicine at Centerdale, removing to Providence in 1868. In 1875 he was made surgeon-general of the State with the rank of brigadier-general, and he had occupied many positions of prominence in homeopathic medical societies. In 1903 he was elected to the Providence City Council, and during the past year was president of the Board of Aldermen.

Dr. J. F. CANAVAN of Traverse City, Mich., died on July 27 after an operation for appendicitis. Dr. Canavan was born in Holyoke, Mass., and received his medical degree from the University of Michigan in 1899. At the time of his death he was assistant superintendent of the Northern Michigan State Hospital.

Correspondence.

SANITARY CONDITIONS AT THE JAMESTOWN EXPOSITION.

To the Editor of the Medical Record:

Sir:—In the issue of the Medical Record for August 3 you raise a question in your editorial as to the healthfulness of Jamestown. I wish to say that typhoid fever is not prevalent and that the sanitary conditions on the grounds of the Jamestown Exposition are excellent. I invite the most rigid investigation and will lend any aid in my power that will tend to make investigation complete. I will be under great obligations if you will publish this letter as prominently as your editorial question.

R. L. Payne, M.D., Medical Director.

THE INCORRECT REPORT OF DR. KNOPF'S REMARKS.

To the Editor of the Medical Record:

Sir:—On May 8, the day following the meeting of the National Association for the Study and Prevention of Tuberculosis, there appeared in the *North American* of Philadelphia a most sensational article, according to which, during the discussion of Dr. Flick's report on medication, I was reported to have advised the killing of dying consumptives quickly and painlessly by heavy doses of morphine and to have admitted that it was my daily practice to do so. It was furthermore said in this article that there had been a bitter debate and that the session adjourned in confusion. These false statements were copied by nearly all the newspapers in the United States, were cabled to Europe, and made the rounds in the papers and magazines of England and the whole European Continent. In spite of explanations and denials I had sent to the Associated Press, in spite of a strong letter written by Dr. George Dock, the presiding officer of the meeting, giving the true version of my remarks, the false statement has continued to be published and republished and commented upon, to the great detriment of the anti-tuberculosis crusade all over the world. For example, ignorant consumptives in St. Louis, who had read the sensational misstatement, refused to receive the nurses sent to them by the Society for the Relief and Prevention of Tuberculosis. The St. Louis *Republic*, which published this news item, said: "Consumptives, since they read that report, apparently have a dread that the visit of the nurse may mean morphine to end their suffering." It became thus necessary to issue a statement by order of the president of the National Association for the Study and Prevention of Tuberculosis, to the effect that no such remark was made by me, and further that: "Quite apart from the false position in which the speaker was placed and the injury done him, the publication of such a piece of sensationalism cannot fail to have a very deleterious effect upon impressionable tuberculosis patients throughout the country and may keep others from seeking needed medical aid."

I had hoped that this would put a stop to all further comments on and circulation of the sensational falsehood. I am free to confess that I have longed for the time when the lie would die out, but it seems that such a lie dies hard. The *Kansas City Journal* recently published an editorial under the heading "Should Doctors Kill?" from which I quote the following: "The question whether a physician is justifiable in shortening the life of a patient suffering from an incurable disease by administering anesthetics was given a fresh impetus recently by the declaration of Dr. S. A. Knopf before the Tuberculosis Congress in Washington, advising that consumptives should be given heavy doses of morphine to hasten the end. To the credit of the profession it must be said that physicians generally repudiate the idea as atrocious and a violation of medical ethics." In Dr. Dock's letter above referred to, as well as in the statement authorized by the president of the Congress, the absolute falsehood of the newspaper report was clearly shown. Equally untrue was the report of the alleged "adjournment in confusion" and the "lively and bitter debate" which followed Dr. Flick's report, condemning the use of morphine and its compounds. In refutation of this reflection made on a body of scientific men, composed of many of the leading physicians, I would cite an extract from a letter which was received recently from Dr. Joseph Walsh, the secretary of the section: "I was present as secretary of the section at which you spoke, and instead of the section breaking up in confusion, as was stated in the newspapers, the section closed in the perfectly regular way, and your statement as generally understood by the medical men seemed to be generally agreed with."

I beg the medical press of the United States to copy this communication, in the hope that it will help individual members of the profession to refute once for all the inconceivable proposition that any physician true to his calling could possibly propound such a doctrine as shortening the life of any patient entrusted to his care. To the individual members of the profession in this country and abroad I address a personal appeal to embrace every opportunity to disabuse any individual who may labor under the misapprehension that I or anybody else of the American medical profession recommended shortening the lives of consumptives or any others by the administration of chloroform, morphine, or similar narcotics. I make this appeal not merely for my own sake, but above all for the sake of truth and for the sake of consumptive sufferers in this and other countries. S. A. Knopf, M.D.

New York, July 30, 1907.

NO DANGER OF TYPHOID FEVER AT JAMESTOWN.

To the Editor of the Medical Record:

Sir:—In reply to an editorial in the Medical Record of August 3, 1907, I am glad to be able to say to those intending to visit the Exposition that there is no danger of contracting typhoid fever. It is entirely safe for any one visiting that place to drink any water on the grounds freely and to eat ice cream or whatever he may wish if purchased on the grounds. The water supply is the same as that of the city of Norfolk proper, and this water comes from a lake well protected and watched to avoid contamination. This water has been recently examined by the United States Government and pronounced excellent in quality. Among the three thousand people employed at the Exposition grounds, fourteen cases of typhoid fever have developed, which is about two-fifths of 1 per cent., and this includes all that have occurred since last fall. Only one of these persons lived on the grounds, thirteen of the fourteen spending more than half of their time away from the grounds.

Because this case was suspected to come from milk contamination, all the milk supply other than condensed milk and that from two dairies has been cut off from the grounds.

All the ice cream allowed in the grounds is prepared by a reliable ice cream company of Norfolk, and the milk they use consists of 40 per cent. cream, which comes to them packed in ice from Cooperstown, N. Y., and is then mixed with milk from dairies in this vicinity. The only dairies supplying this milk are those that show certificates from the health department at Norfolk. Dr. Santee of Washington only last week examined all the dairies here, and only those he pronounced good have certificates. From personal observation I can say that the cans and milk are carefully handled by this company.

In Camp Smith and that of the Twelfth Cavalry stationed at the Exposition they are using the same water that is supplied to the Exposition. There are about thirteen hundred men, and in four months' time only one case of typhoid has occurred, which is little short of marvelous. Even this case did not give the usual blood reaction for typhoid.

At Pine Beach, which is outside the Exposition grounds, pumps have been driven in the ground and cesspools are scattered around, but Dr. Blue of the Public Health Service is trying hard to purify this spot, and twelve offenders have already been fined. The best places at Pine Beach use the Norfolk company water, which is of high quality; it is the cheap places there that are dangerous. The Exposition and county have agreed to put in the pipes to such places and bear half of the expense, so that eventually all of Pine Beach will be safe so far as the water is concerned. Pine Beach has no official connection with the Exposition.

Among the West Point cadets three cases of typhoid fever developed after they had left the Exposition, but it is not fair to say that they were contracted at the Exposition, for these young men went all around and drank water from many sources; they probably also ate raw oysters and took milk in some form. Among the many companies of troops that have been stationed at the Exposition not a single case of typhoid has been reported, and reports have come from them stating that the men remained in the best of condition after their return. Only one case so far can be traced directly to the Jamestown Exposition grounds, and that was probably from contaminated milk.

There are 200 men in the Government employ who live on the grounds and have been there for two months without any cases of sickness among them. If the water

was contaminated some of them would have shown it.

To those visiting the Exposition I would advise that they abstain from raw oysters and from drinking milk and eating ice cream promiscuously outside of the grounds. Norfolk city and Norfolk county water are both safe, but all other should be boiled. Any water on the Exposition grounds is safe. Such a finding reflects credit on those in charge of the sanitary affairs at Jamestown.

JOHN W. WINSTON, M.D.

NORFOLK, VA.

OUR LONDON LETTER.

(From Our Special Correspondent.)

AMALGAMATION OF HOSPITALS AND SOCIETIES—FINAL MEETINGS OF OBSTETRICAL AND GYNECOLOGICAL SOCIETIES—INTERNATIONAL CONGRESS ON SCHOOL HYGIENE—DEATH IN DEEP SEA DIVING—OBITUARY, DR. DUNSMURE.

LONDON, July 19, 1907.

AMALGAMATION of hospitals and societies is still exciting some discussion. With regard to the former you are aware that the union of the orthopedic hospitals has been successfully carried out, largely by the assistance of King Edward's Hospital Fund. Another effort of the kind is being made. On Tuesday a meeting was held of the supporters of the Hampstead Hospital to consider a proposal made at the instigation of the King's fund to amalgamate with the Northwest London Hospital. An outline of a scheme was submitted by the council, and after some discussion a committee was appointed to consider the proposal and report. It is probable that in time the amalgamation will be carried out, for the influence of the King's Fund is far-reaching and the plan seems reasonable.

As to our societies, most of them have become merged in the Royal Society of Medicine, and in some cases the full consequences do not appear to have been foreseen, so that here and there little clouds are already visible. One is connected with the new section which absorbs the two societies devoted to obstetrics and gynecology. The list of officers recommended for the new section shows such a preponderance of the obstetrical fellows that it recalls the jealousy with which the birth of the younger sister was regarded and excites in some quarters surprised comments. But perhaps too much importance has been attached to this. At any rate the junior society—the gynecological—is not, as a body, dissatisfied, for at its concluding meeting as an independent institution a resolution was passed seconding its "appreciation of the courtesy and cordiality with which the Obstetrical Society of London united with our society in their arrangements for amalgamation."

I will turn, therefore, to the practical work of these societies at their concluding meetings. That of the obstetrical was held on the 3d inst., when Dr. F. E. Taylor described a case in which suppuration of an ovarian cyst seems to have been caused by the typhoid bacillus. The patient had suffered from the fever in April, last year, and a movable abdominal tumor was discovered during her convalescence. This gradually increased in size and at length operation seemed advisable. The abdomen was opened and the tumor found to be an inflamed cyst of the left ovary with some adhesions to omentum. It was removed entire and recovery was ideal. It was unilocular, about the size of a man's head, held 2½ pints of yellow pus, free from odor, and from the pus a pure culture of *Bacillus typhosus* was obtained. Dr. Taylor thought the infection reached the cyst by way of the blood and showed the pyogenetic properties of the bacillus.

The president, Dr. Spencer, was surprised to hear that the bacillus could survive in ovarian fluid for twelve months. He asked whether Widal's reaction was considered proof positive of typhoid fever, as a few years ago some physicians did not so regard it. To this Dr. Taylor replied that much depended on the technique of its performance, especially as to the dilution and time limit.

A skeleton of an extrauterine fetus from a woman without any history to suggest it was shown by Miss Adrich-Blake; two specimens of fibroid associated with bleeding after the menopause by Dr. Lewers; and a calcified fibroid enucleated for bleeding fifteen years after oophorectomy by the President.

At the gynecological's final meeting on the 11th inst. Dr. J. H. Swanton showed a fibroma removed from the vagina of a widow of forty. It was pedunculated and measured three fourths by one third inch. Dr. Macnaughton-Jones said it was important to know if these rare tumors degenerated. He thought some were sarcomatous. Prof. J. W. Taylor had met with four such growths and one of them recurred three times, though histologically it was only a simple myoma. Dr. Swanton further showed a cystic adenocarcinoma of the ovaries and appendix vermiformis from a patient of sixty-nine. It had originated in cystic growths. The President, Mr. W. D. Spanton, remarked that growths arising in this way often proved extremely malignant. Dr. Giles thought carcinoma of the ovary, if free fluid were absent, was often not directly diagnosed. Dr. Macnaughton-Jones showed a large myoma, encapsuled in peritoneum, which arose from the uterine body and cervix, from a patient of thirty-two, unmarried, troubled with menorrhagia and anemia. Both ovaries were removed, as they were cystic and had degenerated. Dr. Swanton showed a cyst of the clitoris from a patient of twenty. It contained blood, pus, and sebaceous matter, and was supposed to have been caused by a blow. It had been growing about three months.

The President then delivered a valedictory address in which he summarized some of the good work of the society during its twenty years' existence. He recalled that the first specimen shown was a multiple myoma and a criticism then made was still applicable, *viz.*, to extirpate a tumor which gave little or no trouble, simply because it was a tumor, was a proceeding a surgeon ought to decline.

The second International Congress on School Hygiene is to be held in London next month and the King has given it his patronage. But great dissatisfaction is felt with the way the Board of Education has failed to do anything to promote the success of an undertaking favored by His Majesty. That board has been asked by the Executive Committee to do three things. It has not done one of them. (1) It was invited to send delegates; it nominated three officers "to attend the meetings and report" for the purposes of the board, but they were not to be known as "delegates." (2) It was asked to hold a reception in conjunction with the Foreign Office for seventy-five foreign delegates, but had not the courtesy to reply, and when questioned in the House of Commons Mr. McKenna said, on the 15th inst., the board did not think it advisable. The board, one may suppose, does not think courtesy should be taught by example, whatever its teachers may do by precept. (3) The board was asked to approach the Foreign Office so that invitations might be sent through the diplomatic channels in accordance with custom, as otherwise some countries would be unwilling to appoint delegates. This was known to be the case with Germany and France, the former being the originator of the Congress and the latter having done everything possible to promote its success. The board also refused this request, not openly, however, but in a "private and confidential" letter to the chairman of the Executive Committee. There are other causes of discontent and even indignation among those interested, but these three seem quite enough to justify the dissatisfaction which is expressed in all directions.

At an inquest on a diver who lost his life through the entanglement of his lines while he was engaged in deep water investigating the wreck of a torpedo boat some remarkable evidence was given as to the management, but the jury found that no blame was attachable to the officers engaged, and commended the bravery of a fellow diver who had, at great risk to himself, endeavored to save the victim of the accident.

Staff Surgeon Oswald Rees, Secretary to the Admiralty Deep Sea Diving Committee, explained that it was necessary to allow time equal to that spent in the water for the ascent. The usual time to stay at the sea bottom at the depth of twenty-five fathoms was twenty minutes. By that time the blood would be saturated with air and the tissues partly so, and if the diver were raised suddenly bubbles would penetrate to the heart, causing sudden death. At the post mortem in this case, at which Prof. Haldane of Oxford assisted, three bubbles of nitrogen were found in the heart. When the diver was got on board he was suffering terribly from shock and stone deaf. No diver had ever recovered after so long an immersion at such a depth.

Dr. James Dunsmure, Ex-President of the Royal College of Surgeons of Edinburgh, died suddenly on the 15th inst. He had held the surgeoncy to a number of the Edinburgh charities, including the Royal Hospital for Children, the Maternity Hospital. He was a Fellow of the Med.-Chir., and the Obstetrical and Harveian Societies of Edinburgh. His early education was in Edinburgh, where he graduated after spending some time in Berlin, Vienna, and Prague. His M.B. was 1867, in which year he took the college license. He became M.D. and F.R.C.S. in 1870-1, from which time he steadily rose to the highest collegiate honors. In 1901 the University of Glasgow conferred on him the LL.D.

Progress of Medical Science.

Boston Medical and Surgical Journal, July 25, 1907.

Hydrophobia and Its Prevention.—C. P. Sylvester goes into a description of hydrophobia and believes that the occurrence of cases of this disease in this country is a reflection upon our ability in the department of sanitary science. It is a duty incumbent upon us to furnish the laymen with such knowledge that they may assist us in obtaining proper laws for its eradication, and it is upon us that the duty devolves of actively guiding into existence such national and State laws as the following: (1) Control of the disease in the United States to be placed under the supervision of the Chief of the Bureau of Animal Industry at Washington, as are other epizootic diseases, such as foot-and-mouth disease, according to the Act of Congress of May 29, 1884. (2) Full authority vested in the State cattle and other appointed commission to act as may be necessary for the eradication of the disease, in conjunction with the United States Bureau of Animal Industry at Washington, whenever rabies appears in the State. (3) All licensed dogs to wear collars and metal plate of special form, that they may be readily recognized. (4) Prompt capture of all dogs not properly tagged, with subsequent humane destruction, unless properly licensed within a short time. (5) Efficient muzzling of all dogs unrestrained in public places for a period of at least one year. (6) Dogs imported from countries other than those from which rabies is excluded to be quarantined for six months.

The Contamination of the Air of Our Cities with Sulphur Dioxide the Cause of Respiratory Disease.—Theodore W. Schaefer has been studying the noxious effects of sulphur dioxide as an impurity of the atmosphere for the past ten years and has arrived at the conclusion that it is one of the most potent causal factors of asthma. Writers on hygiene and sanitation have paid but little attention to the subject of air vitiation by sulphur dioxide gas. The weight of evidence concerning the relation of this gas to public health indicates that its effects are really serious if not lasting on certain susceptible persons, and that its presence in atmospheric air is a positive menace to the hygienic welfare of living beings.

New York Medical Journal, July 27, 1907.

Operations for Cleft Palate and Their Results; Especially in Respect to the Improvement of Speech.—The conclusions that G. Hudson-Makuen comes to are that an operation for the closure of a cleft palate should be done only when there is a fair likelihood of success; it should be done only by those possessing special skill in naso-pharyngeal and oral surgery; when it is probable that several operations may be necessary the parents or patient should be so informed; the operation should be done as early as possible; in the difficult adolescent cases the operation after a preliminary tracheotomy may be preferable; there are two reasons for attempting to close a cleft palate, namely, to improve the general health of the patient, and to increase the efficiency of the faculty of speech; the general health of the patient is benefited in two ways, namely, by improving the hygiene of the nasopharynx and the oral cavity and by improving the general morale of the patient; the speech is improved by a course of psychophysical training in which the patient is taught first to recognize normal speech and then to make the best use of his still imperfect organs in its production.

Phagocytosis, Etc., in Sputum, as a Measure of Resistance in Tuberculosis.—Albert H. Allen concludes that (1) 59 per cent. of the cases show phagocytosis when their phagocytic index was applied. Eighty-two per cent. of the cases show phagocytosis when all cases showing phagocytosis at any time were included. (2) Phagocytosis in ordinary sputum examination seems of little practical value in prognosis. In large groups of cases certain features may be observed: e.g. phagocytosis was much less in his tuberculin cases. (3) From three autopsies and from the variation observed, whether of sputum taken at intervals of minutes or months, it would seem that a specimen from the homogenized daily output is necessary for much accuracy. (4) Tuberculin reactions failed to produce positive and negative phases. (5) Phagocytosis seemed not to vary with the presence of bad symptoms. (6) Phagocytosis in sputum deserves a more extended study, especially since the rôle of phagocytosis in general is still undetermined. (7) Disintegrated tubercle bacilli, parallels, variation in staining, all seem to be of no practical use in prognosis. This is in harmony with the literature.

Consanguinity: A Factor in Immunity to Scarlet Fever.—Julian Walter Brandeis has become impressed with the fact that with scarlet fever occurring in uniformly large families it was the rule to have no secondary cases develop. This evidence of low degree of scarlet contagion differed so markedly from the estimates placed by various authors of the contagiousness of the disease in relation to children in general that he decided to tabulate a certain number of cases. The table shows that, omitting the children who had scarlet fever previously, thirty-nine children were exposed in twenty-five families. Four secondary cases developed. This means that the percentage of contagiousness of scarlet fever among members of the same family, as derived from the original cases, reaches only the low figure of 10 per cent. In contrast to this Holt says that about 50 per cent. of all children exposed to scarlet fever are attacked with the disease; Koplik states the same figure; and Carr places it as high as 56 per cent.

Journal of the American Medical Association, August 3, 1907.

Intramuscular Mercurial Injections in Syphilis.—W. S. Gottheil recommends as a routine treatment in syphilis the intramuscular injection of insoluble mercurials, claiming for it over other methods of administering mercury a greater rapidity of action, especially in acute cases, more security against relapses, and lessened danger of hereditary transmission of the disease. The patients themselves soon come to prefer the treatment; it is much less trouble to receive an injection at the doctor's office once in ten or fourteen days than to be taking pills or medicine several times a day. It is a lesser tax on their memory and time, and the risk of publicity is less. The injections, properly administered in the gluteal region, cause very little pain and very slight inconvenience, indurations are exceptional and do no harm; they are indications, other things being equal, for reducing the frequency for the amount of the injections. On this account he sometimes prefers to give a five or six-drop injection weekly instead of twice that amount once in two weeks. Abscesses, he declares, are due to faulty technic, and he has found them, even in hospital and dispensary work by internes and assistants, very rare indeed. The danger of pulmonary embolism after the injections is considered by Gottheil almost illusory. He always insists on the precaution of disconnecting the syringe and watching the lumen for a few seconds before making the injection, and with this it is difficult to see how it could occur. There is evidence of the entrance of the point of the needle into a vein in about one in twenty-five injections, but this simply entails its withdrawal and reinsertion elsewhere. Mercurial intoxication may occur, but is less frequent than with the use of mercury in other ways. He always begins with a small dose and progresses up to a full one as the patient's reaction is learned, and it is safe to do so. Having the treatment directly under the control of the physician is a great advantage of the method over other modes of the administration of mercurials.

Liquid Air in Dermatology.—H. H. Whitehouse believes that we have in liquid air a dermatological remedy of real worth, at least in a limited field. He gives its physical properties and the facts so far as known as to its bactericidal value, which seems to be practically *nil*. We must look, therefore, to changes induced by it in cellular metabolism for its therapeutic changes induced by it in cellular metabolism for its therapeutic effects, and he states that it relieves pain in pathological conditions, lessens discharge and odor and tendency to hemorrhage. Mild applications favor healthy granulation, while stronger ones, he declares, destroy exuberant growth. It has little reactionary effect on scar tissue, and, therefore, he believes that it has a diagnostic value in epithelioma. The conditions in which he finds it of value are pigmentary, hairy, and vascular nevi, angiomata, lymphangioma circumscriptum, lupus erythematosus, lupus vulgaris, and epitheliomata (unaccompanied by lymph-gland invasion). The technic of its use is described. It should be applied on a swab which can be adapted to any form desired, and the elements governing the effects produced are: 1, the degree of saturation of the swab; 2, the accuracy of contact; 3, the amount of pressure exerted, and 4, the duration of the exposure. On a thorough appreciation of these, coupled with correct judgment as to the in-

terval between exposures, success and failure depend. As a rule, the slower the method the better the result. Special directions are given as to the treatment of the various conditions and a number of cases are reported. He thinks that in a certain class of epitheliomata it is a distinct power for good.

Fatal Hemolysis After Transfusion.—W. Pepper and V. Nisbet give the history of a rather puzzling case of hemorrhagic diseases in which direct arteriovenous transfusion was performed on two separate occasions. On the first occasion the blood (wife's) was allowed to transfuse for a little more than an hour and a half, and the patient, who had apparently been rapidly sinking, showed marked improvement. There was a slight suggestion of hemolysis in discoloration and urobilin in the urine, but this had nearly disappeared when the second arteriovenous anastomosis was made with another person (brother-in-law) two days later. After the second transfusion the condition changed rapidly for the worse, there was marked evidence of hemolysis, bloody urine, jaundice, high temperature, etc., the patient failed rapidly and died within five days. The impression is given that possibly the first transfusion may in some manner have caused the formation of hemolytic bodies that, after the second transfusion, found abundance of vulnerable corpuscles on which to work. The authors do not venture any positive opinion, however, as to the rôle of the second transfusion.

Hemiplegia as a Complication of Typhoid Fever.—A case of this rare complication of typhoid is reported by F. Smithies, who reviews the literature of the subject, and tabulates and analyzes the cases reported. In his patient, the gradual onset of the paralysis and its progressive recovery pointed to a thrombotic rather than an embolic or hemorrhagic lesion, and other facts like the absence of cardiac lesion, the large involvement of cortical motor centers and a leutic history also support this view. Statistics, so far as available, show that the complication is most common in males and in young adults, in only two cases the age given being over thirty. In few instances were there other lesions than those connected with the fever reported. Aphasia was a common symptom. In only one case was it reported as occurring during the first week of the fever; eight instances are recorded as occurring during the second week, eight in the third, two in the fourth, and in the remainder there was more or less permanent impairment, inability to perform the more delicate movements, atrophies, contractures, permanent aphasia, or speech impairment, etc. The mentality seems less affected, but in some cases there seems to be a greater than ordinary tendency to the post-typhoid psychic neuroses. When occurring early in the fever the cause is likely to be an embolus or slight hemorrhage; if later, thrombosis is probable. The treatment is described in some detail, the measures recommended are largely those used in hemiplegic attacks generally, modified of course by the contingencies of the existing disease.

Blood Injections in Pseudoarthrosis and Delayed Callus Formation.—V. Schmieden calls attention to Bier's method of treating pseudoarthrosis and retarded callus formation by injections of human venous blood between the separated fragments of bone. It is based on the theory that the formation of callus in fractures is due to the inflammatory reaction caused by the hemorrhage attending the fracture, and this inflammatory reaction failing, we can re-excite it by making, so to speak, an artificial hemorrhage. In Bier's clinic, the technic is as follows: The site of the "false joint" as well as the arm from which the blood is taken are rendered aseptic. By the use of a light constricting band the veins are made prominent and then one of the largest vessels is punctured or incised and 30 or 40 c.c. of blood are drawn into the syringe. The syringe must be large and its needle sufficiently strong in order that the blood can be readily forced through it. It must be strong also because much force is needed to inject into the hard scar tissue. The blood must be forced, not only between the fractured ends, but also around them in places where, from periosteal and paraosteal tissue, callus may be formed. It is important also that the blood be injected immediately after its removal, using the same syringe into which it has been drawn, as it tends to prevent coagulation in the syringe. Blood containing its fibrin gives better results than defibrinated blood. From 20 to 40 c.c., according to the size of the bones, is injected, the operation being repeated every ten days. In most cases there is a visible reaction and after its subsidence a tumor remains that becomes callus. Sometimes one or two injections suffice, in other cases five or six may be needed. The more recent the fracture the greater the success, hence the best results are obtained in cases of retarded callus formation. In some old cases of pseudoarthrosis the method fails, but the same is true of all other methods. In a large number of injections made in this way he has never seen any harmful effects. He has often injected blood taken from another healthy subject and has found it more effective. The facts support the conclusion that the extravasation of blood is the natural irritant which excites callus formation. The technic is simple and harmless, and the method is recommended with the hope that the results obtained in Bier's clinic will be substantiated by the experience of others.

Slow Fever.—H. F. Harris describes a type of fever met in the swampy regions of Southern Georgia. He defines it as "a continued fever occurring almost exclusively during the warm months and lasting from one to ten weeks," and gives the following synonyms: Typho-malarial fever; simple continued fever; remittent malaria fever; Willacoochee fever; continued fever; bilious fever; typhoid fever. In regard to the etiology he states that typhoid and paratyphoid bacilli were demonstrated in 73.3 per cent. of all cases investigated; of these the typhoid organism was found in 51.1 per cent., the paratyphoid in 20 per cent., and a mixed infection in 2.2 per cent. of the cases. He discusses the various methods of differentiation of the bacilli. He summarizes the histories of several cases and gives the blood findings: "Stained preparations of the blood by the Romanowski method were made in every instance, and not in a single case was the malarial parasite found. In 18 instances the hemoglobin was estimated; the figures ranged from 60 to 100 per cent.; the amount of hemoglobin was not entirely dependent on the stage of the disease, as it was found to be very low in several cases during the first week of the disease. In only 1 case were the leukocytes counted, the number being 7,800 to the cubic millimeter. The average of differential counts in 11 cases is as follows: Small lymphocytes, 17.7 per cent.; large lymphocytes, 9.4 per cent.; polymorphonuclear, 71.6 per cent.; eosinophiles, 1.3 per cent. Agglutination tests were positive in only 12 cases. The prognosis in this disease, he says, is generally conceded to be better than in typhoid, and he believes that there can be no reasonable doubt that this assumption is correct. The fact, in a large measure, furnishes the basis for the commonly-expressed opinion among Southern physicians that "slow fever" is a distinct and separate disease. The mortality in his series of cases is certainly lower than is usually observed in typhoid fever, but, of course, from such a small number of instances of the disease no general conclusions could be drawn. He states that he has had no great experience in the treatment of this disease, but thinks that everything warrants the opinion that it should be treated like typhoid. Many physicians employ large doses of quinine throughout the course of the disease, with the belief that its course is thereby shortened.

The Lancet, July 20, 1907.

A Common Sporadic Seven-Day Fever of Indian Ports Stimulating Dengue.—Leonard Rogers fully describes this seven-day fever, which is common, with a definite seasonal distribution, in the large seaports of India. It is rarely seen far from the coast line. It resembles dengue in its sudden onset, the severe headache and pains, the character of the tongue, the rash, when present, and, to some extent, in the seasonal incidence and its distribution. The main points of difference are shown as follows: Dengue is prevalent at long intervals in epidemic form, attacking large proportion of residents; seven-day fever is prevalent annually in sporadic form. Dengue specially attacks coast towns, but spreads far inland; seven-day fever is only known near the coast, so far. Dengue attacks Europeans and natives equally, whereas the fever is very common among Europeans, but comparatively rare in natives. Dengue occurs mostly in the hot months, but may prevail in the cold season; the fever prevails in hot and rainy seasons only. In dengue relapses are very common in the same year as first attack; in the fever relapses are rare and are not in the same year as first attack. Pain is very severe in dengue and breakbone in character; in the fever the pain is moderately severe, as in influenza, and not of breakbone character. In dengue the joint symptoms are very common and characteristic; in the fever they are absent or only present as slight pain. The convalescence in dengue is very tedious, lasting from one to three months, with persistent joint pains; in the fever it

is rapid and with no after joint pains. In dengue the fever lasts two or three days, falling to normal with crisis; occasionally there is a very short secondary rise; it is markedly remittent; in the fever the fever lasts eight or more days, with typical saddleback remissions to 100° or 99° F. only; otherwise it is continued in type. In dengue the pulse is rapid; in the fever it is slow, especially in the terminal rise.

Experiments on Prolonged Protein Feeding.—David Forsyth writes on this subject with special reference to the thyroid gland and the osseous system, and concludes that fowls kept for long periods on a protein diet, but otherwise under healthy conditions, show no hypertrophy or microscopic changes in the thyroid glands; that their bony tissues are not affected provided the deficiency of calcium and other bases in the meat diet is made up by a supply of lime; in none of the birds was any change indicative of gout observed; each of the four fowls maintained under the above conditions showed an unusual amount of colloid in their pituitary glands; that the thyroid glands of carnivorous birds of prey are not obviously larger, proportionately, than those of other classes of birds, nor are there any peculiarities of microscopic structure in the glands of carnivorous and graminivorous birds referable to differences in their natural foods.

Male Triplets with Eclampsia in a Patient Aged Sixteen Years.—Robert Ollerenshaw reports this case, which was noteworthy because of the condition of male triplets, the complication of eclampsia, and the youth of the mother and father (the age of the latter being seventeen). The respective weights are as follows: The first, 2 pounds 14 ounces; the second, 2 pounds 6 ounces; and the third, 3 pounds 2 ounces. The third child, the heaviest, was nourished from a separate placenta, and was the result of the fertilization of one ovum; the first and second fetuses were uniovular, having a common chorion, the individual amniotic sacs having been broken through probably by fetal movement. The two placentæ were united by their edges so as to form one large placenta, which was expelled quite intact with the membranes five minutes after the birth of the third child.

Injury to Shoulder; Herpes Zoster; Influenza.—John Allen reports the case of an eighteen-year-old youth who received an injury to the back of his left shoulder. On examination no brusing was seen and no fracture or dislocation could be discovered. Four days later an herpetic eruption appeared on the posterior aspect of the left side of the chest and the left arm and forearm. This was accompanied by a great deal of pain. He progressed favorably for the next five days. Then there occurred an attack of influenza with a scarlatiniform rash over his body, most marked in the lumbar region and the buttocks. The rash disappeared in forty-eight hours and there followed no desquamation. In this case it was somewhat difficult to decide whether the initial pain complained of resulted from the injury or whether it merely heralded the onset of the herpes zoster, the injury either precipitating the onset of the herpes, or drawing the patient's attention to the pain. The attack of influenza was interesting because it was accompanied by a rash, a rather uncommon though not unknown occurrence.

British Medical Journal, July 20, 1907.

Laryngismus Stridulus in Infants.—Eustace Smith has met with a number of cases of laryngismus stridulus attacking healthy young infants within the first month of life; without exception there was one common feature, namely, extreme nasal obstruction due to adenoid overgrowth and post-nasal catarrh. In many cases the spasmodic movement is not confined to the larynx, but involves the gullet as well. In newborn infants, as in older children, the degree of laryngeal distress varies widely from an occasional crow or croak in mild cases to a severe and prolonged spasm in which breathing completely ceases, the face grows slate-colored, and the infant seems at the very point of suffocation. The attack has generally come on silently. The treatment consists in removing the cause, which, he believes, is to be found in the nasopharynx. In mild cases a few drops of resorcin solution, one or two grains to the ounce of normal saline, instilled into the nostrils several times a day, will soon put a stop to the crowing. But in bad cases the nasopharynx must be scraped before applying local remedies. The operation should be performed early. If a child is seen during a seizure, the tongue should be hooked forwards by a finger passed into the throat or grasped with the tongue forceps and traction made so as to excite a return of respiration. Little shocks are useful. If respiration is not restored, artificial respiration should be resorted to and persevered with. Insufflation was successful in an obstinate case of arrested breathing from anesthesia.

Remarks on the Value of Rhythmical Exercises in the Treatment of Spasmodic Neuroses.—T. Stacey Wilson says that in all our dealings with the nervous system we cannot afford to forget the important rôle played by *habit*. What we call habit is based upon the physiological law that the more a nerve path is used the more easily does it transmit nerve impulses, or the more any particular nerve mechanism is used, within the limits of its power of nutrition, the more easily does it work in the future. His paper deals with some ways in which recognition of this law may aid in dealing with disordered functions of the nervous system.

Iodine and Typhoid Fever.—George V. Perez's results with the internal administration of iodine in the treatment of typhoid fever have been so striking that he tells of his experience with it. If administered in the beginning it acts almost like a specific, shortening the duration of the illness, which in some cases would appear to abort, and modifying favorably most of the symptoms. He uses it in the form of the B.P. tincture, 3 to 15 minims diluted in 1 to 2 drachms of rum or cognac in about 1 to 2 ounces of water, with a little sugar. This is administered three or four times a day.

A Fifteen-Pint Hydrocele.—A. E. Horn reports an interesting case of a man, aged thirty, with his scrotum enormously enlarged and hanging down to his knees. The swelling proved to be a small double inguinal hernia and a left hydrocele. The hydrocele was tapped and a measured quantity of fifteen pints of fluid removed, in addition to about half a pint which was unavoidably lost. The fluid was yellow, specific gravity 1020, cloudy from cholesterin plates, with a few leucocytes, alkaline in reaction, and was almost solid with albumin on boiling. No spermatozoa were to be found. He thinks that this quantity of fluid in a single hydrocele must be almost a record.

Berliner klinische Wochenschrift, July 15, 1907.

Hyperostosis of the Superior Maxilla.—Walliczek, in discussing this condition, of which only a few cases have been reported, says that it consists of a proliferation of the bone of the upper jaw, which is nearly always symmetrical and usually leads to extreme body stenosis of the nasal passages and consequent interference with nasal respiration. More or less facial deformity is caused through the broadening of the root of the nose and infraorbital swelling, and the maxillary antra are obliterated or greatly diminished in size. The condition in most cases is the result of trauma, but it is not yet certain whether other factors such as dental caries, syphilis, tuberculosis, acute infectious diseases, etc., may not also induce it. In the author's case multiple caries of the teeth seemed to be the sole cause of the disease. The prognosis is unfavorable and it is advisable first to resort to internal and expectant treatment. An energetic course of mercurial or mixed treatment should always be employed before attempting any operative interference. Surgical measures should be restricted to the removal of the deformities and to the clearing out of the nasal passages. The author's patient was a man of twenty-seven, who six years previously had noticed the beginning of the malady as a bony swelling starting below the right eye close to the nose. This gradually increased, the condition became bilateral, and finally he grew unable to breathe at all through the left nostril and very little air could pass through the right. The result of operative treatment was not particularly satisfactory and the author states that in another case he would first resort to antisyphilitic treatment, even though, as in the present instance, there appeared to be no reason for supposing that syphilis was concerned in the causation of the condition.

Münchener medizinische Wochenschrift, July 9, 1907.

The Bier Treatment of Seasickness.—Schlaeger, in speaking of this subject, says that the vascular system may be likened to a system of communicating tubes of varying size and with elastic walls of different degrees of resistance, with an interpolated pump whose action depends on the elasticity of the tube walls. Oscillations of such a system result in fluctuations in the distribution of contained fluid, and therefore congestion and anemia of the capillaries will be produced. On an actively

tossing boat these variations in the distension of the cerebral capillaries may reinforce the heart's action or may oppose it. It is not the anæmia or the congestion that gives rise to the manifestations of seasickness, but the irregular fluctuation in the fullness of the cerebral capillaries. In this way a state of irritation of the cerebral centers is induced and this causes the phenomena of the condition. The author has found that the application to the neck of Bier's congestion bandage is of much service in alleviating, if not entirely preventing, the symptoms of seasickness through the marked dilatation of the cerebral vessels that it effects, and he recommends further trial of the procedure.

Thiosinamin Treatment of Dupuytren's Contraction.—Langemak says that while the thiosinamin treatment of this affection has been found to be one of the most satisfactory as far as end results go, it is open to serious objection on account of the pain accompanying and following the injections and the tediousness of the procedure, since many months often elapse before a satisfactory result is obtained. He suggests a modification, which he has found of much service in seven cases. It consists in making a single injection and then, after the scar tissue has been softened by treatment in the hot air apparatus, breaking up the scar tissue by frequently repeated forcible hyperextension of the affected parts. It is advisable to make the first injection and the first brisement forcé under primary ether anesthesia. Frequently a single application of each is sufficient to correct the deformity, but in others a second injection and numerous extension treatments may be required. It is well to begin with 10 per cent. solutions and not to exceed a 20 per cent. solution. One c.c. of the 10 per cent. aqueous solution is always sufficient for a single injection. In making the injection care should be taken to have the point of the needle sufficiently deep, as otherwise necrosis of the skin may be caused. It is also advisable to see that the urine is free from sugar. On discharge the patient should be instructed to soak the hands frequently in hot soapsuds and to carry out hyperextension.

Deutsche medizinische Wochenschrift, July 4 and 11, 1907.

Vesicular Skin Eruptions in Affections of the Central Nervous System.—Schlesinger says that, leaving out of account the lesions of herpes zoster, the vesicular eruptions accompanying cerebrospinal affections occur in the following forms: 1. Unilateral vesicles on the side of cerebral palsies. 2. The scanty, sometimes bilateral, localized vesicular eruptions in spinal disease, which are most often seen on the hands and forearms. In addition, a third group may be formed of those cases of localized vesicular eruptions in cases of peripheral nerve lesions, and the localized eruptions in affections of the spinal ganglia. Eruptions accompanying affections of the central nervous system may be distinguished from those of pemphigus by the absence of any tendency to become general and by their tendency to develop in certain portions of the body, such as the upper extremities, the trunk, and the back. They are often unilateral and the scalp is usually free. The eruption frequently appears in situations where there are disturbances of sensation. There are often other skin changes in the places where the vesicles occur that may be referred to nervous disease. Affections of the internal organs that might be referred to the skin lesions are absent, while motor disturbances are the rule. The prognosis of the eruption is good and the cutaneous lesion usually heals, with or without scar formation. The number of vesicles is ordinarily small. In pemphigus the reverse conditions are the rule.

A New Blood Test.—Max Einhorn has found that a satisfactory simplification of the benzidin test for blood in the stomach contents, urine, and feces may be made by saturating filter paper with a saturated solution of benzidin in glacial acetic acid and drying it. The paper must not be handled with the bare fingers, as perspiration may give rise to a similar reaction to blood, and an ivory tipped forceps is best used for its manipulation. To carry out a test a piece of the paper is dipped in the fluid under examination and a few drops of peroxide of hydrogen solution are allowed to fall upon the moist surface. The paper is laid on a white, clean porcelain plate and the appearance of a blue color is watched for. In order to avoid error it is wise to set one minute as the limit of time for the appearance of the color for a positive test. Numerous control observations of various sorts have convinced the author of the reliability of the method and he recommends it as a valuable orienting test. If the reaction appears promptly and strongly, or if it remains absent, the result may be accepted; but if there is only a trace of reaction after the expiration of a minute, an ether extract should be made and tested with aloin or the benzidin paper.

Threshold Percussion of the Heart.—Goldscheider recommends a very gentle form of percussion, to which he applies the term threshold percussion, and which is intended to render manifest slight changes which appear at the very threshold of perception. It is particularly well adapted to bring out the relative cardiac dullness and is best carried out by using a small glass rod as a plessimeter. This is provided with a rubber cap (the bulb of a medicine dropper) at the end in contact with the body. It is applied diagonally to the surface and is percussed with the finger at some distance from the rubber-tipped end. Its long axis is kept parallel to the boundary to be determined and is preferably applied over the intercostal spaces. It presents the advantages that through the very small area percussed distinct and sharp localization is possible, that the sound produced may be reduced in intensity by percussing further from the end, that the rod is easier to apply to the intercostal spaces than the finger, and that the direction of the percutory waves is under better control.

The Treatment of Rupture of the Quadriceps Femoris.—Karewski says that modern teaching is strongly in favor of operation in cases of this injury, the usually recommended course of procedure being incision and suture of the several muscle stumps. He, however, does not agree with this, but believes that in most cases it is wiser to act conservatively and to resort to the open operation only when less radical measures have been tried and found ineffectual. The dressing he applies consists of three pairs of adhesive plaster straps, which are split into two tails at the ends applied to the skin. These are placed in position over the severed stumps, with an interval between their free extremities which is bridged over by loops of india rubber cord passed through holes in the plaster. By tightening these cords any desired degree of traction may be exercised on the divided muscle and the ends be gradually brought into approximation. He describes an instance in which this method was successfully carried out. The patient was a man of sixty-seven years, who ruptured the rectus and both vasti through a fall on a stairway. The author intended to do an open operation, but so many complications, such as albuminuria, acetonuria, cardiac weakness, hypostatic pneumonia, etc., developed that radical measures were out of the question. Under the form of dressing indicated above the patient obtained practically perfect function within eight weeks, although owing to local skin lesions it became impossible to resort to massage or other manipulations of the knee.

French and Italian Journals.

Pyloric Stenosis in the Nursing Child.—A. Weymeersch says that congenital pyloric stenosis may first show symptoms in adolescence or adult life. When appearing in the nursling they begin with incoercible vomiting, without bile, occurring soon after nursing, with visible peristalsia, but without appearance of a tumor. Obstinate constipation soon comes on. There are three theories as to the causation of this condition. These are simple spasm, excess of function resulting in muscular hypertrophy, and stenosis from thickened muscle, and true hypertrophy causing stenosis. The treatment consists of arranging the diet so as to produce little residue and little need of function, lavage of the stomach, hot applications over the stomach, sedatives, rectal feeding, and saline infusion for dehydration. The author treated successfully one case, while another died.—*Bulletin de la Société Belge de Gynécologie et d'Obstétrique*, Vol. XVII., No. 4.

Prophylaxis of Infantile Enteritis.—Paul Londe says that superalimentation is the principal cause of infantile enteritis, as well as of most of the nonspecific troubles of infancy, such as bronchitis and pneumonia. The infant should be fed in quantities proportioned to its state of development and digestive secretion, rather than to its weight. It is much better to underfeed than to overfeed. Mothers, and physicians as well, give the infant more food than its digestive organs can take care of, and thus the bowels are disordered, the stools become loose, fetid, of bad consistency, and colic ensues. If the food is not reduced in quantity a serious enteritis supervenes. The efforts of the physician should be directed rather to retarding the increase of weight than to accelerating it. The mother or nurse should always be given a quantity of food that she may not exceed, and should never be allowed to increase the ration except under orders from the physician. When a severe enteritis has occurred the infant must go at once upon water diet, and milk must not be allowed until the bowels have been well emptied. Then it should be added very gradually. Milk is the only proper food until the child is two years of age, when gruels, soups, and eggs may be given cautiously. In some cases of severe enteritis the mother's milk is the only remedy that can be of use, and it must be obtained at all hazards.—*La Presse Médicale*, March 23, 1907.

Book Reviews.

Polypus of the Nose. By Eugene S. Yonge, M.D., Honorary Assistant Physician, Manchester Hospital for Consumption and Diseases of the Throat. London and Manchester: Sherratt & Hughes, 1906.

The author's aim has been to elaborate the theory of causation of nasal polyps which he advanced a few years ago, to present a full account of the general subject of nasal polyps, and to discuss methods of treatment, especially those which aim at the radical cure of the disease. He regards polyps in the nose as edematous hypertrophies of the nasal mucosa, the indirect result of certain mechanical changes in the glands. These changes are distention and cystic dilatation. By certain experiments on cats he has been able to produce localized edema and polypoid outgrowths in these animals. But just why these changes occur in certain individuals, and not in others, we have no means of knowing.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. (Aberdeen), Professor of Surgery, Kansas State University, Kansas City; Fellow of the American Surgical Association; Membre de la Société Internationale de Chirurgie. Third Edition, Revised and Enlarged. With 678 Illustrations, a number of which are printed in colors. Philadelphia: P. Blakiston's Son & Co., 1907.

In order to keep this book up to date the author has revised it and enlarged it by about one hundred pages; over one hundred new illustrations have also been added. Among the new material is a description of a few classical operations on the genitourinary organs and on the anus. It must be remembered that this volume is not a complete textbook on surgery. It omits all those procedures which are generally described in detail in the usual textbooks on general surgery. Hence there is no mention of amputations, ligations, and operations on the bones and joints of the extremities. To this extent the title of the book is misleading. What is contained in the volume is so well selected and so graphically and concisely described that we are not surprised that a new edition is called for every year. The book will form an admirable addendum and companion to any of the ordinary textbooks on surgery.

Essentials of Chemistry and Toxicology, for the Use of Students in Medicine. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics, and Toxicology in Cornell University. Thirteenth Edition. Revised by R. J. E. Scott, M.A., B.C.L., M.D., Author of "The State Board Examination Series." New York: William Wood & Co., 1907.

Twenty-nine years is a long life for a medical book, and when we find a book of this age constantly renewing its youth in fresh editions we are forced to believe that it possesses elements of vitality entitling it to its prolonged existence. The fact is this little book has been found by generations of students and of graduates preparing for the State examinations to be exactly what they need. It gives them such knowledge of, or rather acquaintance with, chemistry as fits them not only to pass their examinations, but, and this is the more important, to read with understanding modern medical and scientific literature. Physicians need not be chemists or physicists or pharmacologists, but they should have a knowledge of the elements of these and other sciences in order that they may pursue their own science with greater profit. In the matter of chemistry this book will give the conscientious student all that he needs to fit him for his life work. The revision for the present edition has been most satisfactorily done by one whose long experience as a teacher and mental trainer has told him what knowledge the student needs and how best to impart it to him.

Clinical Lectures on Neurasthenia. By Thomas D. Savill, M.D. Lond.; Physician to the West End Hospital for Diseases of the Nervous System, London, and to St. John's Hospital for Diseases of the Skin; formerly Medical Superintendent to the Paddington Infirmary, and Medical Officer to the Workhouse; Examiner in Medicine in the University of Glasgow; Assistant Physician and Pathologist to the West London Hospital, etc., etc. Third (Revised and Enlarged) Edition. New York: William Wood & Co., 1907.

The fact that a book on neurasthenia has reached its third edition, in seven years, with much contemporary literature on the subject, may be considered, fairly, as an indication of its popularity and merit. The present edition retains the plan of the previous one, with amplifications and elaborations, and the addition of fresh data and illustrative cases. A new chapter on Etiology and Prognosis, based upon a detailed analysis of a hundred cases, has been added. Bibliography is brought up to date. The author adheres strongly to his ideas on the autotoxic origin of many cases of neurasthenia, while acknowledging a mental element in a certain proportion of cases, in causation as well as symptoms. The chapters on Diagnosis, Pathology, and Treatment have been considerably amplified. In studying the pathology of the disease clinical methods only, of course, are available. Toxemia, malnutrition, fatigue, emotional shock, traumatism, etc., are considered interestingly and at length. The chapter on the mental symptoms of neurasthenia and their differentiation from insanity is interesting, but somewhat confusing from a Kraepelinian point of view on account of adherence to an earlier classification of the latter disease. The book is convenient in size, moderate in price, entertainingly written, and will be found useful, especially to the general practitioner.

Epilepsy, A Study of the Idiopathic Disease. By William Aldren Turner, M.D. Edin., Fellow of the Royal College of Physicians of London; Physician to Out-Patients, the National Hospital for the Paralyzed and Epileptic, Queen Square, and King's College Hospital, London; Visiting Physician, the Colony for Epileptics, Chalfont-St. Peter; and Physician to King Edward VII.'s Hospital for Officers. London: Macmillan & Co., Limited; New York: The Macmillan Company, 1907.

Portions of this work have appeared from time to time in the "Transactions of the Royal Medical and Chirurgical Society of London." The author's observations are based upon the study of a thousand cases of epilepsy seen at the Queen Square Hospital in London and in the Colony for Epileptics, Chalfont-St. Peter. Profuse references are made in the book, in footnotes, to the works of others. Discussion of the subject of the mechanism of convulsions is omitted, the physiological problems involved being considered not yet definitely established. The author is very conservative also in his figures and on all points still under investigation. The reviewer had a slight acquaintance with Dr. Turner at Queen Square and can vouch for him as a careful and conscientious observer. The book is a very clear exposition of the subject of epilepsy and will be found a convenient and promising clinical work. Many chapters have brief "conclusions," which are handy for reference, an example which might be profitably emulated by other writers. The chapter on the Pathology of Epilepsy is contributed by Dr. John Turner of the Essex County (England) Asylum, and embodies some original investigations on the subject along lines of hypotheses by the great Hughlings Jackson.

The Drink Problem in Its Medico-Sociological Aspects. By Fourteen Medical Authorities. Edited by T. N. Kelynack, M.D., M.R.C.P., Honorary Secretary of the Society for the Study of Inebriety; Editor of *The British Journal of Inebriety*. With two diagrams. New York: E. P. Dutton & Co., 1907.

The drink problem is essentially a medicosociological problem, and it is from this standpoint that the subject is viewed in this volume. It is in a great measure a pioneer work, and it may be claimed that as regards the multiplicity of its contributors as well as in several other respects it is unique. An attempt has been made to deal with the subject in a strictly scientific spirit and to present the whole question in a comprehensive series of authoritative chapters, each being written by a specially qualified medical expert. The main purpose has been to present principles and indicate laws governing the drink problem. This problem has remained unsolved, and continues to offer one of the most serious and baffling obstacles to man's up-climbing. It was for the writers to face the problem as it presents itself to-day, and to bring to bear in their task the resources of modern methods of scientific inquiry. This they have done well, but candor compels us to say that the problem still exists.

The Essentials of Histology, Descriptive and Practical. For the Use of Students. By Edward A. Schäfer, F.R.S., Professor of Physiology in University College, London. New (Seventh) Edition, Revised and Enlarged. Philadelphia and New York: Lea Brothers & Co., 1907.

For the sake of convenience, the book is divided into fifty lessons, each of which is supposed to occupy from one to three hours. A few of the preparations cannot well be made by the class, but it was thought advisable not to injure the completeness of the work by omitting mention of them. The present edition has been considerably enlarged and a new feature is the printing of many of the illustrations in color. The fact that this work has reached its seventh edition is evidence of its popularity with teachers.

Society Reports.

AMERICAN MEDICAL ASSOCIATION.

Fifty-eighth Annual Session, Held at Atlantic City, June 3, 4, 5, 6, and 7, 1907.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 162.*)

SECTION OF OBSTETRICS AND DISEASES OF WOMEN.

Ovary in the Inguinal Canal.—Dr. J. H. CARSTENS of Detroit presented the paper on this subject and reported the case of a girl, about sixteen years of age, who had had hernia since childhood, that began to enlarge with puberty. She suffered at menstruation and from the hernia. With operation she made an uneventful recovery.

Prolapse of the Ovary and Its Treatment.—Dr. GEORGE G. WARD, JR., of New York presented the technique and results of fixing the prolapsed ovary by means of a button put through the broad ligament. He said he did not claim it as his operation, but one that was done by Dr. Barrows of New York and Dr. Mauclaire of Paris, and for this reason he called it the Mauclaire-Barrows operation. This operation prevented recurrent prolapse, but did not prevent the woman from becoming pregnant. Dr. Barrows had reported two failures out of sixty cases; in one of these he found gonorrheal inflammation, and in the other he removed the ovary without giving relief.

Dr. D. TOD GILLIAM said he was much interested in the operation as described. It left the woman in good condition and able to become pregnant, and relieved a condition that often existed in the old operation—*i. e.* discomfort from the dragging of the suspended ovary.

Dr. WALTER B. DORSETT said we must remember that when the ovary was prolapsed the uterus was retroverted and must be corrected.

Dr. H. J. BOLDT said not all ovaries that were prolapsed gave symptoms, and again in some cases the simple prolapse gave rise to serious symptoms.

Gonorrhea in Women.—Dr. H. J. BOLDT in this paper said the seriousness of gonorrhea in women was noted as early as 1857, but its gravity was not recognized by the profession under Noegerath's monograph in 1892. The gonococci were extremely sensitive to dryness, but when surrounded by moisture they retained their virulence for a long time, and the smallest amount of the secretion placed upon a mucous membrane would produce a virulent form of gonorrhea. There was no immunity. Chronic gonorrhea remained infectious for years, and so long as the gonococci could be found by the most modern methods there was danger of infection. The usual site of infection in the female was the urethra, but any part might become infected. In the adult female the vaginal wall was not so frequently the site of gonorrhea. The microrganism penetrated the membrane rapidly, and there were usually signs of inflammation within twenty four hours. When there was abscess formation it was due to mixed infection, usually *Staphylococcus pyogenes aureus* with the gonococci. The supposition that the os internum offered a barrier to the gonococci had been proven erroneous, and the uterus was, next to the urethra, the most common seat of infection. In the early stages of urethral gonorrhea the patient seldom complained of anything more than burning sensation on micturition, and the duration of the disease varied from three to six weeks, or even longer. But so long as the infection remained in the urethra, and the patient kept herself clean and refrained from coitus, the majority got well without any special treatment. It was not wise, however, to rely on spontaneous cures, for many cases proved extremely obstinate.

Dr. Boldt said the gonorrhea might remain limited to the cervical canal or extend to the Fallopian tubes, and sometimes this extension was very rapid. Some of these patients make a quick recovery and subsequently became pregnant; others became chronic invalids. Pyosalpinx might be the result of the inflammation, and produced sterility as a rule. An infection before conception might give little trouble and few symptoms, but after delivery it might extend and even cause peritonitis. Infection might take place during pregnancy, and not give rise to serious symptoms more than a purulent leucorrhea. Dr. Boldt wanted to place himself on record as to the spread of gonorrhea—that it was impossible to prevent it by the method of police inspection as practised in many European cities. In this way only the acute and subacute cases were detected.

Unrecognized Gonorrhea in the Female.—Dr. SAMUEL WYLLIS BANDLER said gonorrhea was easily recognized in the male, but not so readily in the female. An acute urethritis might cause so little inconvenience in the female that the physician was not consulted, and the disease had a tendency to heal in six to eight weeks. Many women came to the physician suffering from chronic urethritis without evidence of genital lesions. The usual location of gonorrhea might prevent its recognition at that particular point. Involvement of the anus and rectum was not so rare as often thought. A frequent cause of failure to recognize the existence of gonorrhea was the mildness of the symptoms, and because the original characteristics had worn off in the course of time. The finding of purulent secretion and absence of gonococci did not exclude gonorrhea. In women it was difficult to made a diagnosis, for the physician was limited to frequent microscopic examinations and there were other bacteria that entered into the condition, and the cervical mucus often made the discovery of the gonococcus almost impossible. The use of the microscope often prevented the diagnosis rather than aided the diagnosis of chronic cases, for there was a tendency to exclude the gonococcus as an etiological factor when it was not found at once. There were certain cervical changes that were important. When erosions of the cervix existed in the nulliparæ, genorrhea must be considered. Parametritis posterior was a frequent condition, especially in multiparæ, and in many cases revealed the presence of gonococci. When it continued, there resulted a sclerosis of the uterosacral ligaments on one or both sides.

Dr. Bandler said many observers would not admit a difference in the virulence of gonococci, explaining the difference in the resisting power of the patient or in the location; but he was of the opinion, from clinical experience, that acute gonorrhea in the female was contracted from an acute gonorrhea in the male, and that the subacute form likewise came from the subacute form in the male. The subacute form had none of the symptoms of the acute, and often presented only a discharge.

Dr. REUBEN PETERSON said there were two varieties: One where there was very little pus in the tubes, but the tubes and ovaries were bound down by adhesions; a second in which there was double ovarian abscess.

Dr. TABOR JOHNSON said that 75 to 95 per cent. of those cases that required operation were due to the gonococci, and 50 per cent. of all the cases all over the world were due to this cause. A great number of women suffered from infection from their husbands, and many cases of sterility were due to gonorrheal effect upon the mucous membrane. The question of race suicide was one largely affected by this disease.

Dr. EDGAR GARCEAU said ten years ago he was in Paris, and the mode of operation then was per vaginam; but now that was out of date and not to be considered. He thought many would hesitate to make an abdominal incision where the patient was *in extremis;* but there might be drainage through the vagina and afterward, if necessary, an abdominal operation.

Dr. CHARLES S. BACON said the microscope had proved of great assistance, but in many cases there was absence of the gonococci and it became necessary to use every pos-

sible means of diagnosis. The treatment of the vaginal tract from the uterus down was very unsatisfactory.

Dr. Laura H. Branson said she had noted the statement in journals that 15 per cent. in men and in women 75 per cent. of sterility was due to gonorrhea. She would call attention to one feature that might aid in the diagnosis, and that was stricture of the female urethra. The stricture itself might be the only symptom, and in several cases she had been able to trace a history of infection from this one symptom.

Dr. Price said he appreciated the importance of the subject, and he thought the women physicians of the country should be especially interested in it. He was glad that there were now societies organized for the protection of the home and society. He did not think the curette was of much assistance in determining the condition, nor did he favor the vaginal route. He thought nature and her methods were the best. In 10 per cent. of the cases there was obstruction, adhesions, etc., that had to be relieved, and in the vaginal route this could not be done satisfactorily.

Dr. P. A. Harris said he thought the curette ought to be limited to a few cases that had been passed upon by a board of examiners. He thought no one would criticise Dr. Peterson's stand where the woman was *in extremis*, or demanded it. There were many cases of unrecognized gonorrhea in women, and that was the great factor in sterility. It was also a great factor in ectopic gestation.

Dr. Daniel H. Craig said he did not know any field in which so much was taken for granted as in gonorrhea in women, and when no other cause was found for a condition it was attributed to gonorrhea. He said he had been surprised at the number of times there had not been gonorrhea when it was expected, and he thought many cases were being classed where they did not belong at all.

Dr. T. S. Cullen said that in four cases in which there were pus tubes there might be one case of endometretis, and the fact that the endometrium was often normal spoke against the use of the curette.

Dr. W. H. Chandler said that lactic acid could be injected into the mucous membrane for the destruction of the gonococci, and if done slowly it would not produce sloughing. He though to dilate and curette was simply extending the infection.

Dr. Boldt said that Dr. Peterson's stand was correct, and many patients could be saved by drainage that could not stand an operation.

Dr. Bandler said he thought there might be a mild form due to the resistance of the individual, but oftener it was due to lack of virulence in the bacteria.

Subtotal Abdominal Hysterectomy, with Total Excision of the Gland-bearing Tissue of the Cervix and a Perfected Restoration of the Supporting Ligaments.—Dr. William F. Metcalf read this paper and gave a history of the development of abdominal hysterectomy, and described the technique of the operation. He said that after removing the entire gland-bearing tissue the ligamentary supports were restored; the peritoneal flap previously removed from the anterior surface of the uterus was thrown over the hummock, thus forming a support for the bladder. Dr. Metcalf also reported deductions from 300 cases of hysterectomies for inflammatory conditions.

Plastic Surgery of the Pelvic Structures.—Dr. Henry O. Marcy discussed the reconstruction of the pelvic peritoneum after oblation of the uterus and its appendages, in order to leave as far as possible an undamaged peritoneal covering. He advocated the free dissection of the vaginal structures when necessary for the restoration of subjacent structures, as in hernia of the bladder, vesicovaginal fistula, or cystocele. Dr. Marcy described the technique he employed in restoration of the perineum in incomplete and complete laceration, by lateral dissection to the vaginal muscle and the rejoining of the torn structures. He said the use of the buried animal suture was the important factor in the technique for the plastic restoration of this group of injuries.

Buried Sutures and Ligatures, Their Material and Proper Use.—Dr. Walter B. Chase said that objections had been made to catgut that it was impossible to render sterile; that it lacked proper tensile resistance; that it untied, and that the time it survived in the tissue was not adequate. Dr. Chase claimed by bacteriological tests that it could be rendered uniformly sterile, and that the treatment did not injure its tensile strength. The plain, chromicized catgut would secure blood-vessels and other tissues for a period sufficient for the establishment of permanent union. Furthermore, the unabsorbable material for buried sutures had no superiority over catgut, and the too tense tying of ligatures and sutures was not an imaginay evil, but a serious one.

Some Advances in Ureteral and Renal Diagnosis.—Dr. Charles Lester Leonard said the improved methods of diagnosis had resulted in a clearer differentiation between the symptoms that had been considered identical, and in a more accurate localization and knowledge of the character of the lesion. The exact localization of calculi had led to a grouping of symptoms about the most common seat of impaction, and a comparative study of those symptoms led to conclusions that were valuable in determining other bodies than calculi in the urinary tract. At present the status of diagnosis in urinary calculus was much improved owing to the further use of the Roentgen ray. Dr. Leonard said that the symptoms were not sufficient in themselves, but after obtaining all the data possible it was necessary to employ the Roentgenogram for confirmation. The Roentgen-ray was not enough in itself to make diagnosis, and must be combined with the use of the waxed catheter and the consideration of the symptoms too. The Roentgenogram must be well interpreted, and not every one could do that. It might be a beautiful picture, but deceptive. It was necessary to show the entire urinary tract. The plate should be 12x20, and the diagnosis made by the use of several pictures. In 156 cases the total errors were less than 3 per cent., and a positive diagnosis was made in 106 cases.

Surgical Treatment of Ureteral Calculus in the Female.—Dr. Edgar Garceau in this paper said the ureter in the male differed from that in the female on account of the anatomical relations. The straight ureter in the male and its position in the pelvis made it comparatively easy of access through an extraperitoneal incision. In the female the broad ligament above the most dependent portion of the ureter made it much more difficult to reach. The following routes were to be considered in the treatment of stone in the ureter: transperitoneal, transperitoneal and extraperitoneal combined, hypogastric, urethrovesical, rectal, and vaginal. He though the vaginal should be selected when possible. When the stone was impacted between the base of the broad ligament and the bladder it was accessible through the vagina in most cases; but when located between the superior strait and the base of the broad ligament it was very difficult. The vaginal operations were: Simple incision through the vaginal wall, combined extraperitoneal and vaginal incision, crushing the stone in the ureter through the vagina, Doyen's operation through the anterior cul-de-sac, and the author's operation through the anterior cul-de-sac and vagina. The question as to when to operate was a difficult one to decide, for a stone might remain impacted quite a while and then pass to the bladder without change in the kidney. While all stones did not block the urine entirely, an expectant treatment was dangerous. Dr. Garceau discussed the various operations, and said that he wished to describe one that he had devised in an urgent case. The patient had suffered agony for a week trying to pass a stone impacted in the left ureter. She had just been delivered of a child with an operation that involved a great loss of blood, and while the vaginal route seemed impractical, he decided that

it was impossible to go through the abdominal wall. He decided to try pushing the stone toward the vagina and thus let it act as a guide for his incision. He incised the anterior cul-de-sac, pushed the peritoneum between the bladder and uterus; everted the broad ligament backward with the tip of his finger; caught the stone with the end of his finger, forced it down toward the vaginal outlet, cut upon it with a small incision, and squeezed it out like a stone from a ripe cherry. The operation took only ten minutes.

Dr. HUNTER of Washington said it was significant of advancement that we had so many aids in the diagnosis of stone. Dr. Leonard had probably set forth all the methods of importance, and he was pleased that he advised the use of all of them. In his own work he was never satisfied with the *x*-ray picture alone, or the waxed catheter alone. Sometimes the *x*-ray missed a large stone when imbedded in fibrous tissue, and at times it might find a stone that did not exist.

Dr. PERCY BROWN said that he would like to emphasize the importance of preparing the patient before taking a Roentgenogram. This preparation should begin twenty-four hours before by giving a cathartic and cleaning out the lower bowel. The patient should take food sparingly at the previous meal. Phleboliths should be considered seriously. He had been surprised to see how small a phlebolith would produce a shadow.

Dr. BRANSFORD LEWIS said he was glad to see that Dr. Leonard left room for doubt as to diagnosis, and at the same time suggested care in the conclusions derived from the *x*-ray, for a mistake would arise even with the best. He remembered a case where a Roentgenogram demonstrated an object in the right ureter, and a diagnosis of a stone was made; but on incision no stone was found. He cited another case, in which Dr. Seely detected a little object that proved to be an accretion in the end of the appendix, and removed it. He never subscribed to the infallability of the *x*-ray or the waxed catheter. As to treatment, he would like to ask what was the use of making an incision if the calculus could be gotten out without an operation, and many could be removed by working through the cystoscope.

Dr. CHARLES P. NOBLE said we ought to locate the stone with the *x*-ray and the catheter without going back to the dark ages, and make two incisions instead of one incision, or cut through the rectus muscle and get all the room needed.

Cystocele.—Dr. CHARLES P. NOBLE presented a paper upon this subject. Cystocele was a hernia of the bladder into or through the vaginal opening, usually described as prolapse of the anterior vaginal and bladder walls. It was his opinion that the tonic condition of the abdominal muscle, the intraabdominal pressure, and the lack of proper anatomical supporting ligaments of the uterus and the bladder, which played their rôle in the maintenance of position of the pelvic organs, were important factors; but the greatest factor was the want of integrity in the sacral segment of the pelvic floor. This was why cystocele occurred secondary to impairment of the pelvic floor. The exception was in cases of marked muscular relaxation of the pelvic tissue, or absorption of the perivaginal fat. Causative injuries of the pelvic floor involved laceration of the pelvic muscles and fascia. As a result, a pouch of the bladder, greater or less in size, was pushed down, together with the anterior vaginal walls, into the vaginal outlet, or entirely outside of the vaginal canal. Cystocele was complicated in many cases, and often involved restoring the entire vaginal walls with as much detachment of the bladder as might permit it to rise to its normal condition in the pelvis. The ligaments of the bladder were of service in supporting it in position, but in these cases the bladder itself fell with the uterus, and the pelvic contents were supported by the sacral segment of the pelvic floor. The position of the uterus was of prime importance. If it were retroverted, intraabdominal pressure tended to force the uterus down and out of the vaginal canal, and the entire vaginal walls were thus forced down.

Dr. Noble said that the chief credit for placing this operation upon a sound basis was due to Dr. Hadra of Texas, who was the first to recognize that the way to cure cystocele was to incise the anterior vaginal wall, detach the bladder from the entire face of the uterus, and laterally from the vagina, sufficiently to permit it to rise in the pelvis; then resect the anterior vaginal wall to get rid of the excess of tissue, and to fill this by suturing the anterior vaginal wall up to the anterior face of the cervix, so that it might become attached and thus prevent the descent of the bladder. The many operations since introduced were based upon the principle set forth by Hadra.

Simplified Method of Operating for Cystocele.—Dr. D. TODD GILLIAM, discussing this operation, said it consisted of: (1) A denudation of the most prominent part of the cystocele; (2) dissecting flaps from the vaginal wall on either side of the denuded area with which to cover it; (3) bringing the flaps together over the denuded area and suturing them to it and to each other. The technique was: (1) Lift up the redundant tissues and, by means of tenacula or tissue forceps, gather them into a longitudinal fold along the median line of the anterior vaginal wall; (2) make an incision on one side of and at the base of the fold at or near the median line; this incision should extend from within a like distance of the other end; (3) carry the incision down through the fascia to the muscularis of the bladder; (4) make a similar incision on the other side of the fold; (5) by blunt dissection separate the bladder from the vaginal wall from the incision outward to the sulci; (6) convert the two separate layers of the vaginal wall into flaps by cutting outward from the upper and lower extremities of the incisions toward the sulci; (7) denude the area between the incisions; (8) draw the flaps over the denuded area and suture them to it and to each other from below upward.

Dr. J. RIDDLE GOFFE said that there was little new in the operation as presented. His position had been that it was wrong, and he thought that nature's plan of suspension was the best. We accepted nature's method of suspension of all the organs until we got to the pelvis, and then seemed to forget it. The perineum was not intended as a support of the organs, and only when it was torn did it have any influence, and then it acted against nature. Cystocele might occur in virgins. The bladder was held in place by ligaments, and not by props as claimed. Even in complete laceration of the perineum the organs stayed in place, and building up the floor of the pelvis was futile in holding the bladder and uterus in position. The bladder was supported by and hung from the uterus, and the logical operation would be to put the uterus in position, dissect the bladder, and stitch it higher up to the uterus. Thus it became suspended as nature intended.

Dr. EDWARD REYNOLDS said all believed in the suspension of the organs of the pelvis; but he thought that the perineum also acted as a support.

Dr. I. S. STONE said that he believed in many things with Dr. Goffe, but it seemed that he was a little radical. The speaker had seen cases where the perineum had been entirely torn, yet the uterus and tissues were uninjured. He had been satisfied with the operation for the supporting of the uterus.

Dr. NOBLE said that he had not seen more than half a dozen cystoceles in virgins in twenty years, and nearly all of the cases were found in multiparæ. It should be remembered that complete laceration did not injure the levator muscles. In the operation he described the bladder rose in the pelvis and there were no puckers; but Dr. Goffe put in sutures and *made* puckers.

Dr. GILLIAM said that he was surprised that a man of

such great learning along other lines as Dr. Goffe could see nothing but suspension. Remove the abdominal walls and the viscera would not remain.

Salpingitis Caused by Appendicitis.—Dr. I. S. Stone presented this paper. He said that there were two methods of transmission of the infection: (1) By the lymph channels, or the blood-vessels; (2) by direct contact, as when the pus from a perforated appendix was applied to the fimbriated extremity or directly discharged into the tube. The following case was illustrative of the subject: Patient's age, 35; white; two children; previous health good, and seen with the family physician three days after the beginning of appendicitis. It was six miles to a hospital, but they decided to operate if patient could be got there. Pulse, 135; temperature, 102.5°; no distention; the bowels well cared for by enema; in six days the temperature was normal. He then operated and found necrosis of the appendix and a portion of the cecum, which appeared the size of a silver dollar. The pelvis was infected. He decided to delay operation, replaced the tube, and closed the abdomen. The patient improved, until the temperature rose and showed the right side distended with pus. He opened per vaginam and found pus with the odor of that in the pelvis at the first operation. The tube on the left side behaved the same way and was opened. The patient recovered. Dr. Stone said it might be considered impossible for salpingitis to cause appendicitis, but in the case cited he had found large pus tubes, perforated and gangrenous appendix, and in all the colon bacillus which indicated an intestinal origin. He thought it was the rule for the Fallopian tube to become infected secondarily.

The Early Diagnosis of Tubal Pregnancy.—Dr. Philander A. Harris read this paper. He said that it was formerly supposed that the first symptoms of ectopic gestation were pallor, a weak and rapid pulse, subnormal temperature, and often syncope. However, it was only in the exceptional cases that these were the first untoward symptoms, and in most cases the patients had other symptoms that caused them sufficient discomfort to send for the physician days or even weeks before the serious symptoms mentioned appeared. Colicky pains, atypical menstruation, metrorrhagia were special symptoms. For diagnosis it was very necessary to get a correct history of the patients' past and present menstrual habits, for the symptoms connected with this condition were of vital importance. In nearly all cases the family physician was the first to be consulted, and it was of greatest importance that he familiarize himself with all the facts that would lead to a correct diagnosis. Twenty-nine out of thirty cases presented symptoms from which a diagnosis could be made previous to what he called the tragic stage. In 130 cases, 90 per cent. consulted physicians before the tragic stage for symptoms referring to pelvic trouble. Many received medical attention for a term of several weeks before the tragic stage. Many were wrongly assured and relied for days or weeks on false hopes. Some were treated for abortion, and about 20 per cent were subjected to curettage for cure of metrorrhagia. Dr. Harris said that 99 per cent. of the cases treated in the nontragic stage recovered, but very few treated in the tragic stage lived. It was, therefore, of vital importance that the early diagnosis be made, and this responsibility rested largely on the family physician. He wanted to emphasize especially two symptoms—pain and atypical menstruation.

Dr. C. Jeff Miller wished to ask whether Dr. Harris found tenderness on palpation, and if he advocated palpation.

Dr. Florus Lawrence said the paper as well as the subject was one of great importance, and he agreed with Dr. Harris that the time for diagnosis was before rupture took place. Three cases had come under his care in a short time, and in every one there was a history of previous tubal disease. It was a question whether the operator should leave the other tube. In one case in which the tube was left it had to be operated on within fourteen months for the same trouble. In two other cases the patients died on second extrauterine pregnancy. He thought that pain, intermittent in character; uneasiness, breast changes more marked than in normal pregnancies, and irregular flowing were symptoms of importance.

Dr. Carson said it seemed to him that the diagnosis was not easy. In many cases the woman did not know there was anything the matter, and probably gave a history of having had "attacks" before.

Dr. Harris said in conclusion that if there were nine correct diagnoses out of ten it was good enough. He was accustomed to say that he was sometimes wrong. As to tenderness previous to rupture, he thought tenderness would be found in nearly every case; but the examiner should exercise great care or he would produce a hemorrhage.

Constitutional Ill-Equipment of the Patient as a Factor in Determining the Performance of the Primary Cesarean Section.—Dr. Edward Reynolds said that in 289 cases, under different operators, and with different methods, in various parts of the world, 49 belonged to the first class, *i. e.* after expulsive efforts had failed to drive the head through the pelvic brim; 158 belonged to the second class, *i. e.* after a moderately full test in labor, but before exhaustion; 82 in the third class, *i. e.* before labor. Including one patient in the third class who died as a result of rupture of sutures, the fault of the attendant, the mortality was 12 per cent. in the first class, 8 per cent. in the second, and 1.2 per cent. in the third class. Mortality then might be estimated by the amount of labor endured before the operation. Late operations had become discredited, and never were performed by men of experience who had the care of the patient from the start; but the secondary operation was still too highly in favor. The performance of the primary operation had become the custom all over the world. He said that Dr. Edgar stated that the mortality of cesarean section must be admitted to be proportionate to the length of labor endured before its employment, but as the mortality rose very little during the first few hours of labor, a slight test in labor might be considered justifiable. Dr. Reynolds said that there was no doubt of the truth of the statement, but at the same time the slight test of labor would prove very little concerning the ability of the patient to perform the act. He considered that it was of importance to decide for or against cesarean operation before the time for labor. This might be determined by conditions of the pelvic outlet, especially the pelvic bones, and by the previous history, as when multiparæ had had difficult labors before, with death of the child, etc. Then, too, there was a difference in the ability of women to endure pain, and this would influence the decision as to what to do. He would give it as a surgical axiom that it was always wise to recommend a relatively safe operation rather than to subject the patient to the chances of a late operation for a doubtful and uncertain condition.

The Delivery of Debilitated Women; with Especial Reference to the Interest of the Child.—Dr. Edward P. Davis presented a paper on this subject. He said that labor was a spontaneous and successful process which prohibited interference, but its indiscriminate application to obstetrics had cost many lives. Many women were not able to give birth to children unless special consideration was given to each case. For instance, when a frail woman had a large husband the physician might attempt to modify the size of the child by means of diet, encourage premature spontaneous labor by free exercise, interrupt pregnancy at a time selected by himself, or allow the woman to go to term and be prepared for whatever condition might arise. He thought that dieting the patient was of doubtful benefit. Many cases gave good results where labor was induced at a time set by the physician. Pubiotomy had attracted attention as a substitute for abdominal operation, and in eight cases he

had had fairly good results, but not so good as in abdominal operations. He thought that delivery by abdominal section, especially in selected cases, compared well with other methods for both mother and child.

A Bimanual Method of Rotation in Occipitoposterior Vertex.—Dr. William D. Porter explained the technique of using the hands instead of the forceps in rotating the head. He said that, for instance, when the occiput was in the right posterior position, by inserting the left hand and making pressure from above with the right hand, and then untwisting the left arm, the head could be swept around to the position desired. This method of inserting the hand was important, as having the arm turned so that it gave greater strength was one of the important factors of a successful interference. He had found the method very successful, without injury to mother or child, and one that avoided all possibility of injury to either.

Syncytium.—Dr. Laura H. Branson read a paper on this subject. She said the syncytial tissue was of fetal origin and had the power of proliferation. The chorionic villi, or parts of them, together with their epithelial covering, might normally circulate in the vascular and lymphatic circulation of their host. It was possible for this circulation to take place during the period of pregnancy, from the formation of the chorionic villi to the termination of labor. This epithelial covering of the chorionic villi had the power to proliferate, and this proliferation might take place during the entire life cycle of the syncytium and Langhans cells. The syncytium had a physiological function, and if foiled in this its pathology might prove detrimental to both fetus and host. It was the prime factor in the production of a peculiar neoplasm, whose history placed it in a class by itself—syncytiosum malignum. The theory of the syncytium being a prime factor in the production of eclampsia was one that was upheld by recent investigations. Hepatic changes were the rule and not the exception in eclampsia. Dr. Branson said further that malignant neoplasms of pregnancy had an eroding action upon the structures of the uterus, and this was the nature of the chorionic epithelium covering the villi. Normally, chorionic epithelium was also one of the constituents of these neoplasms. It was reasonable, therefore, to conclude that their origin was the same, and that this activity remained in force in the neoplasm. She thought that chemistry would aid in determining the products of different cell processes, and the future was full of interesting subjects of research along the lines suggested.

Dr. I. S. Stone said it was the first time he was ever present when a paper was presented upon the subject under consideration. One practical point was that it showed the necessity of knowing all about anatomy and the minute physiology of the body. The works of Veit upon this subject gave about all there was upon this subject up to the present time, but Dr. Branson's paper showed extensive personal research and study. It was wonderful how these cells attacked the vessels at the proper time; but they did not stop at the proper time—the process went on to a malignancy of the most fatal kind.

Sarcoma of the Uterus, with Report of Nine Cases.—Dr. Ellice McDonald said that discussion of this subject was rare up to the last nine years. In 2,200 cases reported by Dr. Noble there were about 2 per cent. of the fibroid tumors that were fibromyoma. Sarcoma of the cervix was very rare. Sarcoma of the fundus were divided into the diffused and circumscribed, and the diffused type was the most malignant and caused much hypertrophy. The usual result was hemorrhage, metastasis, and changes in the surrounding tissues. In 168 cases 45 were subperitoneal and 63 were submucous. The submucous tumor was usually a fleshy mass. By straining it had been shown that the muscle fiber went through a transitional stage. Dr. McDonald showed specimens in which the change had taken place—four cases in which the fibrous tumor had changed to sarcoma. It could not be said that sarcoma was always from a fibroma when together, but it was probably true. In examining specimens, it was important to cut them in a way to see the different parts of the tumor and submit them to a microscopical examination. It would be readily seen that, as the fibroma often changed into sarcoma, it was the better judgment to remove the fibroma.

Dr. Noble said we had learned that sarcoma was more common than usually believed. He had had four cases, and only during the last seven years had he made it a rule to have all specimens examined; previous to that he had only the suspicious looking ones examined. He thought there was no doubt that if the fibroid tumors were systematically examined more sarcomas would be found.

Dr. Craig said he had had three cases of sarcoma of the uterus; one was early, and the second further advanced. One woman died of metastasis and recurrence, the other recovered.

Dr. Carsons said he had seen a number of cases of fibroid tumors that were later malignant and fatal. He thought these tumors should be removed, for he held that the woman with a fibroid tumor was in danger.

Dr. Walter B. Dorsett said that in years past he had postponed operation, and pleaded guilty to having had considerable faith in electricity at one time, but now he thought there should be an operation. He had a case of a woman with a small pedunculated tumor on the fundus of the uterus. It weighed eight pounds. She developed fever and was treated for malaria. She consented to an operation after the malaria subsided; but it did not subside. She was put on the table with a pulse of 120, operated on, and a large tumor, fed by blood supply from the omentum, was found. The speaker removed it and found pus inside. The temperature then subsided and the patient recovered. He thought there was no doubt but fibroid tumors changed to sarcoma and carcinoma and the only cases where an operation should not be performed were in cases of small tumors where there was pregnancy.

Dr. Gilliam said he had always been conservative in these cases. While some might remove fibroids with a mortality of one or two per cent. he thought it averaged nearer ten per cent. When there was no trouble resulting from the tumor he left it alone.

Dr. McDonald said he had found one fibroid tumor in every seven cases examined, and if we operated on every fifth woman we would do a foolish thing. His report was based on fatal cases, and it was necessary to draw a line somewhere, though this was difficult. He thought the indications for operation should be more or less lasting, and it was his rule to operate where the tumor produced symptoms.

Officers.—The following officers were elected for the ensuing year: *Chairman*, Walter B. Dorsett, St. Louis, Mo.; *Vice-Chairman*, Charles P. Noble, Philadelphia, Pa.; *Secretary*, Walter P. Manton, Detroit, Mich.; *Delegate*, F. F. Simpson, Pittsburg, Pa.; *Alternate*, Thomas J. Watkins, Chicago, Ill.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, May 20, 1907.

The President, Dr. Thomas E. Satterthwaite, in the Chair.

Some Plain Facts About Syphilis.—Dr. L. Duncan Bulkley read this paper. (See page 213.)

Dr. Boleslaw Lapowski emphasized the great importance of diagnosis in syphilis. A correct and timely diagnosis might conserve the integrity of vital organs, such as the heart and brain, the beneficial action of specific treat-

ment preventing the development of irreparable changes. It was well to be familiar with all methods of introducing mercury into the system. Each method had its special indications, and as the main aim of treatment was the prevention of destructive tertiary manifestations, the best method was the one by which we could introduce mercury in the safest way for the patient, the physician always remaining the master of the situation, *i.e.* being able to interfere successfully in cases where the undesirable effects of mercury manifested themselves. In that respect, the inunction method answered best. Dr. Lapowski said that during the last few years our conception of some fundamental points in syphilis, such as reinfection, immunity, and the contagiousness of various syphilitic manifestations had changed.

Dr. Leonard Weber said that in 1883, in a communication read before the New York Academy of Medicine, he reported 125 cases of syphilis which had been under his care during the preceding twenty years. The treatment which he had invariably followed in those cases, and which he had found very satisfactory, was by mercurial inunctions, much more so than by the use of mercury by the mouth. In a second series of about seventy-five cases treated since that time, of which he had more or less accurate records, he had depended exclusively upon deep injections of a 10 per cent. mixture of the salicylate of mercury in albolene. The average dose of this mixture was about ten minims. He had seen no ill effects follow these deep injections, such as had been reported by some observers, and his results were even better than those obtained by the use of mercurial inunctions. Dr. Weber said he agreed entirely with Dr. Bulkley that in the treatment of syphilis we should keep in mind not alone the disease, but also the patient. The treatment had to be adapted to each case. A syphilitic who used alcohol to any great extent, or who acquired the disease late in life, was much more difficult to treat and was in greater danger than an individual who was infected early in life and who was a man of steady habits. While he did not know of any reliable statistics bearing upon the longevity of syphilitics, he had in mind some figures which were compiled by a large life insurance company in Scandinavia, which showed, among a large number of the assured, that the life expectancy of those who gave a history of syphilis was from six to ten years less than the average. While these figures might not be applicable in this country, still we all recognized the fact that many deaths were indirectly due to syphilis, and we were too apt, perhaps, to ignore certain post- or parasyphilitic lesions, especially those of the heart, which we now knew better than formerly were amenable to antisyphilitic treatment, particularly to the so-called mixed treatment.

Dr. Charles A. Kinch said there was a certain vagueness of thought among the laity, which extended somewhat even to the medical profession, regarding the identity of syphilis, and when they came in contact with a disease or manifestation which was out of the ordinary they were very apt to term it "something syphilitic." The speaker referred to a number of cases coming under his observation where syphilis had been innocently acquired, and he emphasized the fact that syphilis, even less than gonorrhea, was no longer to be looked upon as a shameful disease.

On the Transmission and Cure of Cancer.—Dr. William Seaman Bainbridge presented a paper on this subject, in which he concluded that: 1. The hereditary and congenital acquirement of cancer were subjects which required much more study before any definite conclusions could be formulated concerning them. 2. In the light of our present knowledge, they held no special element of alarm. 3. The contagiousness or infectiousness of cancer was far from proved. Evidence to support the theory of contagion or infection was so incomplete and inconclusive that the public had no reason to concern itself with it. 5. The public needed merely to be instructed to apply the same precautionary measures as should be brought to bear in the care of any ulcer or open wound. 6. The danger of the accidental acquirement of cancer was far less than that of typhoid fever, syphilis, or tuberculosis. 7. In the care of cancer cases the attendant was in much more danger of septic infection or of blood poisoning from pus organisms than of any possible acquirement of cancer. 8. The communication of cancer from man to man was so rare, if it really occurred at all, that it could practically be disregarded. 9. In cancer, as in all other diseases, attention to diet, exercise, and proper hygienic surroundings was of the utmost importance. 10. Cancer was local in its beginning. 11. When accessible, it might, in its incipiency, be removed by radical operation so perfectly that the chances were overwhelmingly in favor of its nonrecurrence. 12. Once it had advanced beyond the stage of cure, in many cases suffering might be palliated and life prolonged by surgical means. 13. While other methods of treatment might, in some cases, offer hope for the cancer victim, the evidence was conclusive that surgery, for operable cases, offered the surest means of cure.

Dr. James Ewing said he was quite in accord with all Dr. Bainbridge had said in regard to the nontransmissibility of cancer. In fact, he had not previously been aware that any one seriously believed that the disease was contagious. Certainly there were no grounds for such a belief at the present day. The so-called epidemics of cancer in human subjects had, to-day, only an historical interest. One of the most famous of these "epidemics" in literature was that described by Behla in Luckau, but it was subsequently proven that cancer was no more frequent in this than in other German towns. The increase in the deaths from cancer during recent years was largely due to improved diagnosis, and a further increase of at least 20 per cent. might still arise from this cause. If cancer was contagious, then, it was probably a parasitic disease. As a matter of fact, history showed that every type of microorganism known to medical science had at one time or another been found in cancer. The last of these were the spirochetes which had been found some time ago by Borrel in mouse tumors, and lately by Gaylord. Tyzzer, however, had shown that many mouse tumors were free from spirochetes, and that such organisms occurred in the bodies of mice free from cancer. He had himself studied many human tumors by the silver method, and had failed to find spiral organisms in any excepting ulcerated tumors, and only rarely in these. The speaker expressed the opinion that no parasite could ever be accepted as the cause of cancer until the collateral evidence of the disease favored the parasitic theory. At present not a single fact had been adduced strongly favoring the parasitic theory of cancer, and there was no analogy to support such a theory anywhere in the vegetable or animal kingdoms. Gaylord had urged the importance of certain cage "infections" among tumor mice. These must be referred to two factors, namely, the increased incidence of tumors in aged animals, and the influence of inbreeding. M. Plehn, in Munich, had recently shown that the epidemics of thyroid cancer which decimated some carp ponds in Germany were referable to the peculiar methods of inbreeding of these fish. In man neither age nor inbreeding could influence the occurrence of cancer as it did in the lower animals in captivity; hence there were no cancer epidemics in human subjects. The apparent existence of a blood immunity in mice recovering from cancer, as first shown by Gaylord and Clowes, was one of the interesting new facts bearing upon the incidence and transmissibility of the disease. The study of the condition of the successful transmission of cancer from one lower animal to another had shown that the factors determining such transmission were extremely delicate. Only two or three tumors among hundreds studied had proved transplantable even under the most favorable experimental

conditions. This result indicated that very few, if any, human tumors could be successfully transplanted to healthy human beings, even if the attempt were made with the greatest persistence and under the most favorable experimental conditions. If there were any contagious human carriers, clinical experience would long ago have proven it, as in the case of the infectious lymphosarcoma of dogs, which was quite unparalleled by any human tumor. Clinical experience was decidedly against the transmissibility of human cancer, and the idea of isolating cancer cases was not in accord with the known facts of the disease. Experimental evidence, also, had shown that it was impossible to obtain the biological conditions necessary for the successful transfer of the vast majority of malignant tumors, even among lower animals.

Dr. Ransford E. Van Gieson of Brooklyn referred to traumatism as an etiological factor in cancer.

Dr. S. P. Beebe referred to the artificial transplantation of lymphosarcoma in dogs. This type of tumor, which had been studied for a number of years in Germany and in the Loomis Laboratory, had always passed under the name of infectious lymphosarcoma in dogs, largely because it was found as a primary growth affecting the genital organs of those animals. After extended experimentation with these growths, Dr. Beebe said, they had failed to find any evidences of infection. Furthermore, they had become convinced that it was a true tumor, and not an infectious one. It invariably started from the implanted cells. It was possible to transmit this tumor by rubbing a fresh specimen upon a granulating surface, although it was less apt to grow in that way than by transplantation. If any conclusion applicable to human beings could be drawn from these experiments, it would be that only very rarely could malignant tumors be transferred from one individual to another.

The Role of the Gonococcus in Disease; the Present Status of Its Knowledge.—Dr. Robert W. Taylor presented this paper, in which he confined himself largely to the cytology of the subject. After reviewing at length the work done in connection with the gonococcus since its discovery by Neisser in 1879, Dr. Taylor said that at the present state of our knowledge the objections which were originally raised against the etiological significance of the gonococcus had been definitely overcome. Practically all the complications of gonorrhea had been demonstrated as due to the gonococcus; and certain remote effects were now brought into an obscure connection with the poisons (toxins) produced by this germ. This strictly limited etiological and clinical field was gradually becoming surrounded by highly important neighbors. The more deeply we penetrated into the knowledge of the diseases of the urethral, vaginal, and uterine mucosa, the more we were forced to realize that in addition to the most common cause of these affections, namely, the gonococcus, other bacteria must likewise be capable of producing and maintaining inflammatory processes in these regions. Within the past few years considerable attention had been directed to the cytology—the study of the finer structural detail of the cells in urethritis. In this work the methods and line of study were practically an application of the recent advances in the study of the morphology of the blood. Many facts as to the structure and development of the gonococcus had been ascertained, but there had been little decided progress made. Some observers claimed that there were many aberrant types of this microbe which differed in tinctorial and pathogenic effects from those looked upon as typical. There could be no doubt that the toxins of gonococci played a very considerable part in many diseased conditions.

Dr. Herman J. Boldt said that gonorrhea was a more serious menace to the human race than was syphilis. According to his observation, in more than 66 per cent. of women who were suffering from sterility the condition was the result of gonorrhea in the husband.

New Instruments.

A LEVER FOR THE CORRECTION OF DEFORMED FEET.*

By JOHN C. SCHAPPS, M.D.,

BUTTE, MONTANA.

LATE ORTHOPEDIC SURGEON TO THE ST. MARY'S GENERAL HOSPITAL AND THE KING'S COUNTY HOSPITAL, NEW YORK; MEMBER OF THE AMERICAN ORTHOPEDIC ASSOCIATION: ORTHOPEDIC SURGEON TO THE MURRAY HOSPITAL, ORTHOPEDIC SURGEON TO THE PAUL CLARK HOME, BUTTE, MONTANA.

Manual correction of deformed feet is frequently impossible because the part of the foot in front of the mediotarsal joint is so small that it can be grasped only by a small portion of the operator's hand, and the resistance is so great that this grasp is inadequate to overcome it. Feet large enough to be firmly grasped offer proportionately greater resistance. Some mechanical aid or a cutting operation is then necessary.

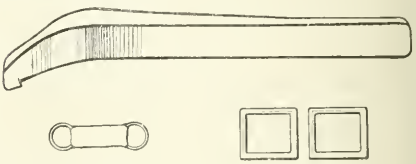

Fig. 1.—Lever, ringed webbing, and halter squares.

A congenital club foot—and this is the sort with which we have usually to deal—thoroughly corrected by stretching only, is more flexible and less liable to relapse than if the rectification had been obtained by cutting, for the essential condition is one not of passive deformity, but of active, distorting, hardening contraction. It affects a number of structures and extends through a large mass. The treatment should be directed against it and not against the shape merely. Stretching directly opposes the fundamental condition. It attacks every part of every contracted tissue. It induces the state of diffuse flexibility often the result of an accidental

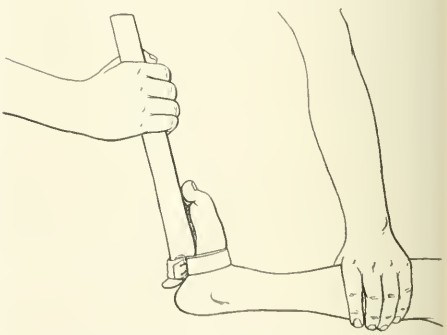

Fig. 2.—The padded lever applied for dorsal flexion. The expanded portion at the bend makes upward pressure upon the front row of tarsals and the proximate ends of the metartarsals, the strap drawing down upon the top of the arch.

sprain. It leaves the long tendons intact and free, and their muscles are capable of development.

But when the shape of the foot is rectified by cutting, much of the contracted and contracting tissue remains untouched. An open incision introduces a scar which is ultimately an additional element of

*Read at the annual meeting of the American Orthopedic Association, Washington, D. C., May 8, and at the annual meeting of the Montana State Medical Association, Billings, Mont., May 15, 1907.

contraction and mats toughly together bones, ligaments, muscles, tendons, fascia, and skin. The tarsal bones are fixed by adhesions amounting sometimes to those of a syndesmotomy. The severed

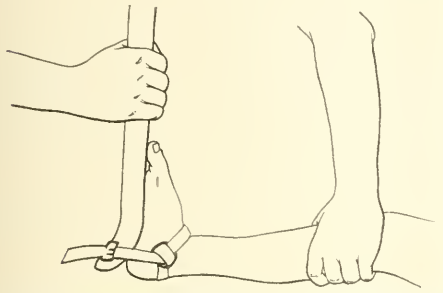

Fig. 3.—Traction upon the tendo Achillis and other structures behind the ankle joint, and upward pressure upon the arch. The rings of the instep bridle transmit a strap passing over the heel and around the end of the lever. A roller bandage or hard pad may be inserted to increase the pressure upon the astragalus and scaphoid.

ends of the long tendons are prevented from reunion by the intervention of the scar. Their muscles in the leg cease to act upon the joints of the foot, and, having no physiological use, become

Fig. 4.—The straight end of the lever applied transversely to the forefoot for twisting either inward or outward. Two straps of three-quarter webbing pass over the foot, through the squares and buckle back on themselves. The buckles are placed at the side, the under webbing protecting the skin. The foot is well flattened down upon the lever before force is exerted. This torsion is most efficient when the foot has been brought to a right angle with the leg

incapable of development. This is more than a cosmetic defect. In the use of the lower limbs as organs of locomotion, the front part of the foot is the fixed point upon which the body is raised and

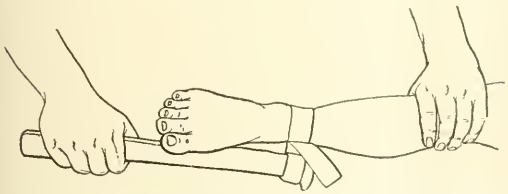

Fig. 5.—The lever applied to pry the foot laterally at the ankle. A fracture of the fibula might be easily produced, and the instrument might serve as an osteoclast, to correct the deformity which occasionally follows fracture of that bone, or in other situations.

moved forward—largely by these muscles. The imperfect gait and disability following an open operation, when the bones of the foot are in excellent relation, are produced by both muscular insufficiency and ankylosis. In operating, therefore, upon a club foot only those structures which resist an ample overcorrection and do not yield to stretching should be divided. And, whatever the method, rectification is but the beginning of treatment.

For the correction of resistant deformed feet—flat feet or club feet—I have found the simple contrivance here shown safe and serviceable. It consists of a stick of maple or other hard wood, two square iron harness rings known as halter squares, round iron rings, webbing, and strong buckles (Fig. 1). The lever is smooth, well filled and shellacked. It may be sterilized by immersion in formaldehyde or other aqueous disinfectant, and the smaller parts by steam, so that the instrument is available where a cutting operation is necessary. For use on children's feet, the dimensions are as follows: The inside width of the halter squares is 1½ inches, their inside height 1¼ inches. The lever is about 14 inches long. One end is straight and fits into the halter squares, space being left on top of the lever for webbing passing through the squares. The other end is 1¼ inches wide and notched on the under side to hold a strap. Two or 2½ inches from this end the lever is bent, and the width here is increased to 3 inches.

The lever has several applications, as shown in the accompanying illustrations. In its principal use it is strapped either anteroposteriorly or transversely to the sole in front of the mediotarsal joint. The dorsum has to bear only strap pressure. The sole, though it may never have experienced pressure, is anatomically prepared for a broad, flat contact such as this. When much force is necessary, a pad should be interposed between the skin and the wood. The straps are kept well up on the foot so that the tarsometatarsal joints are not strained. Grasping the lever, the surgeon feels that he has a firm hold upon the forefoot, and that the tarsus is engaged between two levers—the instrument and the leg. The action should be rapid with increasing force, the circulation being quickly released. Several applications are made if necessary until the resistance is thoroughly overcome.

Radiotherapeutics in Syringomyelia.—A. G. Gramegna has treated two cases of syringomyelia with applications of the *x*-rays with very encouraging results, the motor power of the patients being considerably increased after the treatment. The author states that the treatment should be begun in the early stages of the disease before there has been irreparable destruction of the nerve tissues. The essential lesion of syringomyelia is believed to be a gliomatous formation in the spinal cord, and when this has occurred the *x*-ray treatment will be of value. The effect of the rays is to destroy young cells, especially when they arise from connective tissue. Therefore, the effect on the new gliomatous tissue will be that of destruction, the pressure on the nerve fibers being relieved, and the cord returning to a normal condition. There may be a fresh formation of gliomatous tissue, and hence a recurrence of the disease demanding renewed applications of the rays. As to technique, use No. 7 Benoist rays, anticathode at thirty to thirty-five centimeters from the skin, with lateral irradiation through the lamina of the vertebræ, alternating the two sides, and covering the opposite of the body with lead shields. Sittings should be on alternate days. Two or three series of eight to ten sittings at the most, with intervals of several days between the sittings. When improvement is obtained treatment should be repeated after some time.—*Rivista Critica di Clinica Medica.*

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Hygiene of Nerves and Mind in Health and Disease. By August Forel, M.D. 8vo, 343 pages, muslin. G. P. Putnam's Sons, New York.

The Essentials of Chemical Physiology. By W. D. Halliburton, M.D. Sixth edition, 8vo, 258 pages, illustrated, muslin. Longmans, Green & Co., New York.

The Diagnosis and Modern Treatment of Pulmonary Consumption. By Arthur Latham, M.A., M.D., etc. 8vo., 259 pages, muslin. William Wood & Company.

A Handbook of Skin Diseases and Their Treatment. By Arthur Whitfield, M.D., F.R.C.P. 12mo, 320 pages, illustrated, muslin. Longmans, Green & Co., London.

Manual of Operative Surgery. By John Fairbairn Binnie, A.M., C.M. Third edition, 12mo, 743 pages, illustrated, flexible leather. P. Blakiston's Son & Co.

Introduction to Infectious and Parasitic Diseases. By Millard Landfeld, A.B., M.B. 12mo, 200 pages, illustrated, muslin. P. Blakiston's Son & Co.

On Fermentation. By Alonzo Englebert Taylor. 4to, 341 pages, paper. Berkeley: The University Press. University of California publications.

Diseases of Women. By George Ernest Herman, M.B., Lond., F.R.C.P. 8vo, 900 pages, illustrated, muslin. Wm. Wood & Co.

Manual of Anatomy. By A. M. Buchanan, M.A., M.D., C.M., etc. Vol. II., 8vo, 1539 pages, illustrated, muslin.

Maladies des Artères et de l'Aorte. Par H. Roger, A. Gouget, E. Boinet. 8vo, 472 pages, illustrated, paper. Paris: Librarie J. B. Baillière et Fils.

The Efficient Life. By Luther H. Gulick, M.D. 12mo, 195 pages, muslin. Doubleday, Page & Co., New York.

The Practical Medicine Series. Under editorial charge of Gustavus P. Head, M.D. Vol. I., 12mo, 364 pages, illustrated, muslin. The Year Book Publishers, Chicago.

The Practical Medicine Series. Under editorial charge of Gustavus P. Head, M.D. Vol. II., 12mo, 608 pages, illustrated, muslin. The Year Book Publishers, Chicago.

The Practical Medicine Series. Under editorial charge of Gustavus P. Head, M.D. Vol. III., 12mo, 357 pages, illustrated, muslin. The Year Book Publishers, Chicago.

Modern Surgery. By John Chalmers da Costa, M.D. Fifth edition, 8vo, 1283 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Surgical Diagnosis. By Daniel N. Eisendrath, A.B., M.D. 8vo, 776 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Foods and their Adulteration. By Harvey W. Wiley, M.D., Ph.D. 8vo, 625 pages, illustrated, muslin. P. Blakiston's Son & Co., Philadelphia.

Diagnostics of the Diseases of Children. By Le Grand Kerr, M.D. 8vo, 542 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

A Textbook of Embryology. By John Clement Heisler, M.D. Third edition, 8vo, 432 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

A Manual of Personal Hygiene. Edited by Walter L. Pyle, A.M., M.D. 8vo, 451 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

The Care of the Baby. By J. P. Crozer Griffith, M.D. Fourth edition, 8vo, 455 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Diseases of the Eye. By Edward Jackson, A.M., M.D. Second edition. 8vo, 615 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

A Textbook of Materia Medica for Nurses. By George P. Paul, M.D. 8vo, 242 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker and Dr. J. Trump. 12mo, 453 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Chemical Pathology. By H. Gideon Wells, Ph.D., M.D. 8vo, 549 pages, muslin. W. B. Saunders Co., Philadelphia.

Die Impotenz der Mann[illegible] Von Dr Orlowski 8vo, 78 pages, paper. A. Stuber's Verlag, Würzburg.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 3, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	354	163
Diphtheria	220	26
Measles	313	30
Scarlet Fever	157	18
Smallpox	..	..
Varicella	8	..
Typhoid Fever	84	9
Whooping Cough	24	12
Cerebrospinal Meningitis	13	15
Malarial Fever	.....	.....
Totals	1173	273

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended August 3, 1907:

		CASES	DEATHS
SMALLPOX—UNITED STATES			
California, San Francisco	July 13–20	4	..
Illinois, Peoria	June 15–July 20	10	..
Kentucky, Louisville	July 13–25	2	..
Missouri, St. Joseph	July 13–20	3	..
Ohio, Hamilton	March 31–June 15	21	..
" Toledo	June 29–July 6	2	..
"	July 13–20	4	..
Pennsylvania, Homestead	July 14–21	1	..
Texas, Houston	April 28–July 27	50	1
Virginia, Richmond	July 13–20	1	..
Wisconsin, Milwaukee	July 13–20	2	..
SMALLPOX—INSULAR			
Philippine Islands, Manila	June 8–15	2	..
SMALLPOX—FOREIGN			
Algeria, Algiers	June 1–30	..	8
Australia, Newcastle	May 1–31	1	..
Austria, Trieste	June 8–15	1	1
Brazil, Para	July 6–20	11	6
Canada, Halifax	July 20–27	1	..
Chile, Iquique	June 30	..	Present
China, Amoy	June 22	..	Present
" Foochow	June 23–30	1	..
" Hankow	June 8–27	1	1
" Hongkong	June 1–15	6	5
" Shanghai	June 23–30 (Among natives, 40 d'hs		
" Tientsin	June 30	..	Present
Formosa	June 15–22	1	..
Germany, Königsberg	June 30–July 6	1	..
India, Bombay	June 18–25	..	2
" Calcutta	June 8–15	..	20
" Rangoon	June 8–15	..	1
Italy, General	July 4–11	24	..
" Turin	June 30–July 7	1	1
" Venice	June 29–July 6	..	1
Japan, Yokohama	June 17–24	1	..
Korea, Seoul	June 30	..	Present
Madeira, Funchal	June 9–15	45	6
Manchuria, Dalny	June 15–29	4	1
Mexico, Aguas Calientes	July 13–20	..	7
" City of Mexico	June 22–July 6	..	18
" Monterey	July 7–14	..	1
Portugal, Lisbon	June 20–July 13	13	..
Russia, Moscow	June 15–29	13	2
" Odessa	June 29–July 6	2	1
" Riga	June 29–July 6	1	..
" St. Petersburg	June 22–20	2	2
Spain, Almeira	June 1–30	..	8
" Barcelona	July 1–10	..	3
" Cadiz	June 1–30	..	5
" Seville	June 1–30	..	10
" Valencia	June 30–July 7	16	1
Turkey, Bagdad	June 8–22	..	Present
YELLOW FEVER			
Brazil, Para	July 6–20	3	6
CHOLERA			
India, Bombay	June 18–25	..	1
" Calcutta	June 8–15	..	37
" Rangoon	June 8–15	..	2
PLAGUE			
Africa, King William's Town	June 8–15	1	..
Chile, Antofagasta	June 30	0	2
China, Hongkong	June 1–15	28	24
Egypt, Alexandria	June 27–July 1	1	..
" Assiout Province	June 27–July 1	..	3
" Behera Province	June 27–July 1	5	4
" Beni Souef Province	June 27–July 1	1	1
" Minieh Province	June 27–July 1	1	..
India, Bombay	June 18–25	..	10
" Calcutta	June 8 15	..	62
" Rangoon	June 8–15	..	68
Japan, Formosa—Island	June 15–22	124	111
" Tokyo	July 6	2	1
" Yokohama	July 6	2 in suburbs	
Mauritius, Port Louis	April 1–30	3	3
Peru, Callao	June 13	1	..
" Chiclayo	June 13	1	1
" Mollendo	June 13	1	1
" Paita	June 13	1	..
" Trujillo, vicinity of	June 14	.	Present

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Original Articles.

THE TREATMENT OF SURGICAL TUBERCULOSIS BY HYPEREMIA (BIER).*

By V. SCHMIEDEN, M.D.,

BONN, GERMANY.

PRIVATDOCENT FUER CHIRURGIE, OBERARZT AT THE SURGICAL CLINIC OF THE UNIVERSITY OF BONN.

I APPEAR before you in place of my chief, Professor Bier, in order to speak to you about the treatment of surgical tuberculosis by means of hyperemia and to demonstrate to you the technique. This I am glad to do, and I hope my words will help to further the new teachings of which Professor Bier is the author.

Professor Bier's treatment of inflammatory processes is in marked contrast to that of previous teaching in that this treatment does not combat the infection, but rather increases the normal reaction of the part. Bier increases, artificially, redness, swelling, and heat, three of the cardinal symptoms of inflammation. These are, according to his teaching, none other than the natural weapons of the organism. He who applies the ice bag to a phlegmon, or he who by elevation of the part removes the swelling, only hinders the organism in its own efforts at healing and assists the bacteria in their work of destruction.

If Bier's teaching is founded upon facts—and it is founded upon facts—then must its practical application be carried into surgical therapeutics. No one at present gives drugs, to reduce the fever, for the reason that the increased temperature is part of the healing process. Since Bier's investigations we no longer suppress the inflammation, we rather increase it.

At first Bier found real difficulties only in the technique. He discovered that we must use *the blood* for increasing the inflammation. Therefore he increased the hyperemia and at the same time decreased the flow of blood, which is already decreased in every inflammatory process. This is the clear train of thought, which gave rise to this treatment by hyperemia.

Tuberculosis, especially tuberculosis of joints, was the first disease which Bier treated with his hyperemia band (Stauungsbinde). To-day this band is used in many other diseases, in some of which better results are obtained than in tuberculosis, although the results secured in tuberculosis are very good indeed.

The technique at first was varied, as it was difficult to arrive at the proper degree of hyperemia and to determine how long it should in each case be applied. It is absolutely wrong to think that if a little is good more is better. It is to be regretted that beginners, who have not thoroughly mastered the technique, make this mistake; and to this fact are due the poor results of which we hear.

In order that there may be no misundertanding, I will begin with a description of the technique, which is of greatest importance.

One takes a broad (6 cm.) soft rubber bandage, applying it slowly and evenly around the extremity, proximally to, but not too close to the tuberculous joint. (Tuberculosis of the wrist joint, for instance, is treated regularly with the bandage above the elbow.) In winding the bandage, each turn overlaps the preceding one, in order that the pressure may be evenly divided and over a sufficient area. *These bandages must not cause pain either at the place of application or in the diseased joint.*

The extremity below the bandage soon begins to swell in a moderate degree and assumes a bluish-red color; *it remains warm, at least as warm as the other limb, and the pulse remains entirely unchanged.* Thus we do not produce a stoppage of the blood current, but rather increase its volume, this being due to our interfering with the normal return of the blood on its way to the heart.

This so simple technique is many times poorly practised. Patients who have been subjected to treatment by hyperemia at the hands of others have often told us that the pain produced by such treatment was so severe that it was impossible for them to continue it. It is evident that such treatment is not in accordance with Bier's teaching and naturally can have no good effect.

The hyperemia bandage in tuberculosis is applied only for a few hours per day. We apply it from one to four hours in the following manner: Once for an hour or once for two hours; or twice for an hour or twice for two hours. If the patient has a tender skin we change the location of the bandage. During the hyperemic treatment we remove all other bandages and place a piece of sterile gauze or a towel over discharging fistulæ. A pressing bandage of any sort would render the hyperemia treatment impossible.

Further, one must not keep the joint in fixation. In tuberculosis of the articulations of the upper extremity we let the patients use at most only a sling for support, and soon allow them to make slight exercises with the arm, as, for instance, in dressing themselves. In severe tuberculosis of the leg absolute rest in bed is required. But with continued improvement the patient may be allowed to get up and move about, the joint being protected by a mechanical apparatus, which prevents its surfaces from coming in contact while walking, but allows active movements of the joint.

The tuberculous joint must be movable after the disease has healed. Bier says that a stiff joint, following healing of tuberculosis, is not a good result. The resection of a joint is, in regard to a cure, an illusion. It is followed perhaps by a healing of the tuberculosis, but not by a healing of the joint; it is a destruction of the joint—a mutilation.

*Read, by invitation, before the National Association for the Study and Prevention of Tuberculosis, at its third annual meeting, Washington, D. C., May 7, 1907.

It is true that the treatment of hyperemia has indeed a high purpose, namely: *the maintenance of mobility, an anatomical healing.*

Now, is it possible to restore the function of a joint in which the disease has progressed so far as to cause changes in the bone and cartilage with formation of multiple fistulæ? Yes, it is possible. We see at times cases of spontaneous healing of advanced tuberculosis. These observations show us the way, how best to proceed. We must assist the body in its own efforts at healing.

What can we accomplish by properly applied hyperemic treatment? The first sign is the abeyance of the pain, which is a certain proof of proper technique. Inflammatory contractures also soon disappear, and active as well as passive movements are again possible. We can convince ourselves of the movability of the joint without doing harm to it. The old teaching, viz., fixation of tuberculous joints, has been pushed aside by Bier. We believe that it is often not the tuberculosis which causes ankylosis, but rather the improper and overzealous treatment, which prohibits movements of the joint. It is evident that Bier has revolutionized the treatment of surgical tuberculosis.

Naturally, vigorous movements of the joint should be avoided, above all the "*brisement,*" all of which are contradictory to the teaching of Bier. Every excessive use of the joint should be avoided, as it leads to injury. The point is, to find through experience the "happy medium" between rest and action.

In the further course of the treatment we see other symptoms disappear: the swelling subsides, large fungous masses are transformed into hard connective tissue, which latter, by further hyperemic treatment, is also absorbed. Gradually, the contour of the bones again becomes distinctly visible. The clinical fact that mobility of the joint improves more and more, also that tuberculous fistulæ, even though they extend into the joint or bone focus, close, proves the healing power of the hyperemia.

But not always do these cases run such a favorable course. Often cold abscesses develop, and with their evacuation much necrotic tissue comes away. The better the technique, the less often these abscesses occur, and when they do occur they must be recognized early. We never treat them with injection of iodoform or other antiseptics. They are opened and treated with the cupping glasses, in the manner of which I shall speak later.

One must not think that the formation of a cold abscess indicates a turn to the worse in the course of the disease. According to Bier, it rather constitutes a process, by means of which the organism casts off the tissue incapable of healing. In any case one must not interrupt the treatment when a cold abscess does occur.

It is of greatest importance to emphasize the fact that the treatment of the tuberculosis by hyperemia occupies much time. He who wants to be healed quickly, must submit to resection or amputation. We calculate nine months or even longer for the healing of a severe affection of a joint; less involved cases heal more quickly. But it is known that treatment by fixation and by injection also requires much time, and is very often followed by ankylosis.

The treatment by hyperemia has a number of further advantages. It is very simple, and can soon be applied by the patient himself or by anyone who is in the house with him. In consequence of this we treat many patients in the ambulatorium. Advanced cases are attended for some time at the hospital; then they are allowed to go home, where they themselves continue the treatment. Every ordinarily intelligent patient soon learns to know when the band (Stauungsbinde) is properly applied. Patients who have been discharged are requested to come to the hospital every four weeks, where their technique is controlled and examination for cold abscesses is made.

One of our patients who suffered from a tuberculous knee with fistulæ, which had been submitted to resection with unfavorable result, and who also had tubercular fistulæ extending into the ankle joint of the other leg, effected a cure himself by proper application of the bandages. The tuberculosis in this case was so far advanced that amputation had been considered by us. A major operation was not done, however, on account of the fact that both legs were affected, a double amputation then being imperative. As stated before, the patient is now well.

Regarding indication, it is a noteworthy fact that almost all cases of joint tuberculosis in Bier's clinic are treated by hyperemia, and experience has shown that this treatment is applicable to almost all cases. It is to be regretted that tuberculosis of the hip joint cannot be treated in the same way. Many attempts have been followed by poor results, because of technical difficulties. Hyperemia of the shoulder joint, however, is practicable. I demonstrate here two methods of its application, the one by means of a ready-made ring, and the second by an improvised instrument of rubber tubing. It is worth mentioning that decubitus may quickly occur on account of our inability to change here the location of the constricting ring, and great care must be taken to avoid it.

Especially favorable results occur in tuberculosis of the ankle, elbow, and wrist. We have learned by a large experience that in these locations not only beginning and less advanced cases are curable, but such as formerly would have been resected or amputated. The severity of the disease is never a contraindication to treatment by means of hyperemia. Who would not rather undergo a year's treatment than lose a limb?

The old rule, that in people of advanced age amputation is the best treatment, we consider an unjust one, for in these cases the treatment by hyperemia is just as effective as in younger individuals. Of course, the same amount of patience and care is required.

By using hyperemia almost exclusively in the treatment of tuberculous joints, Bier is very seldom forced to do a resection; in fact, resections in his clinic have become very few in number. The operation is done when the general condition of the patient is very bad, when amyloid degeneration is present, or an additional widespread tuberculosis of the lungs.

It is to be regretted that the complicated construction of the knee joint does not permit of treatment by hyperemia alone; often one must question here whether a result equally as good would not be obtained in a shorter time by resection. Surely those cases in which subluxation of the leg has occurred, or ankylosis between patella and femur is present, are better treated, and in a shorter time, by resection. In such cases one cannot expect to obtain a movable joint.

In less severe cases the tuberculous knee requires, besides artificial hyperemia, the assistance of orthopedic treatment, namely extension and the application of splints during the time the patient is not in bed. Thus, the knee joint requires special treatment, as compared with other joints, which require only hyperemia.

The exudative form (hydrops) is never treated by hyperemia. There we adhere to the old teaching of using aspiration and injection of iodoform-emulsion. Thus, it appears that an exact diagnosis is primarily necessary in every instance. Of every diseased joint a radiograph is made. If a bone focus is found its presence in no way contraindicates the treatment by hyperemia.

In combination with the elastic band we frequently use the cupping glasses. This technique has been fully developed by Professor Klapp. I will now demonstrate them to you. We use them in all cases of beginning softening and of abscesses, which may or may not have fistulous openings. Here you see a large number of cupping glasses, which have various shapes, in order that they may be readily adapted to the different parts of the body. For most places the simple bell shape is readily applicable. Some have a U-shaped edge and are intended for convex surfaces, for example upon an extremity. Some have a special shape intended to retain the discharge and prevent its passing into the rubber tube. These large ones are intended to be used upon the female breast. This treatment is of great service and importance in puerperal mastitis.

The rarefaction of the air is accomplished in the smaller cups by a hollow rubber ball, in the larger ones by a pump. We allow these cups to remain in place three-quarters of an hour, but not without interruptions. They remain *in situ* five minutes; then follows a pause of about three minutes.

Also, when using the cupping glasses, the hyperemia must not be too intense. The glasses must be so applied that a *red* hyperemia, not a blue one, is obtained. In order that they may stay in place their edges are coated with vaseline, the same being applied to the surface around the fistulæ in order to avoid further infection. The application of the glasses is easily learned by the patient.

We open every abscess occurring in the progress of joint tuberculosis as well as in tuberculosis of soft parts, for instance in tuberculous lymphatic glands. We do this without fear of a mixed infection, because we know that the proper application of the cupping glasses prevents such an infection in almost every case. The two results obtained by proper use of the cupping glasses, namely hyperemia and discharge from the fistula, tend to avoid such a mixed infection. We succeed in evacuating daily through the fistulæ all detritus, however deeply it may be situated, and induce a hyperemia of the walls of the fistula and abscess cavity.

The result is that, after evacuating the detritus and pus, the discharge becomes serous, gradually becoming less and less, and finally heals. Every tamponade and drain is unnecessary, even harmful. There is no other treatment, which is so agreeable to the patient.

In all cases of open tuberculosis of joints we use, daily, both forms of hyperemia, the hyperemia band twice for one hour, and the cupping glasses forty-five minutes over the fistulæ.

Here is a simple apparatus in which (the principle being the same as in the cupping glass) the whole hand may be rendered hyperemic. The hand is introduced into the glass through a cuff, which is hermetically sealed by a rubber band. Now, we produce a hyperemia, which may be made very intense without harm to the extremity. Of course, it is also applied interruptedly. We treat in this manner the severe cases of tuberculosis of the hand, especially spina ventosa.

I could still mention a large number of other tuberculous affections in which hyperemia is applicable, for instance tuberculosis of the testis, for which trouble this method is a simple and excellent treatment, especially if both glands are involved and double castration would become necessary; further, tuberculosis of tendon-sheaths and serous membranes.

To recapitulate, it is very important to follow the treatment as practised by Bier. For this reason I have demonstrated it here. The hyperemia band must never cause pain or a sense of coldness. Bier's method produces in the diseased part an increased amount of blood, a slowing up of its current, but never a disturbance of nutrition due to a stagnation of blood.

I hope that my words will help to introduce Bier's treatment in America. I do not doubt that many advances in the technique will still be made and the renown of the method soon become widespread; for the treatment is agreeable for the patient and painless, and will, if carried out with the necessary patience, give results which cannot be obtained by any other treatment. Its goal is none other than that of healing without loss of function.

Bier, in the fifth edition of his book, "Hyperaemie als Heilmittel," has said: "Formerly I considered the hyperemic treatment of tuberculosis as good; now I consider it the best."

THE OPHTHALMOLOGICAL PHASE OF DISEASES OF THE ACCESSORY SINUSES OF THE NOSE.*

By Wm. CAMPBELL POSEY, M.D.,
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If the skull is submitted to a series of cross sections which expose the air spaces connected with the nose and its neighboring structures, it is easy to comprehend why inflammatory conditions in these spaces should excite ocular symptoms. Contiguity of tissue alone is cause enough to occasion them, but when one views the enormous extent of the mucous membrane which is spread out upon the walls of the sinuses and of the nose itself, and considers the numerous and intimate connections which this mass of loose vascular tissue has with the orbit and its contents, it is difficult to understand how an inflammation of any degree of severity could arise in a sinus without provoking changes in the eye and its adnexa. And, as a matter of fact, although the eye is in a measure protected by certain peculiarities of structure from participating in these inflammatory conditions, ocular manifestations are not infrequently occasioned by them, and these occur in so striking and significant a manner that the diagnosis of the intranasal condition may often be suspicioned by the ocular signs alone.

Just how these ocular symptoms arise is not always clear, for, owing to the absence of autopsy, the morbid anatomy of the region is as yet but little understood, but the prompt subsidence of many upon the removal of the intranasal conditions, in cases where the anatomical relationship reveals the origin of the affection, and in others where less intimate vascular and nervous connections are known to exist, demonstrates the dependency of the ocular inflammation upon that within the nose, and is evidence of the relationship between cause and effect.

Although cases which present ocular symptoms which are originated by nasal disease are not rare, in my opinion they are frequently overlooked, the

*Read at a meeting of the Ophthalmological Section of the New York Academy of Medicine, December 17, 1906.

etiology of the ocular affection being attributed to other conditions. This is accounted for chiefly by the sinusitis escaping detection, for the diagnosis of this condition is not easy, and repeated examinations by an expert rhinologist are often necessary before the inflammation in the sinus is discovered. It happens too often that the possibility of an ocular inflammation having originated in a sinusitis is dismissed by the patient's declaration that he has never had any trouble with his nose.

It has been thought, too, by many that pus must be present in a sinus to occasion symptoms in the eyes, though there is ample proof that a mere congestion of the sinus, without the presence of exudate, is sufficient to excite marked ocular symptoms. Thus, but a few weeks ago, a lady consulted me upon account of a very marked swelling of both upper lids which had come on over night. The lids were not reddened nor were the eyes otherwise inflamed, the swelling being occasioned by a puffiness of the lids without induration. An examination by her physician having proved the urine to be free from albumin, she was asked to consult her rhinologist, Dr. George C. Stout, who found marked congestion of the anterior ethmoidal cells, but repeated catheterization failed to reveal pus. The treatment of the intranasal condition was followed by a rapid subsidence in the edematous swelling of the lids.

I have long been interested in the ocular symptoms which diseases of the accessory sinuses of the nose may occasion, and have already contributed several papers upon it. In the last communication, which was embodied in a paper before the Section on Ophthalmology of the American Medical Association at Portland, Oregon, I endeavored as far as it was possible in the light of the present knowledge of the subject to perfect a symptomatology in this class of cases, the clinical notes and observations of the cases upon which the paper was based having been presented before the Ophthalmological Society of Baltimore some time previously. As these papers have already been published, and may perhaps have been read by the gentlemen present, it is unnecessary to refer to them now, though I wish to state that the continuous observation of many cases in both private and hospital practice during the eighteen months which have intervened has served still further to confirm me in the views he then expressed. During this period I have had opportunity to observe, particularly, other cases of moderate inflammation of the optic nerve complicating ethmoiditis and sphenoiditis which had been occasioned by bathing in cold salt water.

In this class of cases the nerve, although protected from the sinus by its sheath and by the double layer of periosteum which covers the bone forming the barrier between the nerve and the sinus, becomes affected by contiguity of tissue, the inflammation varying in intensity from a simple edema to an active retrobulbar inflammation. Moderate degrees of neuritis present but slight ophthalmoscopic signs, but may frequently be diagnosed by the distention of the lymph sheaths of the retinal vessels, and objectively by a diminution in the light sense, which may be conveniently tested by Bjerrum type. In this class of cases there is often a feeling of fullness in the eye, with some pain on rotation and attempts at pushing the globe back into the orbit, the symptomatology, in fine, of cases of so-called "optic neuritis from rheumatism." Indeed, it is probable that if more cases of this type were subjected to a careful rhinological examination a sinusitis would be found to be the underlying cause in many.

I have not been able to convince myself of the changes in the field of vision which occur in cases of sinusitis without ophthalmoscopic signs, which Ziehm and Kuhnt attributed to a nasal condition, and suspicions that the contraction and scotomata which were observed by these authors were due to neurasthenia or intercurrent causes. Naturally, scotoma and limitation of the field are to be expected where there is ophthalmoscopic evidence of neuritis.

Although perhaps it is a trite observation, I desire to emphasize the frequency with which edema of the lids is encountered even in beginning cases of sinusitis. The puffiness is usually most marked in the upper lid, and particularly on the nasal side, though the entire lid may be swollen. This edema is to be distinguished from the inflammatory swelling and thickness of the lid which results from cellulitis, as it is entirely noninflammatory in origin, as well as in appearance, and also from the ptosis which is at times present as a result of a palsy of the levator of the lid. The swelling is usually most marked in the mornings and disappears during the day, but it is also apt to be brought on by bending the head forward. Like all other ocular symptoms of sinusitis, the edema may disappear for a time, with the discharge of secretion from the sinus, but reappears when the fluid reaccumulates and the congestion of the mucous membrane becomes greater.

That affections of the muscles of the eye are not infrequently the result of sinusitis is occasioned by the juxtaposition of some of them, like the internal and superior rectus, to the walls of the orbit, and by the very close association of the motor nerves supplying the muscles with the sphenoid cavity, as they pass along the outer wall of the sinus.

As in many of these cases, the function of the muscle is but slightly interfered with, double vision is complained of but rarely, and diplopia can be detected only by careful search in the periphery of the field. It should be remembered, however, that actual palsy of a muscle is not necessary to occasion diplopia, but that double vision may result from even a slight displacement of the globe by exudation or by the distended wall of the sinus. If the encroachment by the wall of the sinus or its exudate be gradual, as a result of chronic empyematous conditions, diplopia rarely occurs, as the visual axes have opportunity to adapt themselves in a measure to the changed conditions under which they are forced to operate. Marked muscular insufficiencies not infrequently arise in this class of cases, hyperphoria and exophoria of varying degrees being the conditions generally originated by them, hyperphoria, of course, being induced by a swelling in the floor or the roof of the orbit, exophoria by some disturbance in the inner wall.

As an example of an exophoria excited by an ethmoiditis may be cited the case of Mrs. W. T. F., who is under treatment at the present time. This patient, age 38, came complaining in general of a sense of confusion and head pain, which was increased by attempts at reading or exposure to bright lights. There was no dizziness or diplopia. These symptoms had extended over a period of two years and followed a severe attack of grippe at that time, the grippe having apparently attacked the head, causing nasal obstruction and a general sense of head fullness. Examination showed an apparent very marked broadening of the root of the nose; both eyes deviated perceptibly outwards under cover, and adduction was practically absent. Exophoria at 5 meters equaled 15° and there was a left hyperphoria of 2°. The fundi were normal. There was moderate hypermetrpic astigmatism in both eyes.

Upon account of the nasal and head symptoms, and the marked broadening of the base of the nose, the patient was referred to Dr. Packard for a rhinological examination. Dr. Packard reported that the right nostril was almost completely blocked by a mass of polypi which presented streaks of pus on their surface, while there was considerable hypertrophy of the middle and lower turbinates on the left side.

Being convinced that the ocular symptoms were probably secondary to the nasal, sphero-cylindrical glasses with weak prisms, bases in, were ordered for temporary use, and Dr. Packard was requested to relieve the intranasal condition at once. He accordingly snared off two very large polypi from the right naris, which procedure was followed by a gush of fetid pus. The discharge proved to come from the ethmoid, from which a large shell of dead bone was removed by the forceps. A small polypus was subsequently removed from the left naris.

Both Dr. Packard and myself are of the opinion that at the time of the grippe, two years ago, there was an ethmoiditis, which resulted in the closure of the orifice of that sinus, and that as a consequence of the retention of exudation from the mucous membrane, the walls of the cavity became distended, and encroaching upon the orbit gave rise to the divergence of the visual axes. Later necrosis of the walls of the sinus followed, with partial discharge of the contents of the cavity into the nose, with the development of the polypi. Since the operation, which was performed about two weeks ago, the head symptoms have been relieved, though the ocular condition is naturally unchanged.

Another class of cases which may be excited by a sinusitis, and which are of great interest to the ophthalmologist, are those designated as "prelacrymal abscesses," referring by this term to the swelling which forms at times above the internal palpebral ligament, and somewhat external to the lacrymal sac. While its position serves to differentiate it readily from abscesses of the sac itself, it is frequently mistaken for that condition, and Bowman's operation is performed. In many of these cases, as is well known, the abscess results from a necrosis of the lacrymo-ethmoidal cells, in others it marks the point of suppuration of the frontal cells, which frequently have an anomalous distribution. Abscesses of deeper parts of the orbit may point in this region, the purulent matter gravitating into the neighborhood of the sac by the peculiarity of the insertion of the fascia.

Though the differential diagnosis in these cases of prelacrymal abscesses is usually comparatively simple, at times the pus gravitates behind the sac in such a way that the exit to it is closed, and an ectasia of the sac itself occurs, with all the signs of true lacrymal abscess. Incision by means of the Bowman procedure does not, however, liberate any pus, the purulent matter escaping only after the probe is withdrawn and passed horizontally into the cells forming the inner orbital wall.

I have encountered a number of such cases and have been compelled to resort to extensive incision and drainage in place of the simple dilatation which I had planned. Within the past few weeks I have operated upon an old lady who presented the appearance typical of simple mucocele of the sac. The quite pronounced swelling which was present was in the classic position, and when the finger was applied the contents apparently steadily emptied themselves into the nose, for there was no regurgitation into the conjunctival cul-de-sac. Her physician, who was somewhat of a throat and nose specialist, had pronounced her nose free from disease, though the turbinates were noted as being swollen. The sac was incised by the ordinary Bowman procedure, but without avail, no pus escaping until a deeper incision was made into the tissues back of the sac, when a large quantity of pus escaped from the lacrymo-ethmoidal cells, which were found, upon probing, to be extensively diseased.

Peters described similar cases in 1902 in *Die Zeitschrift für Augenheilkunde,* which he had found to originate in empyemas of the frontal and ethmoidal cells and in rare instances in a maxillary periostitis excited by carious teeth.

It is unnecessary before this audience to dwell upon the frequency with which orbital cellulitis is occasioned by an inflammation of some one of the accessory sinuses, and to refer to the dangers which threaten the eye under such conditions. Although the sinus at fault can usually be detected prior to the operation, the rhinological examination at times does not reveal the seat of the disease, and the establishment of the diagnosis is deferred until incision is made into the orbit. Even then, however, in a certain proportion of cases, there will be disappointment at the nonappearance of pus and the impossibility of detecting any necrosed bone in the walls of the sinus, though it should be remembered that a sinusitis may occasion an orbital cellulitis of marked intensity without the bone forming the barrier between the sinus and orbit being diseased, the inflammation spreading from the sinus to the orbit by the vascular channels which normally exist in the wall of the sinus. The necessity for the correct diagnosis and treatment in this class of cases is apparent, for not only may the eye be saved by proper surgical means but life itself.

Finally, as an unusual condition which appeared to be dependent upon a nasal condition, I would refer very briefly to the case of a man by whom I was consulted a few days ago upon account of "a blind spot which appeared in the center of the sight of the left eye," as he expressed it, whenever there was a high wind and freezing weather. He said that he was always free from the spot in summer, but that it had recurred for three winters following a heavy cold which he had contracted in St. Petersburg three years before. The spot was black, except at its center, which appeared bright and luminous, and usually faded away after the patient had been in warm air for some time.

It was elicited that he was troubled but little with his nose, except that the nares would close alternately upon slight provocation. Examination revealed that both eyes were normal (the cornea was examined carefully under high magnification to exclude the epithelial haze which I think Mr. Nettleship has recorded as arising from exposure to high wind) save for a small spot of apparently old choroiditis in his left eye. No scotoma could be outlined by the visual field, though there was a perceptible enlargement of the blind spot. Corrected vision was normal in both eyes. Being curious to know if there was any connection between the ocular and the nasal condition, the patient was sent to Dr. Packard, who reported: "Mr. T. H. G. has a great deal of hypertrophic rhinitis, but no sinus trouble or pus center anywhere around his nose. I think there is no doubt that his nose becomes very much occluded in cold weather, because the erectile tissue in his turbinates is extremely sensitive, and swelled even under the ordinary routine examination."

In conclusion, I believe that while there may be a tendency upon the part of some to exaggerate the

connection of ocular conditions with sinusitis, and while there is the temptation for all to discover causes which they are interested in finding, in agencies which may not be implicated in any way with the disease within the eye, careful rhinological examinations should be made in all suspected cases, and the possibility of the ocular affection being occasioned by the nasal only dismissed when repeated examinations have failed to discover any disease within the cells.

RELATIONS OF EYE TO NOSE, WITH CERTAIN GENERAL CONSIDERATIONS.*

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It is the purpose of this paper to give a brief summary of the ocular conditions and symptoms, chiefly of a functional nature, which seem in many cases to be associated with or dependent on obstructions of the nose and diseases of the neighboring structures. Allusion will be made to the examples of intraocular diseases which have been reported by numerous observers, some of which need further substantiation.

The extension of purulent inflammation from the nose or from the ethmoid cells or sinuses of the frontal or sphenoid bones, with pressure upon the nerve or with displacement of the eyeball is familiar to all, and the literature has reached large proportions. A review of the subject by Eversbusch (Graefe-Saemisch, "Handbuch der Augenhilkunde," second edition) shows the futility of attempting to add to the stock of knowledge from a limited personal experience.

The association claimed by certain writers to exist between inflammation of the nose and especially of the sinuses, not necessarily purulent, and certain intraocular inflammations such as uveitis, the etiology of which is often obscure, is of great interest. If such an association is proven to exist, information regarding it will be welcomed, for many of those cases of uveal inflammation have proven resistant to treatment, and have eluded all attempts to fix their direct cause. The question is by no means a simple one, for the mere coincidence of nose and eye trouble does not prove an etiological relation. The disappearance of the one following the successful treatment of the other would be, however, strong evidence, and when a sufficient number of cases have been reported our knowledge of intraocular inflammation will be materially increased. I have not seen such an association in my own practice. A careful examination of the nose has been made in cases of uveitis, glaucoma, and detachment of the retina, in which the cause was obscure, and I have yet to see a case in which the ocular condition could be said to depend directly on disease of nose or sinuses.

Dr. Posey has reviewed this whole subject so fairly that it is hardly necessary to dwell at length on the statements of Kuhnt, Ziehm, Fish, and others, whose views have not met with general acceptance. Moreover, the frequency of empyema of the sinuses without ocular complications makes it highly improbable that a hypothetical mucocele of the frontal sinus could be the cause of severe intraocular trouble—but this has recently been urged so insistently that we must give it fair consideration.

In spite of Dr. Fish's case of detachment which disappeared after washing out the frontal sinus, one remains sceptical; not more so, however, than as to the efficacy of the usual method of treatment in such cases, since rest in the recumbent position, pressure bandage, and pilocarpine offer small hope for a cure in most cases, while subconjunctival injections of salt solution and puncture of the sclera are equally uncertain.

In looking back at several cases of acute uveitis, frontal pain and nasal obstructions were not prominent symptoms, but in three cases, which yielded promptly to large doses of sodium salicylate, hot compresses, and atropine, the nasal or sinus condition, which may have been a contributory cause, would have been favorably influenced by the treatment. It is not fair, therefore, to exclude this association until we know more of the relationship than we do at present, and it is important that specialists familiar with the technique of nasal and sinus examinations should be consulted in all doubtful cases.

The very intricate circulatory and nerve relations are well described by Eversbusch and Ernst Winckler, among many who have studied the subject, and their significance in this connection is apparent to all, in relation not only to infection, but to passive hyperemia, and as a basis of various nervous conditions called reflex. After describing the normal relations of veins and lymphatics, Winckler mentions certain anomalies, of which there are many, and says: "In any case where disease of the eye certainly depends on nasal obstruction, there must be abnormal relations, or else the latter would be followed much more often by ocular diseases." Kuhnt, Winckler, Posey, and others have seen a hyperemia of the nerves with tortuous vessels on the same side as the empyema. Kuhnt states that this is a very frequent accompaniment of both acute and chronic processes, and is congestive and not inflammatory. This passive hyperemia is, according to Ziehm and Kuhnt, an important predisposing influence for the different forms of intraocular inflammation. It is common to find hyperemia of the conjunctiva, photophobia, and asthenopia in cases with a congested nasal mucous membrane, with contact of turbinal and septum, and it is possible that this condition may also predispose the eye to infection. Randolph has shown that some lesion is needed before certain toxins can obtain a foothold on the conjunctiva, and the same may be true of the uvea.

Kuhnt mentions several cases of hypertrophic rhinitis with empyema, in which there were opacities in the anterior part of the vitreous and postcortical cataract. He also saw three cases of thrombosis of the central vein of the retina on the same side with the empyema, in which there was absolutely no other cause assignable.

Many cases of the most diverse nature have been reported by these and other observers, but in proportion to the frequency of nasal and sinus disease those with intraocular inflammation or with organic changes in the eye, must still be regarded as exceptional, and due, as Winckler has said, to exceptional conditions, such as anomalous arrangement of vessels or lymphatics. Some cases are part of a general septicemia, in which the empyema is the starting point, or, more frequently, both eye and nose are affected by a common cause, as in influenza; others, called functional, have as a basis the nervous temperament, which makes one person suffer intensely from a fault or error which others endure with little or no discomfort. These are the most frequent, and they are especially elusive, because the ocular symptoms are frequently out of proportion to the underlying cause.

It is not easy to analyze these functional conditions or to classify them: some may be due to obstructed inspiration by which the suction which tends to

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empty the vascular tissues of the nose is hindered. Ziehm has stated that this suction is ten times less in mouth breathing than in the normal conditions. Kniess and Zarinko ascribe these ocular symptoms to reflex irritability from the nasal mucosa, and Zarinko (Eversbusch, p. 63) denies Ziehm's theory on apparently well-grounded physiological facts. Whatever the mechanism, hyperemia in the nose is a direct cause of congestion in the orbit, lids, conjunctiva, and probably in the intraocular structures as well. This is a sufficient cause for asthenopia.

It will be interesting in this connection to quote from papers by Dr. Haskell of Boston the results of his careful clinical observations, which deserve our consideration.

"The nasal factor, usually a contact . . . . was not always suspected at first; 65 cases were observed; headache was the most constant symptom, occurring at night, or on waking, and relieved by a change of position or any measure which lessened the congestion in the nose. Asthenopia and pain independently of the use of the eyes was frequent. A striking symptom was present in a number of cases—a feeling of confusion and helplessness on attempting any mental exertion, increased by the use of the eyes, but not dependent on it."

A symptom pointing to the nose, and on which Dr. Haskell lays stress, was a variable error of refraction, which made it necessary to change glasses frequently; after the relief of the nasal condition the refraction became stable, the axes of the astigmatism tended to become more symmetrical, and glasses were worn with comfort. It is not necessary to give the details of the 42 cases in which these signs of irritability of the ciliary muscles were noted. We have seen such conditions in many kinds of nervousness, and the salient point is that the nose may be an unsuspected source of trouble.

Of the 65 cases, 8 per cent. were reported normal; 92 per cent. faulty as to the nose; some form of pressure contact was found in 85 per cent. of all cases; 38 were operated upon, and among these there was no relief in three cases, partial relief in 19 cases, entire relief in 16 cases.

In this nervous, high-strung age of overwork and bad hygiene, it is important to consider, first of all, the personality of the patient and his environment and the manner in which he works. It is not possible to obtain ideal conditions, but only after this has been considered and the refraction most carefully corrected, and when variable, under atropine, are we justified in subjecting the patient to prolonged treatment of the nose or sinuses for functional disturbances of vision.

One regards with some compunction the attitude of the general practitioner and that of the patient himself, in the face of this uncertainty. It would be of great value to formulate some general rules by which the cases of disordered ocular functions, or pain in the region of the eyes, might be classed as of ocular or extraocular origin, but unfortunately the question is not a simple one. Dr. Haskell states that headache or asthenopia, which does not follow the use of the eyes, cannot be relieved by glasses. While this may be true in a general way, there are certainly many exceptions, and as the eyes are in constant use, refractive errors are always a potential cause of the symptoms described. On the other hand, when the nose is the immediate or active source of trouble, glasses which should be worn may not be tolerated until that is relieved. It is easier for the patient and more natural when the ocular discomfort is prominent, to submit to an ocular examination before entering on a more or less formidable course of treatment for nasal or sinus diseases, and in those cases in which refraction is variable, atropine, especially in children and young adults, should be used, not only for the added certainty it gives in determining the error, but for its therapeutic effects as a sedative, and the frequent relief may be due, not only to the physiological rest which it gives to the eyes, but to its effects on the nasal mucous membrane.

Unquestionably, every case must be studied individually, and much valuable information can be obtained by a careful history of the persistence of the symptoms, and their coincidence with signs of neighboring trouble, and of equal, if not greater importance may be mentioned the study of the general health. Leaving out of consideration the nasal obstruction and purulent cases of sinus diseases, and the obvious eyestrain, which no competent specialist will overlook, it is not too much to say that functional trouble has been suggested in many a nervous patient whose varying and often contradictory symptoms might better have been reached from a broader standpoint.

It is unfortunate that such confusion exists as to the pathogeny of many of these cases of nasal and ocular trouble. The coincidence of symptoms proves either that one depends on the other or that there is a common cause. In cases of actual infection of sinuses, or of such interference with functions in the nose as to make it a cause of serious discomfort, the indication for more or less radical treatment is clear, and very often the condition of the eyes will be improved thereby. Cases of that sort are too numerous to require citation, but are there not as many in which the apparent association has been disproven by failure to relieve the symptoms after painful and prolonged local treatment?

I would not venture to criticise the work of the rhinologist—perhaps he might retaliate by caustic allusion to the indiscriminate giving of glasses for small errors of refraction. Certainly, we have been open to criticism on the question of muscles. But behind and above all of the persistent functional disorders of the eyes and of the nose, as well as of digestion, circulation, in fact the disorders of the entire organism, which cannot be attributed to some obvious fault, is the nervous control, and this must be reached in the last appeal by hygiene, which means adaptation of means to ends.

Many, perhaps most of our functional errors, are failures of the organism to adapt itself to increasing and unreasonable demands. The numerous cases, so brilliantly outlined by Dr. Gould, are instances of the failure of those physically frail to meet the imperious demands of a superabundant mental energy. No doubt glasses would have helped very materially in many cases to relieve the stress; possibly also there were nasal conditions which might have been relieved, but it is not reactionary to state that most of the great men would have suffered their crises of nerves, the labor pains of genius, in spite of all the modern tinkering which could be devised.

It is our duty, of course, to correct every fault in sight when the symptoms demand it, but a conscientious specialist who is not an egotist must feel at times that, although his glasses have relieved the symptoms or the breathing is freer after nasal treatment and the patient's head is clearer, he has not struck at the root of the question. The patient should not have been susceptible to such small faults, and at times it comes home to the physician—not always to the one who flattered himself that he relieved the symptoms—that the underlying trouble,

the failure in adaptation, is cropping out in some other way quite as serious, and that the remedy is to be sought in a broader and more fundamental regulation of the mode of life. There is an admirable book, the "Psychic Treatment of Nervous Disorders," by Dubois, which should be read by all physicians who seek this judicial standpoint. The specialist, without sacrificing in the least his concentration or the confidence in his ability to help those who belong properly in his category, may, it seems to me, increase his usefulness, and will certainly add to his own intellectual satisfaction if he accepts the broader point of view.

Many of our patients who are distressed by small errors of refraction, or who complain of asthenopia without discoverable cause, or who have a too ready reflex irritability, may be called neuropathic, and these words of Dubois seem most appropriate at the present time: "Whoever wishes to treat neuropaths must first of all be a good clinician, in order to recognize the numerous organic troubles and to assign them their place; but he must also be a psychologist and moralist, in order to completely modify the mentality of his patient."

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EVOLUTION OF LIFE FROM THE LIFELESS.

By JONATHAN WRIGHT, M.D.,

NEW YORK.

I have had occasion to refer in another publication[1] to the lifelong heresy of Dr. H. Charlton Bastian. He has now published another book on the subject of Archebiosis.[2] The recent recrudescence of interest in the theory of spontaneous generation has furnished him with a kindlier sentiment than prevailed thirty years ago, when his victorious opponents were Pasteur and Tyndall. Jacques Loeb has declared his belief in the possibility of the artificial creation of life, and Le Dantec[3] has voiced the sentiment of many others in asserting that no one would be surprised if the actuality of spontaneous generation were demonstrated to-morrow.

Considering the fact that for thirty years the question has been entirely banished from the realms of scientific discussion, this revival of a discarded and discredited theory may possess sufficient interest to warrant me in again referring to the subject here.

It is true that the majority of biologists still regard the discussion as fruitless. Indeed not the slightest direct experimental proof has been attempted, except by Dr. Bastian. It might be thought that the interest in the subject had revived from a calmer survey of the grounds upon which Huxley pronounced the idea a chimera. While it is quite apparent that these were insufficient for his sweeping generalization, it is not the fallacy in the deductions from the work of Pasteur and Tyndall the realization of which has reawakened the ancient belief. The creators of modern bacteriology demonstrated that they indeed could render culture media sterile without destroying its nutrient qualities, but it by no means followed that they thereby demonstrated the impossibility of life appearing in those media not rendered unfit for life by the disintegrating action of heat and other measures.

We all now realize that in destroying life in broth or in other fluid, we very possibly also destroy in it the potentiality of producing life. It seems very likely that while an environment *must* be able to maintain life if it is able to start it, it *may* be able to maintain life without being able to start it. In the predilection of mankind for cooked food we receive a hint of the possibility of an underlying law, *i.e.* a thing is more readily worked up into food for existing life when it is deprived of the higher potentialities which might produce life.

But, as I have said, these considerations have had no effect in awakening new interest in an old doctrine. The causes for this are to be found in a readjustment of ideas which have arisen from facts brought to light in other fields of scientific activity. Darwinism was still imperfectly apprehended in general scientific circles at the rise of modern bacteriology. It seemed to simplify the question of the appearance of life by removing it to a remote geological period, or even by pushing it off the earth altogether. Lord Kelvin, it has been pointed out, has displaced but not dismissed the question by supposing that life came to this planet from another, riding on a meteor. Darwinism has not simplified the matter, but, on the other hand, it has rendered it more pressing by inculcating a necessity for a conception of a continuity in natural phenomena, as conceived by thinking men, which at first was but dimly apparent, and even that in biology alone. Gradually, especially of later years, the despair of taxonomists at their inability to fix a limit to any related forms of life, to divide them into species, has been of the same pedagogical stripe of discouragement as that exhibited by those attempting in vain to define and fix a limit to life itself.

The trend of physical as of biological science in its broadest outline is towards the connotation of the existence of an absolute and uninterrupted continuity in all processes open to the apprehension of the senses and understanding of man. This belief, existent from the dawn of philosophy, received a more convincing confirmation in the life work of Francis Darwin than in any of the other epoch-making activities of the Princes of Science.

The discovery of the phenomena associated with the radioactivity of matter, spectrum analysis applied to the light of the blazing stars, the necessity of conceiving of smaller aggregates of matter than the atom and the mathematical demonstration of their existence by Professor Thomson, "the man who split the atom," the extension of the idea of Natural Selection to the birth of atoms and of worlds, are among the currents of thought which have carried us on to a realization of the absolute nature of this continuity of phenomena from the primordial whirlpool of energy in the ether up to the most complex molecule of protoplasm in the organic ferments. To stop short there without pitching forward beyond is almost an impossibility for the human intellect.

Elsewhere,[4] in speaking of the colloids, I have taken note of one line of biological investigation which has led up to the subject in hand along paths of the most painstaking and laborious objective experiment and of the most ingenious and careful observation. Let us turn to another.

The origin of the analogy drawn between the formation and growth of a crystal and life has been traced back to Maupertius, that "flower of human thinkers," whom the great Frederick petted and persecuted, at whom Voltaire jeered, whom Carlyle, the false prophet, consigned to oblivion, though "honest and of high talent." The discoverers of the cell structure of living things called to mind the same analogy, and on it Herbert Spencer founded his far-reaching biological theories. It has been left to the last few years to give a deeper meaning to these vague analogies and the study of the liquid

cells by Lippman, Lehmann,[5] Le Duc, Herrera,[6] and others has confounded those disposed to remind us that analogies are apt to lead us into error, as indeed they are; but nevertheless they have their value. Ostwald, one of the greatest of living chemists, believes crystallization is the process actually at work in the living cell, while Krompechner[7] goes so far as to see and figure tetrahedral and hexahedral crystal forms in the changes the nuclei of the cells undergo during division. We are here reminded of a passage in the second part of Goethe's "Faust," where Wagner in his medieval laboratory is toiling to create life. Peering into his flaming flask he mutters:

"The mystery which for man in Nature lies
We dare to test, by knowledge led;
And that which she was wont to organize
We crystallize instead."

Mephistopheles utters the same jest which still has its sting for the orthodox:

"Who lives learns many secrets to unravel;
For him upon this earth there's nothing new can be;
I've seen already in my years of travel
Much crystallized humanity."

In the crystal men have long recognized some internal power which enables it to grow by accretions from its environment as does the living cell, but under more exacting conditions. At first this was supposed to occur by adsorption alone, and not by intussusception, that is, by layers on its external planes and angles, and not by internal digestion, but it has become plain from the popular demonstrations of Le Duc and others, to which I have referred, that the so-called liquid crystal, like the colloid cell, can be made to exhibit currents of intake and outgo, endosmosis and exosmosis, and even show many changes of internal structure resembling the processes of the nucleus, which these artificial cells also possess, in proliferation and division. These things have become more or less familiar to the general reader in magazine reviews. Though these crystals, at least some of them, show the characteristic action on polarized light, many, even Le Dantec, say it is a play on words to put them into the same category with quartz and ice-forms, with which we are all familiar.

Some of the rigid crystals present one striking analogy in particular to animals. If they have their angles chipped off or their planes fractured by a loss of substance, like the crab which has lost its claw, they will regenerate or repair the loss. They were supposed to do this only in a supersaturated solution by accretion or adsorption directly to the injured spot, differing thus from animals which will do it, while fasting, out of their own substance. Lehmann and Przibram have gone over the various analogies that crystals have with living things.

To single out one of them, it now appears[8] that, like the crab with his claw, the crystal also repairs its injuries when starving. Hung, in other words, in an exactly saturated solution, where it will not grow in weight, shielded from the evaporation of the mother liquor, the angles and planes of the tetrahedral or octohedral will readjust themselves in such a way as to heal the wound and eventually a perfect crystal, characteristic of its mother liquor, will result. This, it is argued, as with living things, can only occur from intussusception. Thus the polarity of growth is apparently of the same internal nature for crystal as for crab. This power of regeneration is not inherent in all crystals, nor in all living things, but it must be noted that among the simplest unicellular forms of life it is most persistent and most frequent. For many years it was claimed that crystals can only arise in the saturated solutions of certain salts, in which there is a pre-existing crystal, just as it is orthodox now to declare with Verworn that "living substance arises only where living substance has been," but it is now certain that crystallization may occur spontaneously.

Is there then some mysterious vital force at work within the crystal, or is there no "vital force" within the living being, or is all this mere "analogy?" Around this question, vital indeed, the battle is raging. These analogies, which I have only touched upon, are very numerous between colloids and crystals and "life." A neovitalist can scarcely formulate a law for living things to follow, but it is found on analysis to rest on physical principles as applicable to the dead as to the living. Occasionally even yet someone defines life as motion. A drop of quicksilver will roll about, they will admit, and will retain its form, but it will not send out pseudopodia and creep about like the ameba or the tiger in search of prey. The drop of quicksilver will not do this, it is true, but the creeping liquid crystals of Lehmann will do it, and on analysis, noting the change of form, it is found to be due to alteration of the surface tension, brought about by the environment acting on internal forces. In fact the same thing which holds the drop of oil to its globular form on water causes the colloid cell and the liquid crystal to move. They are simply apparently so synthetized that they react more readily to the influence of their environment than does the quicksilver and the oil in water. They must all of them find the proper environment in which they are fit to survive, just as Boussinesq supposed for the universe itself. The mercury is an element, the oil a high compound, the liquid crystal and the colloid still higher aggregates, and the ameba is the "colloid of colloids," but the same electrodynamic forces give them their relation to their environment. Adaptation to that environment is the rule to which the ameba, the nations, and the individual man and the crouching tiger must conform or perish. There can be no question that this similarity of states, this analogy of the active phenomena of inorganic matter and of protoplasm, has been an important aid in forging the bond of continuity existing in men's thoughts as to the fundamental identity of the living and the lifeless.

Crude as is this sketch, unconvincing as it would be were it not possible to pad it out with details of observations and experiments that would fill thousands of these pages, we plainly perceive from it that it is on this account, and not on account of the realization of the fallacies of Huxley's and Tyndall's arguments, that we are on the lookout for demonstrations of the line where the lifeless becomes alive.

Bastian, overwhelmed thirty years ago, after almost a generation of fruitful work in which he has made his name a familiar one in neurology, returns to the charge at a more opportune moment, and with dauntless courage and tenacity reiterates his convictions. In Science, however, admiration for honesty and courage must not blind us as to the path which leads toward the truth. "*Unus contra mundum*" may be a heroic sort of legend, but it is as often floating over the Castle of Error as over the Stronghold of Truth.

One of Bastian's plausible *a priori* arguments for an ever-present Archebiosis is that organic matter in solution, that is, the more complex forms of matter, those molecules of unstable equilibrium, is now much more widespread over the earth than in the early days of terrestrial life, and therefore the opportunities for life to appear *de novo* are more frequent. For reasons to which I have alluded, we are driven to the conclusion that if spontaneous gen-

eration is going on now it must be doing so among the low forms of life already existent. In life already in existence we must presuppose an acquired power of adaptation, which exists even in the inorganic colloids, a resistance to destructive forces, *viability* to a degree which nascent life cannot possess. Verworn indeed, and much later Burke conjectured, as indeed do Weismann and Benedikt, that there are or were half-way combinations, biogens or biophors or protoplasmic flakes not yet risen to the dignity of life.

Pflüger many years ago, and, more recently and vaguely, Burke have imagined a state of incandescence as necessary for their formation. But cyanogen, the supposed radicle of Pflüger, is not existent in all the forms of life; it may be formed in such incandescence as still occurs on the surface of the earth, the lightning, volcanoes, etc., and indeed this idea, of the physical causes of life not being now with us, is of late years little heard of.

However all this may be, doubtless there are chemical compounds preexistent, upon which the new birth of life depends. Manifestly as we have insisted, whenever it occurs conditions must be fit at the same time and place, not only for the birth, but for the survival of life. We have seen that the application of a sufficient degree of heat will certainly kill all preexisting germs. Now even Bastian admits that if we raise the temperature sufficiently high, above 150° or 160° C., his germs do not appear in even his so-called generative fluids, but the latter, whose ingredients it is not here necessary to discuss, when heated to a lower degree, or not so frequently, he supposes to retain the potentiality of generating life after all life in them has been destroyed.

We well know from observation and experiment that there are forms of life so minute that a glass magnifying more than a thousand diameters cannot reveal their existence, but we also know we can destroy this infra-microscopic life in the same way we destroy other germs. Is it reasonable to suppose that the nascent molecule, about to assume the properties of life in Bastian's tubes, if such there were, would not break down under the heat?

Can we agree with him when he asserts that his experiments demonstrate the reappearance of life in his flasks after heat has destroyed the life which has existed there before it was applied? Is it possible that the swirling molecules of these colloids have secured an equilibrium which is not broken up by heat when the bacteria with an acquired resistance, an adaptation to their environment, have been unable to continue their existence?

When that equilibrium within the nascent colloid is first established, when it first becomes "instinct with life," as Bastian's experiments seem to show it does, with only such an heredity behind it as it has brought over from the inorganic state, it is natural to suppose it very unstable. It must lack, like the growing crystal, a stability in the environment which heat, violently affecting the molecules of matter, would destroy. The living thing which we know in daily life has evidently acquired, through a long line of ancestry, that tenacity of life necessary for existence, not primordially inherent in the speck of protoplasm from which Huxley supposed it sprang. In the sequence of cosmic events it has widened its field of adaptation. This sequence of events, we have seen good reason to suppose, stretches far back of the appearance of life for its beginnings. Can we believe that at the point where the lifeless becomes alive suddenly such combinations assume a stability greater than they subsequently possess, that they resist a degree of heat which destroys the salamander itself? Once born Bastian admits they may be destroyed at the boiling point of water.

All *a priori* argument is indeed in favor of the theory of an ever-present spontaneous generation in conditions suitable for the maintenance of life, and thus, in this twentieth century, the theory finds a receptive audience of which it was deprived by Pasteur and Tyndall, but I think we find, on a careful analysis of Dr. Bastian's conception of how and where it occurs, that the *a priori* argument deserts him. In the very terms of the problem there seems an insuperable difficulty of demonstration as Bastian proposes to solve it.

I have had occasion to refer to Dr. Bastian's work on Heterogenesis, and, while disposed to take the most liberal view of the mutability of the lowest forms of life, a view which modern researches in bacteriology are constantly strengthening, I have pointed out that many of Bastian's observations are entirely irreconcilable with the *a priori* arguments which he brings forward to support the probability of the occurrence of spontaneous generation. So here in his more recent book we may note the same incongruity in the argument.

But Dr. Bastian does not take his stand on the general principles alone for which he would find much support. He makes no final appeal to plausibility. He, as well as the rest of us, knows full well that modern science has little to say to plausible theories or *a priori* arguments, or the analogies such as I have traced in this and other papers. Dr. Bastian stands firmly on the experimental evidence which he advances. Nevertheless, his argument being defective, we could not on these grounds alone suppress incredulity of his results. We may well scan the methods of his experimental demonstrations. This is no place to go into such technical matters. It seems to me that for very many of his demonstrations he will not excite sufficient interest in scientific circles to secure their repetition by others. Bacteriological work of thirty years has destroyed their value. There are some of his experiments, however, which seem without a flaw in their plan, and as Dr. Bastian has only to demonstrate one condition or set of conditions under which spontaneous generation may occur, in order to prove the probability of its occurrence under others as yet impossible for man to devise, so far as I can see there is no way of refuting them, but by their repetition and the demonstration of errors of technique which he may have committed.

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Dusty Books.—Sir Lauder Brunton, in a recent popular article, states that he considers dust as one of the greatest enemies of advanced life, since it is the frequent cause of colds and respiratory diseases. He himself has found very frequently, on taking a dusty book from a library shelf, that it gave him a cold in the head. This has occurred so regularly that he now resorts to sponging the dusty edges with a solution of carbolic acid before disturbing the deposit.

THE MANIFESTATIONS OF PARANOIA.*

By ALBERT WARREN FERRIS, A.M., M.D.,

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When Mendel, in 1881, substituted for "Verrücktheit" the term Paranoia, order should have been evolved out of chaos. The confusion with which the word "monomania" had been surrounded had resulted in the assignment to a place under its sheltering wings of a great variety of tendencies, phobias, and manias. The expression monomania sank from the position designed for it by Esquirol to the level of a popular term for insignificant symptoms, absolutely bereft of any definite clinical foundation.

The word paranoia should have been an individual distillate from a crude, commingled mass. Well-defined lines should have been drawn, and severe elimination should have been practised, with the result of grouping certain delusional insanities alone under the new term. But while eagerly appropriated, the term was employed by individual psychiatrists in varying ways, as determined by personal equation. Its limits were narrowed or its boundaries were separated more widely, according to individual taste. Like the poor traveler in the hands of the Attic robber Procrustes, it was stretched to fit one bed or cut down and wedged into another, until to-day there is as much misuse of the designation paranoia as there was of the term monomania twenty-five years ago.

A psychiatrist to-day runs the risk of being very unpopular if he makes a diagnosis of paranoia without a modifying adjective, and he is told with considerable severity that in Kräpelin's Hospital in Munich there are only about two patients labeled paranoiacs out of a total of two hundred. Mendel himself, so far from being of assistance at this juncture, leads us into a tangled jungle of rudimentary paranoias, paranoias with paranoiac stages, primitive paranoias, and the like, from which we emerge bewildered.

The difficulty seems to have lain in the fact that there has been an error made in the limitation of the field, through losing sight of the most decisive feature of the delusional insanities under consideration. The presence of the delusion of conspiracy or persecution seems to have proved so interesting as to have diverted one's gaze from the important and essential fact. It is not the character of the delusion, but the systematization of the delusions that decides for paranoia. A definite fixed idea, resulting from imagination or defective judgment or defective memory, becomes the central point about which delusions are grouped methodically and systematically, minor replacements of the original delusions frequently occurring without disturbance of the correlation of the notions which seem to the patient logically interdependent.

The delusions are very frequently persecutory, but it is not essential that they should be of such a character. And it is apparently due to the belief that persecutory delusions are pathognomonic of paranoia that alcoholism and even neurasthenia have been mistaken for it, and that so many different conditions have been grouped under the term as to detract from its value.

As has often been said, the decisive characteristics of paranoia are as follows: (1) The unchangeableness of the fundamental fixed idea; (2) the firm belief of the patient in his delusions; (3) the apparent (though unreal) logic of the delusional system; (4) the suddenness and intensity of the reactions; (5) the frequency of false interpretations; (6) the preservation for years of an intellect comparatively unimpaired, though dominated by delusion.

Besides these essentials, there are in most cases interesting additional features, such as *expansive delusions*, the patient believing he is possessed of special charms, unusual strength, and remarkable influence, attributes which constitute the reason for the envy, malice, and persecution by others that exist in his imagination. Closely connected with these ideas is the feeling of *self-importance*, on which is easily grafted a change of personality, producing the familiar reincarnation of an Old Testament notable, of a former sovereign, or of a military celebrity, etc. It is of common occurrence for a paranoiac to look back many years and interpret trivial occurrences of his childhood as significant of his importance and superiority or of a conspiracy against him at that time.

More nearly to complete this slight sketch of paranoia, we must allude to the well-known erotic and religious features, one of which so often forms part of the delusional complex.

We must mention also the presence of hallucinations, which are generally a prominent feature at some time during the development of the psychosis, and which constitute a very important source for the origin and expansion of delusions. The most frequent variety is the hallucination of hearing, and it is very vivid and insistent. Most patients state that single words or short sentences are uttered in their hearing by strangers, servants, passersby, or by some unseen person in the next room; and the utterances consist, they claim, of profane or obscene epithets, scornful, or accusatory remarks, or a leading word or two which indicate to the patient's mind that his whole history, as well as his innermost thoughts, are publicly known. In some cases directions for the action and conduct of the patient are given him in this way, and he obeys. Hallucinations of vision, smell, and touch are less frequent.

It is difficult for us to reconcile with our experiences the statement that some of the foreign psychiatrists make to the effect that in paranoia hallucinations are absent, or at least extremely rare, for in our American experience they seem to be the most uncommon cases of paranoia in which hallucinations are absent.

A diversity of opinion seems to exist also with regard to the development of this psychosis. Magnan states with succinct emphasis that chronic delusional insanity of systematic evolution is never connected with hereditary or acquired predisposition.

On the other hand, Kraft-Ebing says: "I have never seen paranoia in untainted persons. The taint in the vast majority of cases has been hereditary (abnormal character, psychoses, constitutional neuroses, drunkenness in ancestors)."

Spitzka, in defining paranoia, states that it is "based on an acquired or transmitted neurodegenerative taint."

From Bianchi we quote: "True paranoia . . . is a constitutional malady that has its foundation in an anomalous psychopathic structure."

De Fursac says: "Reasoning insanity is to be looked upon as the development of a morbid germ, the existence of which manifests itself in early life by anomalies of character."

Kräpelin says concerning paranoia (Dieffendorf's translation): "It develops on a defective constitutional basis, either congenital or acquired, defective heredity existing in a very large percentage of cases. Peculiar traits and eccentricities may be recognized early in life."

*Read at a meeting of the Section on Neurology and Psychiatry, New York Academy of Medicine.

Frederick Peterson makes the following statement: "There are hereditary taints; some eccentricities in childhood; more marked peculiarities during youth, often associated with a degree of hypochondriasis."

Bruce, treating of "delusional insanity, described on the continent and in America as paranoia," says: "The universally accepted predisposing cause is hereditary predisposition to mental disease which occurs in over 50 per cent. of the cases affected."

It is the writer's experience that in every case which he has treated, or whose history he has read, there has been an anamnesis of peculiarity in taste, habits, and conduct during the youth of the patient, whenever any reliable or complete history of that period in the patient's life has been obtainable.

A satisfactory early history is a difficult thing to obtain. It is rarely the duty of the school teacher to examine into the eccentricities of young pupils. Unfortunately, the majority of parents are negligent or are not intelligently observant. For example, they fail to see a difference between the boastfulness of youth and the mingled arrogance and suspicion of an anomalous mind, and fail to be concerned with marked eccentricity.

The early manifestations of paranoia include irritability with excitement, studied disobedience, outward hostility, moodiness, desire for seclusion, perverted sexual instincts, dreamy indolence, a belief by the patient that he is misunderstood or slighted or not treated with as much consideration as the other children of the family, inordinate satisfaction with his own opinion, and a habit of demonstrating others' inferiority; periods of depression, possibly precocity. Such a syndrome of symptoms occurring in a youth should arouse the parents or tutor to a feeling of alarm, and open their eyes to the fact that, if not already present, there is a possibility of the development of mental disorder. It is clearly evident that excessive stimulation of the cortical cells of the brain should be avoided in such a child. He should be protected from the fatigue incident to long school hours, study at night, competitive examinations, children's parties, and exhausting games, as well as from improper food and indigestion.

Allen Starr has wisely said, in discussing neurasthenia: "Every act of mind or body is attended by certain chemical and physical changes in the cells of the part of the nervous system controlling the act. These go on for a time within physiological limits without harm. But, if continued beyond those limits, they result in exhaustion of the cells, giving rise to uncomfortable sensations of fatigue, and inability to continue work. The initial state of the cells, their degree of development, their inherent strength, and their state of nutrition determine the limit of their endurance . . . . their capacity for recuperation differing widely."

The constitution of the child should be studied in the light of his heredity, and the proper training, education, and environment should be secured for him. Unaided, the average parent and the average teacher cannot make the necessary special study and institute the proper measures for battling with heredity, and for avoiding the fatigue that makes its impress upon the nerve cell. The backward and the precocious, the "strange" or suspicious child, the sullen little anarchist, and the unusually emotional child should be placed in the care of the psychiatrist, and he alone should decide concerning the individual case how much concentration of mind is safe without fatigue, under the daily variation of mental power; what so-called recreations must be forbidden as only varieties of fatiguing effort, and what leaks of nervous and mental energy must be stopped.

No one can positively affirm that the safeguarding and guidance I suggest can prevent the development of paranoia. But no one can deny that some agencies intervene in the mental growth of certain youths with the result of producing atypical or imperfectly developed paranoiacs. These individuals (called "*formes frustes* of paranoia" by Peterson) are always eccentric, and never agreeable or desirable people, and are popularly called "cranks." But at least they are self-supporting members of society, and not homicidal or otherwise dangerous.

If such abortive cases of delusional insanity result fortuitously, ordinary ethics demand the application of the advanced science and skill of to-day in an attempt designedly to control psychopathic tendencies.

The reports of recovery from paranoia must be viewed with extreme suspicion. The disciplinary routine and the regularity of life as to eating, sleeping, exercise, and recreation incidental to custodial care in a proper hospital exercise a very beneficial effect on the disease, and one of great value in modifying it. But the affection is incurable. The few cases that are reported as cured, and that have even been legally rehabilitated as sane people because of the absence of former delusions, should be under constant observation until their delusions return or dementia supervenes.

The medicolegal importance of paranoia is undeniable. With a perfect memory and an intellect unimpaired for many years (except in so far as to be unable to see the force of valid argument, and to perceive the absurdity of his fixed idea), the average paranoiac is plausible and convincing to the layman. He is lucid on all points unconnected with or unrelated to the central idea or the delusional system. He can carry on a business or practise a profession. If wealthy, and without occupation, he can travel, engage in sports, take part in social activities, and order his daily life much as any sane person, unless his delusions involve some of these avocations. The irritability and suspicion that such a person may betray, and the unreasonableness of some acts, are attributed to the ordinary eccentricity of a selfish person. He is acute enough to appreciate that certain statements do not convince his hearers, and may either insist upon them vehemently or abandon the attempt at argument and preserve silence concerning certain delusions.

If under arrest, charged with crime, he may in the main act rationally, for few of the acts of a paranoiac are insane acts; but many anomalies of conduct and speech, as well as frequent irrationalities in correspondence, will certainly betray his condition to the eye of one who is competent to observe.

He of all insane persons illustrates the fallacy of the legal dictum that everyone is sane who knows the nature and quality of his acts, and knows if they are right or wrong. Believing his standard is higher than the statute, and that the law forbidding him to do what he is prompted to do is an unjust law, and therefore may be disobeyed, he reacts promptly to impulse and even calmly commits crime.

Insanity, as psychiatrists have so often insisted, is a medical and not a legal matter. The paranoiac criminal is irrational and irresponsible. While he should not be punished as if sane, he should be placed irrevocably under custodial care for life.

114 West Sixty-ninth Street.

Toothache.—Very small doses of nitroglycerin are asserted to give at least temporary relief in pulsating toothache.—*Medical Council.*

ACUTE INTUSSUSCEPTION.

WITH A REPORT OF A CASE OF SUCCESSFUL RESECTION OF A PORTION OF THE ILEUM FOR GANGRENOUS INTUSSUSCEPTION.*

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This serious affection is fortunately a rare complaint. It may be that it has not been always recognized or has, like appendicitis, been diagnosticated under some other name. The writer in the following investigation has been surprised that its hospital records are not larger. A search through the reports of the Orange Memorial Hospital for the years since 1881 to date shows the records of only eight cases, only two that recovered. These two were cured after laparotomy. In looking up the surgical reports of large metropolitan hospitals, one or two cases a year seem to be about the average number.

In order to present the subject before us, I will first read the histories of two cases that occurred in my own practice last year. Both were treated by abdominal section and both recovered. They are especially interesting, as they represent the two chief types of the disease, the first being the case of an infant under one year of age with a reducible intussusception, the second the case of a child of thirteen with irreducible gangrenous invagination, calling for resection of the gut.

Case I.—Baby Millman, age ten months. This child was referred to my service at Memorial Hospital, Orange, on March 14, 1906, by Dr. H. A. Pulsford. The infant had a history of being sick thirty-six hours. The symptoms were characteristic of intussusception. An elongated tumor could be felt in the right side of the abdomen. Under chloroform narcosis an immediate laparotomy was performed, the incision being made through the right rectus muscle. The tumor proved to be an intussusception of the ileocecal variety—the apex of which passed into the transverse colon and under the liver. It was reduced with difficulty, the intestine being torn in two places near the cecum. These lacerations were sutured with fine silk. The intestines were replaced as soon as possible and the abdomen closed. The infant was given a hot saline enema. During the operation the child was laid upon a hot water pillow and was surrounded by hot water bottles. Great care was taken in hemostasis. The child was a nursling and the mother was allowed to nurse her baby one hour after the operation. She continued to do so without interruption at regular intervals until the baby was discharged, and this the writer believes was a most important factor in the speedy recovery that ensued.

Case II.—F. B., age thirteen years, schoolboy. As a small infant suffered from colic until weaned. For the last five years he was subject to attacks of indigestion with cramps in the lower abdomen. On November 7, 1906, after riding home from school on his bicycle and having exerted himself violently in climbing a hill in the face of a strong wind, he was taken with great distress in the lower abdomen. To relieve his agony, which was great, he was given two hot soap suds enemas, with some result. After another hour vomiting set in, which continued with little interruption for five days, or until the operation. On the second day of the attack, after repeated attempts to induce an evacuation of the bowels by enema, some blood was observed in the fluid returned. About this time blood was found in the fluid vomitus. The mother states that about this time the vomit had a very bad smell. During this time, also, the pain continued but the abdomen was not especially hard or swollen. On the fifth day of the sickness the writer was called in consultation by Drs. Warner and Bingham to see the case and found the patient lying with his face pinched and suffering, his abdomen tense but with little distention. No tumor could be palpated, but pain was distinctly greatest over the appendix. His pulse was 88 and the temperature but 100° by the rectum. Immediate operation was urged and accepted. Under chloroform narcosis a straight incision was made over the middle of the right rectus muscle; this was retracted to the left and the abdomen opened. The abdominal cavity contained a small quantity of turbid serum. Search was first made for the appendix, and as it was found enlarged and congested it was ligated with chromic catgut. In view of the history of the case, further search was made for the cause of the trouble. After removing the appendix an elongated mass was found deep down in the pelvis, which was delivered into the original wound with some difficulty, and found to be an intussusception of the ileum. It was located some distance from the ileocecal valve, but no exact measurement was taken as to its exact location. It was so covered with intestines that our failure to palpate it before operating was explained. This mass probably might have been felt from the rectum and its location showed the importance of making rectal examinations in these cases. It was fortunate for the patient that only vain attempts were made at reduction, which were made absolutely impossible by adhesions of the intussuscipiens to the intussusceptum. It was quickly decided to make a resection, and this was done by stripping the intestinal contents away from both sides of the tumor with the fingers and gently ligating the gut with broad pieces of tape about three inches from each end of the intussusception. The tumor ends of the gut were then tightly clamped with long forceps and the tumor resected. The intussusceptum was found to be gangrenous to about six inches in extent, while the intussuscipiens was still living. The adhesions had fortunately retained a large quantity of foul smelling pus which, if it had not been so tightly shut off from the abdominal cavity, would have lighted up a high grade of septic peritonitis. As these facts were not known until the abdomen was closed much soiling of the field of the operation was avoided. An end-to-end anastomosis was made with one suture of celluloiden thread at the mesenteric border, so placed as to bring the knot on the mucous surface and to bring the mesentery and the intestine together at the same time. A row of fine silk interrupted sutures piercing all coats of the bowel, with knots on the mucous surfaces, was then reinforced by a double row of Lembert sutures of fine silk, an ordinary cambric needle being used. The mesentery was sutured with No. 1 chromic catgut. All the gut in the vicinity of the operation was repeatedly swabbed with warm saline solution. The tapes were then untied and the wound closed with tier sutures, the sutured intestine being left directly under the wound. The boy was put to bed, after lavage of the stomach and a high enema of saline solution and black coffee was given. The following morning the pulse was 150 and the temperature was 105°. The slow continuous administration of hot saline solution by rectum, after

*Read before the Orange Mountain Medical Society, Orange, N. J., April 19, 1907.

the plan of Dr. John B. Murphy, was started as soon as the writer saw the then desperate condition of the patient. The beneficial effect was at once seen. The pulse improved in rate and volume, the fever slowly came down, and the dry tongue became moist, with complete loss of thirst. The effect on the urine was magical. The patient passed about three pints in the first twenty-four hours of this treatment. He thus eliminated the toxins from his blood and peritoneum. The pinched septic facial expression slowly left his face. This treatment was continued for three days. As improvement dated from the hour of the saline treatment, the writer believes it greatly determined the recovery which followed. This recovery was but little retarded by the occurrence of a fecal fistula which fortunately closed spontaneously. The boy had daily rectal passages from the day of the operation, and did not vomit once after the resection of the bowel. In one month he was walking about the house, and since has remained in excellent health.

Intussusception is the invagination, or prolapse, of one portion of the intestine into the lumen of that adjoining. It is, in other words, a telescoping of the gut. It occurs most frequently at the junction of the cecum and the ileum in about the proportion of almost three-fourths of all the cases. A little over one-fourth of all cases are therefore enteric, in distinction from the ileocecal variety. The outer tube is called the intussuscipiens or sheath, the inner, the intussusceptum. The point of junction of the two intestinal layers is called the apex. The mesentery of the gut is invaginated with it, compressing the mesenteric vessels and adding to the danger of gangrene. This brief explanation of the pathology of this affection, although familiar to all, is most important in any discussion.

The invagination may be complete or incomplete. It may be single, occurring in only one portion of the intestinal tract, or multiple, and more rarely, in two or more portions at the same time. The intussusception may be reducible or irreducible. It may be reducible and viable, or irreducible and gangrenous, or it may reduce easily and yet be gangrenous. The slough first attacks the intussusceptum as the part most liable to constriction, secondarily the intussuscipiens becomes gangrenous, if the strangulation continues. A certain amount of local peritonitis is inevitable, with more or less exudate, causing, if delay ensues, firm adhesions to form between the layers of gut, which adhesions are a great impediment to the reduction of the intussusception. Peritonitis may spread and prove a serious factor in the mortality of the cases.

The ileocecal variety is the form most frequently met with in infants, who are more liable to this disease under one year of age. In older children and adults the enteric variety is most frequent. Colic invagination is found, as a rule, in the descending colon and sigmoid. Statistics show that intussusception occurs most frequently in infancy and childhood, particularly between the fourth and twelfth month of infancy, about one-half of all intussusceptions occurring during the first decade.

Boas[1] states we are in the dark regarding the real cause of intussusception, while Eliot[2] claims that in infancy the long mesentery, giving wide excursions to the cecum, together with the frequency of colic, offers an explanation. Intestinal polypi, enteric fever, and the various pathological conditions associated with Meckel's diverticulum and the appendix he cites as existing causes. Diarrhea, intestinal cancer, ingesta, abdominal contusion, "catching cold," or what causes irregular and violent peristalsis, are other causes that have been given.

The most characteristic symptoms of this disease are, first, spasmodic pain, referred to the region of the umbilicus, and associated with this is tenesmus, like that seen with dysentery; vomiting soon appears, especially in young children, and if the obstruction is acute may later become fecal. The stools may not entirely cease, especially if the obstruction is not complete, and frequently it is not, but the character of the stools is highly important, as 80 per cent. of cases of intussusception show bloody stools. The second case cited by the writer had bloody vomitus —a rare symptom. Blood and mucus associated with tenesmus may mislead the diagnosis to one of dysentery. The hemorrhage is seldom large in amount. Later on in the case, pieces of gangrenous gut may be passed, indicative of sloughing of the intussusceptum. A distended belly is a rare symptom, as seldom is the obstruction so complete as to cause much tympanitis until very late in the disease. Should, however, tension of the abdomen be relieved by the sloughing of the intestine or the perforating of the affected intestine, temporary relief occurs as the forerunner of septic peritonitis.[3] A tumor of the noted sausage form is of great importance (if found) in making the diagnosis. Tumor is found more often in children than in adults and is found in all in about one-half of the cases. As in the case of the writer, it may be entirely obscured because of superimposed distended coils of gut. Tumor is found more often over the ascending colon and should be sought during a paroxysm of the pain. It is wise never to omit searching for it with the finger in the rectum. As the apex of the intussusception has been known to present at the anus, this should not be mistaken for a polypus or some rectal disease.

These patients rarely have much elevation of temperature unless the element of peritonitis is marked. The pulse in infancy is elevated, especially during a paroxysm of colic; but in the case before mentioned, in a boy of thirteen, it was normal, even when the gut was gangrenous five days after the onset of the disease. Shock soon ensues and is an important symptom. In infants shock may be a very early symptom. The finding of indican in the urine is said to indicate that the intussusception is located in the small intestine rather than in the large gut.

Upon the prompt diagnosis depends the cure. Death is in direct proportion to the delay. Gibson's[4] statistics are quoted by almost every writer on this subject. He studied 239 cases. Those operated upon the first or the second day gave a mortality of 40 per cent. On the third day the mortality was 62 per cent., and on the fourth and fifth days the mortality was 72 per cent., while on the sixth day it was 100 per cent. Fagge[5] cites eighteen operative cases with a mortality of 30 per cent. Clubb[6] gives the history of one hundred laparotomies, with 37 per cent. mortality. Of course, the mortality is much influenced by the age of the patient, the variety of the disease, as well as the period of time at which the operation is performed. If reduction is possible, the mortality is far less than when the case is irreducible or is gangrenous. Treves[7] states he is not aware of a single case of recovery after intestinal suture. At the Clinical Society of London, December 9, 1904, A. E. J. Barker (quoted by Moynihan[8]) stated he had never seen a recovery after resection in gangrenous cases, and never expected to see it.

One of the first successful cases of resection for gangrenous intussusception the writer can find on record is that of Dowd[9] in 1902, in a boy of four years of age. The ends of the gut were brought together in end-to-end anastomosis and the abdomen was closed without drainage. A more recent case

is that of Coffee,[10] who reports a successful case of resection for gangrenous intussusception. Although the recorded successful cases of resection are few, yet there must be many that have not been reported. The writer believes that the statistics of the mortality from intussusception for the future will be far different and better than those above quoted, because of (first) more prompt recognition of the disease and (second) of the application of modern surgical principles.

Concerning the treatment of intussusception, Ashhurst[11] states there is probably no class of cases so habitually mismanaged by otherwise intelligent practitioners. This, he tells us, is owing to the fact that these cases being rare, few physicians have the opportunity, or take the trouble, to make themselves familiar with the pathology, and therefore use irrational methods to produce a cure, and use remedies more likely to kill than to cure. He mentions as examples long and persistent efforts to reduce by injection and inflation, the use of huge doses of cathartics, even croton oil, and the giving of repeated doses of morphine. In this disease early diagnosis is the *sine qua non* of safety. The physician, having made the diagnosis, should not leave the patient until speedy means are afoot to relieve the trouble—or, in other words, he should stand by until the obstruction in the gut is relieved. Furthermore, the means are distinctly surgical. Until recent years cases of intussusception have been admitted to the medical wards of the hospitals; now this is never done.[12] Treves[13] says surgical opinion has, in the last ten years, steadily come around to advise abdominal section at the very earliest moment. Dicken[14] tells us "first, be sure you have intussusception, then operate, and nine times out of ten you will be doing the best thing for your patient and for yourself." But what can we do before we operate? Eliot says it will do no harm to try to pass a catheter into the rectum to attempt to introduce it through the intussusception, if the situation of this is low, *as a preliminary to operation*. The statement of Pepper,[15] that the first step in the treatment of intussusception should consist in the administration of opium, is, in view of modern experience, bad advice. Valuable time is lost if any protracted attempts are made to reduce by intestinal inflation, either by gas or by fluid from below. Moynihan says, "the method is uncertain, deceptive, in that reduction may be apparently complete and in reality be only partial, and by no means devoid of risk. The tendency of surgeons is very properly to abandon it or to use it only in conjunction with an abdominal operation." Eliot says, "too frequently a partial reduction only is accompanied by a disappearance of the tumor and alleviation of the symptoms, and when subsequent operation becomes necessary the conditions are much less conducive to the ultimate recovery of the patient." Maurice Richardson[16] concludes that "results have been fatally compromised by efforts at reduction." The only fatal case the writer himself has seen was made fatal by these useless efforts. The testimony of one more writer, or that of Cheyne,[17] concludes the argument. He states that in intussusception it is better to proceed at once to do a laparotomy. When the strangulated portion of the intestine is gangrenous, the condition is serious indeed—the only feasible method is to excise the involved portion of the intestine. The treatment, of course, differs as to the pathological condition. Given an open belly and an existing intussusception, its reduction by expression instead of by traction should be performed. Next, some method should be taken to prevent recurrence. This is usually accomplished by passing Lembert sutures transversely to the axis of the gut from the intestine to the mesentery near the site of the trouble. Or the intestine may be sutured to the abdominal peritoneum (Dawbarn[18]). Should reduction be impossible, a resection, rather than an enterostomy, should be performed. The making of an artificial anus in these cases has been followed by about 100 per cent. mortality. All observers hold that the ideal method is to make an end-to-end anastomosis, and if the condition of the patient is not too serious and desperate, this should be done by suture rather than by the Murphy button or other mechanical devices.

In view of the writer's experience he would like to emphasize in closing the following points:

1. The great importance of supplying *heat* to an infant under one year of age while undergoing so serious an operation as a laparotomy.

2. The infant should be kept surrounded with hot water bottles all the time while on the operating table.

3. It is well, if the case is a nursling, to let it take the warm mother's milk as soon as it has come out from the anesthetic.

4. Regular nursing is the best heart stimulant it can receive.

5. When, as in the second case reported, there is profound shock with sepsis, the plan suggested by Murphy[19] for the treatment of general septic peritonitis of giving hot saline by slow, continuous rectal irrigation, is distinctly life-saving. Its effect in washing out the toxins and thereby raising the opsonic index[20] and of increasing the amount of urine secreted, of relieving thirst and changing the dry tongue and the whole septic face of the patient, is little short of magical.

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REFLECTIONS ON METHODS OF TEACHING MEDICINE.

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FOR a physician who received his medical education fifteen or twenty years ago to return and take a position in a college dispensary, there again to rub elbows with students, and to watch the course of study and methods of teaching, is certainly an experience rich in food for reflection.

During that absence vast changes have been wrought; the required time of study has been more than doubled; the subjects of study have been strictly indicated for each term, and a satisfactory examination is demanded of the student at the end of the year's work before he can proceed. Thus he has been prepared to take up his practical clinical work in the third year and brings to it a certain amount of knowledge and appreciation. Under the supervision of instructors in every department of clinical work, he sees patients and personally examines them, discusses the symptomatology, differential diagnosis, and treatment of disease, with the instructors, so that when he goes out at the end of his fourth year he has personally worked over a really astonishingly large amount of clinical material. To deny that he is vastly better fitted to take up the practice of his profession than was the new graduate of twenty years ago would be the sheerest folly and could only emanate from ignorance of the present status of medical teaching.

But with all the foregoing indisputable advantages, great as they are, and the ever striving on the part of all the leading teachers to increase still more the practical work in all departments, as an onlooker I have been strongly impressed by the fact that there has been so little improvement in the method of teaching. The scheme of teaching is much the same as it was twenty years ago, only more of it. There has been no simplification; nothing to make it easier for the student to understand, and to-day the result of the teaching is still to cram the student's brain with a mass of facts of the various subjects of study, and his examination is a feat of memory and not understanding. He has simply learned his medicine, but he has not been taught to think medically.

Is this or is this not a defect? The object of all education and study is to enable the student to think independently along the lines of study, and as the medical student studies to think and practise, not alone to practise, as so many do, medicine and surgery, to this end let him learn his physiology and understand it from the physician's standpoint, and not from the standpoint of the out-and-out physiologist; in other words not physiology—physiologically but medically; not anatomy—anatomically, but medically and surgically.

True, before a student can think and reason independently, he must learn a certain number of empirical truths—facts—as a starting point; and how to think is as much a part of the teacher's duties as the imparting of the single fact or group; for only thus is the intellect, not the memory alone, developed. If the student is asked to interpret a group of symptoms, he ransacks his memory for the name of the disease of which this group stands as symptomatic, but he does not seek to explain these disturbances of equilibrium by the light of his physiological knowledge which should guide him to the seat of the pathological process. He relies upon his memory, and not on his reasoning faculties.

Certainly we have some teachers who in their lectures and clinics make clear to the student how the symptomatology points to the seat of the physiological disturbance and then proceed to argue from the pathology to the *raison d'être* of its symptomatology. Alas! these teachers are the brilliant but small minority. Such teachers are apt to forget their time limit, and from the very profundity and versatility of their knowledge become engrossed with the many aspects and phases bearing upon the subject, discussing these at the lengths merited by their respective importance and pouring forth golden wisdom from their own ripe, rich, profound knowledge, only to be cut short by the bell sounding the end of the hour. They have read a lecture extremely interesting and highly instructive to experienced physicians, who regretfully sigh that it could not be finished, but it was a lecture clearly over the heads of the students.

This lack of correlation of teaching is not confined to the schools alone, but is also evident in our text-books. I know no text-book or system to which a student or practitioner can turn to find these explanations.

There is not a branch of medical education that cannot be made interesting and its study fascinating if it is taught by one gifted with the talent for teaching. Joseph Hyrtle succeeded in making anatomy so. Why? Because he had the God-given talent for teaching. Such teachers might shock those who slavishly hold to the old orthodox methods, for in many branches there would be a tearing down of old structures. Out of the old material, however, discarding many obsolete classifications and old pedantic descriptions, many qualifying terms that tend more to obscure than elucidate, there would rise a structure simple, compact, practical, and scientifically sound, appealing to the student's understanding and powers of logical reasoning, and not entirely dependent upon his memory. When so taught, there will be less tendency among students to sneak out immediately after roll-call. The teacher is largely responsible for his students' enthusiasm.

Profundity of knowledge in itself may become a handicap, even when it goes with the teaching talent; for unless its possessor knows how to limit himself much will be unfinished and much of importance untouched. In my own time I was taught physiology by a man who did not aspire to honors in that field, still he taught it well, holding himself to that which was known; he also filled out the anatomical course, the regular professor dying during the term, and he taught us anatomy according to the physician's and surgeon's needs, in such a manner as to win the enthusiastic approbation of the class, which they took occasion to display by the presentation of a testimonial. Some years later he was called to fill the chair of his chosen work, and it was a common complaint of his students that he gave so much upon each subject that much of the course was not covered. Such men should teach only to teachers. To this end alone it will not suffice that the incumbents of chairs be all that could be desired as to knowledge and talent. It is necessary that the subordinate teachers, lecturers, and instructors, be so gifted, because much of the student's time is spent with subordinates.

If such a plan as is here only roughly hinted at, which I believe feasible, were followed, we would have in our future physicians men who might have a better understanding of medicine, productive of more originality of thought, and in their daily work not chained to a pile of text-books. Those who for years have shaped medical teaching may consider all this presumptuous; but I have spoken only of defects and needs, many of which I, and others with whom I have discussed this subject, have felt. Let them not forget that I have spoken from the position of the onlooker, who often sees more of the game than the players themselves. I know, too, that it is so easy to criticise, but I have not done so without, at least in one branch, having a clear conception of improvements that can be wrought. It is not within the scope of this article to take up such matters: the subject is vast, its possibilities grow the more one gives it thought.

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CONCERNING PLAGUE.

PLAGUE, in many respects the most fearful and devastating of the diseases that occur nowadays, shows no signs of decline. In fact, in its home in the Far East, the ravages of bubonic plague are more widespread and fatal than ever before. Of course, in Asia there are certain endemic centers from which pandemics are derived, as the district of Yunnan in China, and the plague centers in Arabia and India. In China and in Asia, generally, plague has been particularly active since the year 1890. In India alone the total recorded deaths from plague during the past ten years have been considerably over 5,000,000, representing a mortality rate of one death in every sixty of the inhabitants of India. It is worthy of note that the death-rate during the later years in India has been very much greater than in the earlier, the deaths in the last five years and four months, according to official reports, having been over 4,500,000. One of the best known authorities on plague is Professor W. J. R. Simpson of King's College, London, he having gathered his knowledge from a wide experience of the Far East, as well as by careful study and investigation. Dr. Simpson delivered recently a series of lectures dealing with plague, in which he embodied the results of his stores of lore, and has thereby distinctly added to the literature of the disease.

In these lectures the disease in India is discussed somewhat exhaustively from many standpoints, and it is pointed out that, even when it is taken into consideration that India is an immense country with a vast population, the death-rate from plague is excessive, and that its continuance is a matter of the very greatest moment. Dr. Simpson states emphatically that the prevention of plague in India is the most important question for India and England at the present time, more especially for the reason that it is the sturdy peasants, the sowers and tillers of the soil, the producers, that are dying in such enormous numbers; and if these continue to die, the effect, as has been the case in all epidemics, will be a serious disorganization of the social and economic conditions of those parts of the country in which plague is epidemic, and will likewise affect gravely the state of the entire country.

However, the plague question in the Far East, viewed from a political and economic standpoint, has no direct interest for the medical profession of the United States. But the matter of its origin and spread is of the deepest concern to all civilized people, and perhaps in an intimate degree to the American people who have not yet forgotten the epidemic of plague in the old Chinese quarter of San Francisco which Mayor Schmitz tried so hard to conceal.

The modes of dissemination of plague are various. These are rats, clothes, human agency, and food. It is admitted now on all hands that, except in pneumonic cases, rats are the chief agents in the spread of the disease, although the manner in which the infection is transferred from the rat to man is still a matter for debate. As Dr. Simpson says: "There are two views, and the upholders of each have a tendency to claim that theirs is the only way. The more that is learnt of plague the more it is evident that there is no only way." Dr. Ashburton Thompson of Sydney, who has had exceptional opportunities of studying plague in that port, came to the conclusion that Simond's theory that the flea on the rat, leaving the rat dead from plague, and then biting man, transfers plague from the rat to man, explained the phenomena connected with plague. Dr. Simpson, after a careful sifting of all the evidence for and against this theory, has reached the opinion that it is doubtful whether the flea theory will account for more than a certain percentage of the fatal bubonic cases, which may vary in different circumstances in different localities.

The writer leans more to the theory that the ingestion of food contaminated with the plague virus is the cause of septicemic cases of plague. Dr. Klein has demonstrated beyond the shadow of a doubt that the plague bacilli taken in contaminated food multiply while the food is in the intestines, enter through the lymph channels or lacteals of the intestines, and invade the blood in swarms. Dr. Simpson thus thinks that, while rats are the principal agents conveying plague, food and not fleas is the more usual medium by which the disease is transferred to man.

The lecturer dealt at length with the various ways of treating plague, but that is at present, and we hope always will be, a matter of comparatively slight interest to medical men in this country.

THE BEARING OF ANAPHYLAXIS ON THE ANTITOXIN TREATMENT OF DIPHTHERIA.

WHEN we take into consideration the immense number of cases in which the antitoxin treatment of diphtheria has been employed in the past twelve or thirteen years, the number of fatalities which have been rightly or wrongly charged to its account is almost infinitesimal; it is certainly negligible as an argument against the specific treatment of first attacks of this former scourge of childhood. Recent discoveries regarding the phenomenon of serum anaphylaxis, however, contain the suggestion that there may be a real, though probably remote, danger in this therapeutic measure when resorted to in subsequent attacks of the disease.

The term anaphylaxis is used to designate the increased susceptibility to a poison exhibited by an animal which has survived a non-fatal dose of the same substance; it is thus the opposite of immunity, or increased resistance to a toxic substance following its exhibition in small doses. Attention was first drawn to this phenomenon by Richet, Rosenau

and Anderson, Theobald Smith, and Otto. The reaction is described by Gay and Southard (*Journal of Medical Research*, May, 1907) as follows: "The injection of any convenient amount of horse serum subcutaneously or intraperitoneally in normal guinea-pigs produces no ill effect. If, however, guinea-pigs are given a very small dose of horse serum, *e.g.* .0001 to .1 cubic centimeter, and ten days or two weeks are allowed to elapse, a second injection of a relatively large amount, *e.g.* five cubic centimeters, will cause violent and characteristic symptoms, followed almost invariably by death within the hour."

The possible significance of this discovery in respect of the antitoxin treatment of diphtheria was early emphasized by the fact that the phenomenon was first noted in guinea-pigs which had survived the injection of a diphtheria toxin-antitoxin mixture, and later received a large dose of simple horse serum. The fatal reaction was shown not to be due to the diphtheria toxin, but to the "anaphylactic" influence of the horse serum containing the antitoxin. In the early experiments it was noted that a very small initial dose of serum sufficed to cause an increased susceptibility after an incubation period of ten to fifteen days, but that a large dose seemed to immunize. Gay and Southard found, however, that a single large initial dose equally causes sensitivity, but only after a longer period of incubation. It was this longer period of incubation that misled the earlier observers.

The anaphylactic action of normal sera occurs, however, according to Pfeiffer, only in case the sera are hemolytic for the injected animal, hence those animals which are resistant to the toxic action of horse serum are unaffected by subsequent injections, no anaphylaxis having occurred. Whether horse serum is hemolytic for man is a question which appears not to be definitely settled. Rosenau asserts that it is; others deny this. The importance of determining the point definitely is evident, for it is toxic for man, a resort to antitoxin injections in a second attack of diphtheria might be fraught with untoward consequences. Another point which calls for exact determination, in case horse serum is hemolytic for man, is the dose necessary to produce toxic effects. It is possible that the small amount of serum in the ordinary dose of antitoxin might have no serious consequences in spite of the anaphylactic action of the former dose. But we are playing with fire here, and it is well to be sure of our ground before giving antitoxin recklessly in second attacks of diphtheria.

BLOOD INJECTIONS IN CANCER.

Professor August Bier, until recently of the University of Bonn, but now of Berlin, whose originality of thought has already enriched our therapeutic resources in numerous directions, publishes in the *Deutsche medizinische Wochenschrift*, July 18, some interesting observations in regard to the effect of injecting sterile defibrinated heterologous blood into the human being. The two varieties of blood experimented with were taken from the lamb and the pig, and it was found that the latter was more active in effect than the former. If 10 to 20 c.c. of pig's blood are injected under aseptic precautions into the human subcutaneous or other tissues, there occurs regularly at the site of injection an inflammatory process that reaches its acme in from one to three days, and then gradually subsides. This is accompanied by a slight elevation of temperature that is sometimes preceded by sensations of chilliness. Through the hemolytic properties acquired after the first injection, repetitions of the procedure are apt to be followed by an increase in the intensity of the reaction, and by graduating the doses the effect can be controlled with considerable accuracy.

Bier was originally led to conduct these observations with a view to investigating the relationship between inflammation and fever, but incidentally he tested the effect of the procedure in cases of malignant new growths. The heterologous blood appears to have no appreciable solvent effect on normal tissues, but pathological structures, notably carcinomatous masses, are profoundly modified. In ulcerative carcinomas the secretion and suppuration are nearly always checked and active destruction of the abnormal cells takes place. Two cases of inoperable carcinoma treated in this way are reported in detail. In one of these a species of strangulation of the cancer cells was caused through the violent inflammatory reaction with the formation of new connective tissue, and in the other a massive dry necrosis of the tumor mass took place. Bier does not as yet venture to predict whether the method will be found of actual use in the treatment of malignant tumors, but the results obtained are certainly striking when considered from the standpoint of the fermentative action on new growths that has been observed by Leyden and Bergel, who used liver extracts, as well as by the workers with pancreatic products. The word of caution uttered by Bier in regard to indiscriminate attempts to apply the method before its possible dangers have been more fully ascertained would seem to be well founded, however.

The Nutritive Value of Cocoa.

Cocoa is rich in food stuffs compared to other drinks in the same category, such as coffee and tea, the powdered form on the market containing from 20 per cent. to 25 per cent. proteids and from 12 per cent. to 35 per cent. fats, besides small amounts of carbohydrates, water, tannic acid, and theobromine. Its value as a food depends upon the extent to which the proteids and fats contained in it are utilized by the body. Under the direction of von Leyden, L. Pincussohn (*Zeitschrift für klinische Medizin*, Vol. 63, 1907) carried on a series of experiments on dogs and human beings to show how much of these substances was absorbed. He first established a nitrogenous equilibrium by giving a woman a mixed diet of bread, meat, vegetables, milk, and butter, about 1,650 grams in all per day, so that the total quantity of nitrogen eliminated was equal to the nitrogen ingested, the body weight remaining the same. The ordinary methods for studying the metabolism of proteids were used, the nitrogen of the urine and feces only being considered, the nitrogen in the former being a measure of the extent of the metabolism of the proteids in the body, while that in the feces was the measure of the nonabsorbed part of the nitrogen of the food. By estimating the fats in the feces he ascertained how much of them was not

utilized. On the above diet he usually found that 94 per cent. of the proteids and 99 per cent. of the fats were absorbed. When thirty-five grams of the food were supplanted by thirty-five grams of cocoa (equivalent to six cups), so that the amounts of ingested fats and proteids were the same as when the person received the mixed diet without cocoa, he found that only about 85 per cent. to 90 per cent. of the proteids were utilized, while the fats remained within physiological bounds, usually being well absorbed. The percentage of proteids utilized varied with the mode of preparation of the cocoa. As a rule, the bean is first treated with steam or some alkali, as potassium carbonate. The resulting cocoa mass, which contains 50 per cent. fat, is then put through various processes until a fine powder containing from 12 per cent. to 35 per cent. fat is obtained. Pincussohn found that the percentage of proteids utilized, while always smaller with the diet including cocoa than with the mixed diet alone, was smallest when cocoa containing a high percentage of fat was used, and when it was prepared with a high percentage of potassium carbonate, or without any, small amounts of the latter seeming to be essential. Finely powdered cocoa was better utilized than the coarse powder. The mode of preparation had little effect on the absorption of fats. Cocoa is not likely to be taken in larger quantities than six cups a day, so that it cannot form the whole, or even the greater part of the daily nourishment. Small amounts are well utilized, though not quite so well as are other foods containing practically the same percentage of proteids and fats.

The Use of the Roentgen Rays in Gastric Diagnosis.

The technique of the radiographic examination of the alimentary canal has now reached a degree of development which renders the method one of undoubted value in the diagnosis of the oftentimes obscure disorders of the digestive system. By means of the administration of semisolid foods, such as mashed potato, mingled with considerable amounts of one of the salts of bismuth, it is possible to obtain radiographic pictures conveying much supplemental or at least corroborative information regarding the conformation, position, and motility of the esophagus, stomach, and intestine, and by enclosing portions of bismuth in little bags of goldbeater's skin, which is digested in a normally acting stomach, ocular evidence of the functional activity of that organ may be obtained. Some clinicians have even succeeded in demonstrating the presence of gastric ulceration by administering bismuth in small amounts of fluid. The patient assumes various positions in order to coat the interior of the stomach as thoroughly as possible with the mixture, and some hours later the stomach is examined by means of the fluoroscope in the hope that after the exit of most of the substance into the intestine any existing ulcerating areas will still be coated with it, as it has a greater tendency to adhere to raw surfaces than to the uninjured mucous membrane. It is true that the radiographic methods are rather complicated, but their application is becoming more and more frequent in nearly all branches of medical diagnosis, and, as is pointed out by Jollasse in the *Münchener medizinische Wochenschrift*, July 16, 1907, the procedure may be regarded as almost indispensable in cases of gastric disorders in which it is inexpedient to introduce instruments into the stomach.

The Bacteriological Diagnosis of Typhoid Fever.

At the time when the intestine was considered the chief seat of the Eberth bacillus, the bacteriological diagnosis of typhoid fever was confined to the examination of the stools, and the methods used were troublesome and often unsuccessful. Castellani and Schottmüller were the first to make systematic blood cultures and to get almost constant positive results. The former removed twenty cubic centimeters of blood from a vein and added it to nine hundred cubic centimeters of bouillon, which was placed in three flasks. After twenty hours the sedimented blood looked dark, while the supernatant bouillon looked cloudy; one cubic centimeter of this culture yielded a pure typhoid growth in eight hours on Dregalsky-agar. This method proved to be the most satisfactory of those used during the past two years in von Leyden's wards, and it can easily be carried out in private practice. In the *Zeitschrift für klinische Medizin*, Vol. 63, 1907, F. Meyer publishes the results of twenty-four such bacteriological examinations, all but one of which gave positive results. In two of his patients the temperature was never any higher than 100.6° F., nor did they show any typical clinical symptoms, and in such cases, especially, the importance of an early diagnosis, from both a hygienic and a therapeutic point of view, is evident. The finding of the typhoid bacilli in the blood explains their presence in the kidneys, spleen, and other organs, and directs the therapy in a more successful direction, *i.e.* by means of serum. We may conclude from Meyer's results, and in view of the fact that patients suffering from typhoid fever frequently display but few clinical symptoms, that a blood culture should be taken in every typhoid suspect, and that a positive Widal reaction should not be waited for before a diagnosis of typhoid fever is made, especially as the former is positive early, while the latter at times does not occur until convalescence has set in. Blood examinations are therefore an important advance in the early diagnosis of typhoid fever, and by means of them a beginning epidemic may often be detected and possibly averted.

News of the Week.

Yellow Fever in Cuba.—Ten cases of yellow fever with one death are reported as having occurred among the soldiers at Cienfuegos. The patients are men belonging to the Hospital Corps, and only one case has occurred among the troops forming the garrison. It is therefore thought that the infection occurred within the hospital, which is in the same building as the Civil Hospital.

Degree of LL. D. Conferred on Dr. Carroll.—In conferring this degree upon Dr. James Carroll, Chancellor Andrews of the University of Nebraska addressed the candidate as follows: "James Carroll, doctor of medicine, major, and surgeon in the army of the United States, scholar, writer, teacher, and inspirer of youth, professor in the George Washington University, citizen of upright life, patriot, investigator, critical connoisseur of biological science, philanthropist, demonstrating for the behoof of science and humanity at the foreseen risk, the actual shortening, and the almost loss of life, the true cause of yellow fever, and for this sublime deed, standing before mankind as its most meritorious benefactor now alive, in whose presence the race should bow with bared heads. On you, in recognition of such virtues, attainments, and immortal but

unremunerable services, I do, by order of the Regents of the University of Nebraska, and in accordance with law, confer the highest academic honor granted in America, the degree of Doctor of Laws. In token whereof is given this diploma."

Illness of Dr. Markoe.—The friends of Dr. Francis H. Markoe and all his professional colleagues have been saddened by the announcement that he is critically ill. He is suffering from aneurysm of the aorta, which has compelled him to give up work and has, for the past two weeks, confined him to the bed.

Plans for New Medical Building at McGill.—Plans for a new building for the medical school of McGill University have been accepted by the Board of Governors, and it is expected that the work of construction will commence without delay. The new building will be erected on Pine avenue, opposite the Royal Victoria Hospital, and is to consist of a central block facing the campus and connected at either side with pavilions running parallel with University street and Carleton road. The cost is estimated at $500,000, not more than half of which sum is available as the result of the insurance on the old building which was burned a few months ago.

Robert Burns Hospital (Chicago).—Dr. Alex. A. Whamond and other west side physicians have purchased the property formerly occupied by the Finsen Light Institute, and have equipped the building as a general hospital, which was formally opened on July 15, with a reception. The new hospital is to be called the Robert Burns Hospital.

Memorial Hospital.—The Fernand Henrotin Memorial Hospital of Chicago is nearing completion, the faculty and directors having made an inspection of it. The formal opening will occur late in August or the first part of September.

New Jewish Hospital.—Plans have been filed for remodeling the two old-fashioned three-story and basement dwellings at 138 and 140 Second street into a hospital for the recently organized Jewish hospital, which is to be known as the Mount Moriah Hospital. It will be well equipped for both laboratory and general work. The necessary changes are to cost $10,000.

Tent Centers in Tenement Districts of Chicago.—The work of establishing tent centers in the congested districts of Chicago has been begun by the Chicago Relief and Aid Society. In these places the children may play without danger of being overcome by the heat. Each day volunteer physicians talk to the mothers on the proper care of children during the summer weather.

Advertising Medical Corporations.—The lay president of a so-called dermatological institute in this city was arrested last week at the instance of the Public Health Defense League, charged with violating a section of the laws of 1907, which provides that any person not a registered physician who shall advertise to practise medicine shall be guilty of a misdemeanor. Another part of the section under which the arrest was caused provides that no one can conduct a medical practice under the name of another, and in this case the originator of the institution under whose name it is still conducted has withdrawn from it and is in business elsewhere. It is stated that the principle involved is a very broad one, applying also to the legal profession, and that if the action is successful it will have an adverse effect on title guarantee companies, trust companies, etc., that undertake to act as attorneys.

Dirty Milk Cans.—Under a provision of the pure milk law, which went into effect in July, the officials of the Bureau of Dairy Products of the State Agricultural Department have called to account fifty milk dealers and large users of milk in this city for sending to the freight depot of the New York Central Railroad on a single night of last week more than fifty loads of dirty milk cans. The dairymen have long complained of the condition in which their cans were returned to them, and the new law requires the users to clean the cans before sending them back. A penalty and seizure of the can may be enforced by the Department.

Food Preservatives.—State Commissioner of Health Porter announces that the analysis of food products to determine whether preservatives are used, which has been conducted by the department for two months past, has shown that conditions are improving. The department made chemical examinations of canned meats and bottled beer, and fourteen samples of various kinds of canned meats examined in June were found to contain boron preservatives. In July samples of as many of these same fourteen brands as the department could find on sale were again submitted to chemical tests, and of nine that were purchased but one showed the presence of a boron preservative. Out of twenty-five samples of bottled beer two contained salicylic acid, several contained fluoric acid, and three or four showed the presence of sulphites.

Motoring and the Tuberculoopsonic Index.—According to the *Medical Press,* the tuberculoopsonic index of the gentleman who recently established a marvelous record in a twenty-four-hour endurance run in a motor car was found to have increased from 0.85 before the feat to 1.17 directly after its termination. It is suggested that an automobile is a more agreeable, if more expensive, prescription for a consumptive than codliver oil.

Opium Dens in Canton Closed.—In accordance with the recently issued imperial decree, all the opium dens in Canton were closed by the authorities on August 9. The closure was effected without disturbance, and is said to have caused general rejoicing, the streets being decorated and traversed by approving processions.

Alcohol and Prescriptions.—Forty of the druggists of Topeka, Kansas, have been examined by the County Attorney, and several of the number have admitted that their chief revenue was derived from the sale of liquors. One druggist said that in the month of July 94 per cent. of his receipts came from his traffic in liquors, amounting to more than $1,400. His prescription business for the month amounted to $4.50.

Gift to King Edward's Hospital Fund.—Andrew Carnegie has given $500,000 to King Edward's Hospital Fund. The money has been given unconditionally, but with the suggestion that reforms be instituted in the management of the fund, which it is often alleged is not administered in very economical fashion. Mr. Carnegie's gift is the second largest individual donation ever made to the fund since it was founded in 1897, the largest having been that of Sam Lewis, the money lender, who bequeathed $1,250,000 to the fund.

Cholera Feared in Russia.—The cholera situation is not improving in Russia, and it is officially announced that the provinces of Astrakhan, Saratoff, Simbirsk, Ufa, Kazan, and Nizhni-Novgorod are threatened with an outbreak of the disease.

American Public Health Association.—The thirty-fifth annual meeting of this organization will be held in Atlantic City, N. J., September 30 to October 4, 1907. The following topics have been

selected by the program committee for discussion: Milk; laboratory findings in diphtheria; immigration in its relation to public health; what nuisances should be abated by the Board of Health; control of the so-called minor infectious diseases; vital statistics and the value thereof; the construction and care of streets from a health standpoint. The president of the association is Dr. Domingo Orvananos, Mexico City, Mexico, and the secretary is Dr. Charles O. Probst, Columbus, O.

Seventh Annual Conference of State Sanitary Officers.—The next conference of the Sanitary Officers of this State will be held in Convention Hall, Buffalo, October 16, 17, and 18. In connection with the conference, and during the whole of that week, there will be held the first demonstration of the department's traveling tuberculosis exhibition. Every municipality and every institution or society which is carrying on antituberculosis work in any part of the State is invited to contribute photographs, charts, and tables showing the operations, results, statistics, and methods of work to this exhibition in order that the State Department of Health's exhibition may be complete. In addition there will be shown a series of models of slow and rapid sand filters and of a septic tank and contact beds. There will also be on exhibition a series of charts and tables showing the incidence of typhoid fever in the different municipalities in the State; maps showing the water sheds of the State, and similar illustrative material. The State Hygienic Laboratory will have its traveling laboratory outfit and other outfits, apparatus, etc., on view.

Medical Society of the Missouri Valley.—The twentieth annual meeting of this association will be held in the city of Council Bluffs, on September 5 and 6, under the presidency of Dr. O. Beverly Campbell of St. Joseph. Invitations to be present have been extended to the presidents of the various State associations within the province of this society, as well as to other distinguished men in the profession. The secretary of the society is Dr. Chas. Wood Fasset of St. Joseph, and Dr. Donald Macrae of Council Bluffs is chairman of the committee of arrangements.

Obituary Notes.—Dr. Wm. Thomson, emeritus professor of ophthalmology in Jefferson Medical College, died at Philadelphia on August 3, at the age of seventy-four years. He was graduated from Jefferson Medical College in the class of 1855, and on the breaking out of the Civil War he was made a surgeon in the United States Army, being on active duty with the Army of the Potomac before the battle of Bull Run. Subsequently he had charge of general hospitals at Alexandria, Va., and Portsmouth. In 1863 he was made surgeon of the Charles Douglas Hospital at Washington and, in 1864, Medical Inspector of the Department with 23,610 beds under his direct supervision. In conjunction with the late Dr. William F. Norris, he made a study of photography in its applications to surgery, and as a result of this work a photographic bureau was established by the Surgeon-General of the Army. On his return to civil life, Dr. Thomson took up the work of ophthalmic surgery as a specialty, and made a study of color blindness among the employees of the Pennsylvania Railroad, by means of which he was able to show that many accidents were attributable to this defect. He was many years ago made clinical professor of ophthalmology in Jefferson Medical College, and was subsequently elected professor of ophthalmology, and finally emeritus professor. Since 1868 he has been more or less actively connected with Wills Eye Hospital.

Dr. Leonard S. Taylor of Elgin, Ill., died on August 6, at the age of forty years. Some weeks previously he had infected himself by a needle prick at an operation in a septic case, and he succumbed to the resulting septicemia.

Dr. George H. Stanley of Pawtucket, R. I., died on July 30, at the age of sixty-one years. He was born in Dixfield, Me., and received his medical degree from Harvard in the class of 1870. He had practised in Pawtucket for about thirty-five years, and for a time held the office of City Physician.

Dr. Sophia Hall of Council Bluffs, Neb., died on July 27 of old age, in her eighty-fifth year. She was born at Watertown, N. Y., and was graduated from the medical department of the University of Michigan after reaching the age of fifty years. She was once resident physician of the South Framington, Mass., Reformatory prison, and for four years was superintendent of the Council Bluffs W. C. A. Hospital. She retired from practice about fifteen years ago.

Dr. James F. Canavan, assistant physician on the staff of the Northern Michigan Asylum, died at Traverse City, Mich., on July 27, at the age of thirty-one years. He was graduated from the University of Michigan eight years ago.

Dr. George W. Gilfillan of Mount Pleasant, Ia., died on August 3, at the age of seventy-two years, after a long illness. He had practised for many years at Milton, Ia., and had been a resident of Mt. Pleasant for about three years.

Dr. J. S. Deziel of Barre, Vt., died suddenly on July 31, at the age of forty-one years. He was born in Montreal and was graduated from Laval University in that city in 1893. A year later he began practice in Barre.

Dr. Thomas B. Brown of Gallatin, Tenn., died on July 30, at the age of thirty-two years, after an illness of two weeks. He was a native of Gallatin, and received his medical education at Vanderbilt University. He had practised in Gallatin since the time of his graduation a few years ago.

Dr. Lucien Banks died at Mifflintown, Pa., on August 3, at the age of sixty-six years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1867. He was for a time a member of the State Legislature.

Dr. Orlando S. Reynolds of Cumberland, Md., died on July 26 of typhoid fever at the home of his father, Judge Francis M. Reynolds, at Keyser, W. Va., at the age of twenty-eight years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1902. He served a term as interne in the Episcopal Hospital of Philadelphia.

Suicide of Animals.—It has often been alleged that animals at times commit suicide, and their suspicious behavior when captured is cited as evidence of this statement. Experiments have proved the fallacy of this view, however, notably those carried out some years ago by Dr. E. Ray Lankester, director of the Natural History Department of the British Museum, and Professor Bourne of Madras. Scorpions were confined in an extremely hot place, from which escape was impossible, and their frantic gymnastics were carefully studied. As in the case of the tortured rattlesnake biting its own body, the action of the scorpion in an apparent attempt to put an end to its sufferings by stinging its head was purely muscular, and Dr. Lankester himself compared the action to the biting the dust attributed to men who die in hand-to-hand struggles, or to the biting of their own hand or arm by children in a paroxysm of anger.

Correspondence.

PRIMARY TYPHLITIS (CECITIS) WITHOUT PERITYPHLITIS (APPENDICITIS).

To the Editor of the Medical Record:

Sir:—In the July 27, 1907, issue of the Medical Record one might gather from Dr. Beverley Robinson's letter that he was a prior authority in advocating the view that primary typhlitis (cecitis) could exist without perityphlitis (appendicitis). If the writer of that letter will turn to my article, "Observations on the Peritoneum in Twenty-five Autopsies," in the *American Journal of Obstetrics* for February, 1895, he will observe the same views published by me twelve years ago. In that article he may read the following sentences: "All the peritoneal adhesions in the cecoappendicular region are not due to the appendix." "Similar adhesions are as frequently found under the sigmoid flexures." "The chief peritoneal adhesions occur on both sides of the psoas and iliac muscles." "These peritoneal adhesions are due to the irritation produced by the contraction and relaxation of the psoas and iliac muscles." "The cecum is frequently surrounded with adhesions, while the appendix is absolutely free." "In the 80 per cent. of adhesions found about the cecoappendicular region, about 55 per cent. were cecal and 25 per cent. appendicular." In 1894 I demonstrated that the peritoneal adhesions found in the right—ileocecoappendicular region (7 per cent.), and in the left—mesosigmoid and sigmoid (80 per cent.) were due to trauma of the psoas muscles. In April, 1901, in the *Annals of Surgery*, I published an article on perivisceral peritoneal adhesions in the right and left iliac fossæ, detailing findings in 300 male and 118 female autopsies. Several hundred further autopsies have confirmed my views that typhlitis and perityphlitis can coexist or exist independently of each other. Hence, twelve years ago, I suggested ample evidence of typhlitis to distract attention from the "overburdened attention to the appendix." For almost a decade these views—that trauma by the psoas muscles produces perivisceral peritoneal adhesions in the bilateral iliac fossæ—remained practically dormant, *i.e.* safe in the medical archives and safe from the eyes of physicians. From more specialized study in the right iliac region, observers were compelled to recognize the above facts in regard to typhlitic peritoneal adhesions, entirely separate and independent from the periappendicular peritoneal adhesions. It is evident that pericecal adhesions (peritoneal or cellular) and periappendicular adhesions (peritoneal or cellular) originate from within the intestinal canal, *i.e.* the etiology of the perintestinal (pericolic or periiliac) adhesions is the transmission of pathogenic germs from the endointestine. In other words, the trauma of the psoas muscle during colitis produces perityphlitis (pericecitis), perityphlitis (periappendicitis), and perisigmoiditis. Pericecal adhesions and periappendicular adhesions are common observations in autopsy, and may coexist or exist absolutely separate, or either may exist without the other. I can assert this from personal autopsical abdominal inspection in some seven hundred subjects in the past fifteen years. I have observed symptoms of perityphlitis of pronounced type subsequent to appendectomy, which were evidently from endocolitis, resulting from typhlitis or resulting in typhlitis (cecitis). I believe scores of appendices are removed merely for typhlitis. It is high time that the "pathological clearing-house" should inform the on-making-a-diagnosis-of-appendicitis-operate physician that there is more typhlitis than perityphlitis. The appendix cannot and must not be made the scapegoat for every "bellyache." When the surgeon boasts of removing a dozen appendices in a single day is this similar to animal castration—prophylaxis? Every physician who respects medical science must learn by slow degrees that pericolitis (cecitis, colitis hepatica flexura, colitis lienalis flexura, colitis flexura sigmoidea, colitis rectalis) is a prevalent disease, existing perhaps in at least 90 per cent of adults. Pericolitis arises from endocolitis, exactly as perityphlitis from endotyphlitis, exactly as perisalpingitis arises from endosalpingitis. The appendix is suffering from surgical brain storms, from scalpel storms, from commercial storms, and time, with honest surgery, will demonstrate that the appendix presents but a fraction of colonic disease which may induce similar symptoms to that of perityphlitis (appendicitis).

Byron Robinson, M.D.

Chicago

Dr. F. S. Fielder of 1 West Eighty-first street, New York, writes that the position of assistant physician in a dispensary for treatment of diseases of children is vacant, and candidates for the place are requested to communicate with him.

OUR LONDON LETTER.

(From Our Special Correspondent)

ST. BARTHOLOMEW'S NEW BUILDINGS—LIVERPOOL TROPICAL SCHOOL—NEWS OF THE FOURTH EXPEDITION OF THE LONDON TROPICAL SCHOOL—THERAPEUTICAL SOCIETY—MAITLAND SANATORIUM—PURE MILK AT LEEDS—OBITUARY.

London, July 20, 1907.

The Prince of Wales, who was accompanied by the Princess, went into the city on Tuesday afternoon and opened the new casualty and out-patients' department of St. Bartholomew's Hospital. The new buildings occupy an area of 42,000 superficial feet, with a frontage on Gilliopur street of 163 feet. It is hoped the new block is not only sufficient for present needs, but capable of adaptation for the future requirements of medical science. Its cost has reached £130,000. It is six stories in height. On the ground floor the waiting hall is 140 by 48 feet and calculated to accommodate 850 patients. Around this hall are twenty-one consulting rooms and two small operating rooms. The ventilation here is on the plenum system and the air, it is reckoned, will be changed ten times an hour. Above are separate medical, surgical and eight special departments, each complete and self-contained. At the top is a lecture theatre opening onto the roof. Lifts, eleven in number, provide for access of patients, etc., to all parts. A good deal of fire-resisting material has been employed in the building and it is lighted by electricity.

The Prince, who is president of the hospital, was presented with an address recalling the fact that, founded in the reign of Henry I., the hospital received important privileges from Edward II., the first sovereign who had been called Prince of Wales, and that out-patients' service began under William III. The Prince, in reply, said he was glad to come with the Princess and to note how, from the earliest days, British sovereigns and their families had been associated with St. Bartholomew's, and he was proud to think that the presidency so long held by his father was, on his accession, continued to himself. He then declared the building opened in the usual way and the Princess, having assented to be made a governor, the "charge" was read over to her in the ancient form and a "governor's staff" handed to her. Their Royal Highnesses were then conducted over the buildings.

Liverpool is still keeping her Tropical School to the fore. On the 15th inst. the president, Sir Alfred Jones, presided at a farewell dinner to Dr. Barrett, Dr. Yorke, and Dr. J. L. Todd. The two former are going out to Africa, the last is returning to Canada. Sir R. Boyce said Dr. Todd was the finest specimen of an imperial student. He came from Canada and devoted his time and talents to tropical medicine. He also contributed some £200 a year to advance research on the subject, chiefly towards the foundation of the Runcorn Institution, in which the finest scientific work had been done and which he hoped would be permanently united to the Liverpool school. Dr. Todd, in his reply, mentioned that due honor had not yet been done to Dr. Dutton, who gave his life for the work and in memory of whom a professorship had been proposed, but only one-fourth of the necessary fund had been subscribed.

The American Consul proposed "the study of tropical medicine," a toast which was honored with enthusiasm.

To-day comes gratifying news from the fourth expedition of the Liverpool school sent to Africa to study trypanosomiasis last May. It is in the shape of a telegram to Sir A. Jones, announcing satisfactory progress. This expedition reached Kalomo on June 10 and was received by the Administrator, who gave the members every facility for their work and entertained them hospitably. It is intended that one of them, Dr. Kinghorn, shall proceed to Fort Jameson, starting at the close of this month. The other, Mr. Montgomery, will go westwards to the river Kafue, up that stream towards the Congo, and then strike across country to meet Dr. Kinghorn on the river Luapala about November, traversing all the time the territory infested by the tsetse fly. The object is to study sleeping sickness on the spot, the prevention of its spread to districts not yet infested by the fly, the distribution of biting insects and animal diseases caused thereby.

As an addendum to the foregoing I may mention what took place this day week at the London Tropical School. The portrait of the Hon. Bomanji Petit of Bombay was unveiled before a distinguished audience of Parsees, the staff of the school and others. Mr. Petit was the donor a few years ago of £7,000, and Sir P. Manson, in a speech, said but for this the school would have been greatly cramped. He also regretted that London citizens had been so backward to support the work and contrasted their lack of patriotism with the liberality of Liverpool towards its tropical school. Mr. D. Petit, the son of the donor, said his father's greatest reason for the gift was

that one of the objects of the school was the betterment of the suffering multitudes of India, and such a result would be his greatest reward.

The Therapeutical Society celebrated its transformation into a section of the Royal Society of Medicine in a manner as serious as that which has characterized its career. Nothing less than a trip to Oxford was arranged. Sir Thiselton Dyer received the members who made the excursion at Queen's College and conducted them to the Museum, where Prof. Osler showed the library and took them on to the laboratories. Prof. Gotch explained his recent researches on the heart and a method of immediately determining the point of near vision in anyone by the different focal lengths of the red and violet rays. Prof. Ramsden showed experiments on the separation of solids in solutions and suspensions. Prof. Thomson and Dr. Gibson exhibited anatomical and pathological things of interest. Lunch in Queen's College, a garden party at Dr. Osler's, and, of course, a dinner in the evening, completed a very full day's program greatly enjoyed by many.

The Maitland College Sanatorium for consumptive workers was started in 1899 and affords accommodation for twenty-five patients.

At Leeds a voluntary society established a year ago a depot for supplying pure milk, as the Corporation had no power to do so. But the Health Officer has made a report on the working. He concludes that, making allowance for the mortality of the first week of life and for those born moribund, there has been a saving of life of 25 per cent. among the children using the society's milk, as compared with those living in the same district at the same ages and during the same seasons, fed otherwise. The experiment was on a small scale, but as far as it went was more successful than he could have anticipated.

It is only a year ago that belated honors were awarded to Sir W. H. Perkin, F.R.S., the discoverer of aniline dyes, and whose other contributions to chemical science brought him such fame throughout the world but so slight recognition at home. He died on July 14, after a brief illness. A month ago Oxford conferred on him her D.C.L.

Another eminent chemist died on the 15th of July—August Dupré, Ph.D. He was for many years lecturer on chemistry at the Westminster Hospital, was a great authority on water analysis, and had been employed by the Government in reference to explosives and other subjects.

Dr. Lloyd Owen, Consulting Surgeon to the Royal Portsmouth Hospital, was born in that town in 1845 and died on July 4th last. He was a graduate in arts and medicine of Trinity College, Dublin, B.A., M.B., and M.R.C.S., all in 1866. He was for a time settled at York, but in 1870 returned to his native town and some years later was elected on the hospital staff, on which he served for about thirty-five years. He was greatly esteemed by his brethren.

Dr. J. S. Stocker, who died on the 18th, was born in 1826, qualified in 1849, took M.B., London, with honors in medicine and surgery in 1851, and proceeded to M.D. in 1853. He had been on the staff of Samaritan Free Hospital and held other appointments. He was for several years Examiner to Apothecaries Society and also a member of the Court, and became in due course Warden and Master.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

MARMORECK'S SERUM—A TUBERCULOSIS REACTION—THE GERMAN SOCIETY FOR THE PREVENTION OF TUBERCULOSIS—CHANGES IN PROFESSORIAL POSITIONS—NECROLOGY.

BERLIN, June 25, 1907.

At a recent meeting of the Berlin Medical Society a very interesting paper was read by Marmoreck of Paris on the subject of recent work in tuberculosis. His investigations were founded on the discovery of bacilli of little virulence in the blood of tuberculous guinea-pigs, and the fact that these bacilli did not induce any lesions, or only very mild ones, when introduced into the bodies of healthy animals. By making use of attenuated tubercle bacilli, Marmoreck succeeded in showing that guinea-pigs exhibit a hereditary disposition to the disease in cases in which the mother suffered from advanced tuberculosis at the time of birth. In predisposed animals it was chiefly the lungs that were affected. In pulmonary tuberculosis the degree of infection depends on the virulence of the bacilli and the powers of resistance of the body. This was shown by experiments in which the bacilli had been reduced in virulence by quinine, or had been reactivated again by injections of tuberculin. Marmoreck demonstrated an antituberculosis serum which enabled him to prevent the development of the disease in experiment animals. Its action is most effective when it is injected intravenously. It is difficult to estimate the effectiveness of the serum for human use, because of the increased susceptibility to serum albumin that usually develops during the third week of use. To obviate this the serum may be given per rectum, or three weeks of rest may intervene between three-week courses of injections of ten treatments each. Good results have been obtained by means of the serum in cases of surgical tuberculosis, but in pulmonary tuberculosis it has not been so satisfactory, owing to the fact that mixed infections are often present.

Another guest who spoke at the same session was Pirquet of Vienna, who described an early reaction in tuberculosis. He began by calling attention to the fact that at the second smallpox vaccination a local reaction appears within twenty-four hours, which is not observed at first vaccinations. The same thing is true of tuberculin injections. On inoculating tuberculous children with tuberculin it was found that red papules appeared at the site of inoculation. Observations on 500 children showed that the reaction had diagnostic value only when the children were not more than a year old. It is not seen in children suffering from tuberculous meningitis, or miliary tuberculosis. The fact that older children and grown persons usually give the reaction is evidence that in these cases tuberculosis has been, or is, present.

In the course of the animated discussion that followed, Neumann reported no results in eighteen cases of surgical tuberculosis treated with Marmoreck's serum; Sonnenburg said he had had some good results, and Landau spoke of improvement in two cases of genital tuberculosis in women. Hoffa had seen improvement follow the rectal administration of the serum in bone and joint tuberculosis, in conjunction with surgical treatment. A. Meyer reported unfavorable results in cases of laryngeal tuberculosis. Stadelmann reported five tuberculosis cases of moderate severity in which he was inclined to think that there had been but little effect, and that some complications appeared to be referable to the serum.

The recent ninth session of the German Society for the Prevention of Tuberculosis was more successful than those of previous years. The physicians of Berlin especially have criticised severely the sanatorium movement, for which many millions are expended every year in Germany, alleging that the results are not commensurate to the outlay. While it must be admitted that the permanent results achieved by the sanatoria are not particularly brilliant, in the discussion attention was called to the many other advantages attending treatment of this sort, such as lengthening life, preservation of the earning capacity for some time, and the education in hygiene. These were considered sufficiently noteworthy to justify the existence of the institutions. The public sanatoria have been particularly useful in affording the starting point for the establishment of convalescent homes and similar institutions of various sorts. Among the communications presented the following may be mentioned: Schröder spoke of the permanency of sanatorium cures. When it becomes customary to treat tuberculosis suspects in ordinary sanatoria and convalescent homes, there will be room in the tuberculosis sanatoria for patients with signs of an active process. Three months of treatment usually suffice for patients without fever. Tjaden of Bremen advised a more extensive resort to the advantages offered by the North Sea climate for the prevention of tuberculosis. Under the care of the physicians connected with sanatoria, pulmonary patients could enjoy family life at the sea, since numerous houses could be obtained at a low rental, especially in winter. Bandelier's paper on the tuberculin treatment gave rise to an active discussion. It appeared from this that this method of treatment is now more popular among institutional physicians than formerly, and good results have also been obtained by its means in dispensary practice. Observations were reported on Marmoreck's serum, Maragliano's serum, and Spengler's perlsucht serum, but the most used and apparently most satisfactory preparation was Koch's alt-tuberculin. This may be given at first in doses of 0.01 mg., gradually increasing the amount without causing any active reaction. In this way all injury to the patients and the danger of miliary tuberculosis and tuberculous meningitis may be avoided.

It is many years since there has been as much shifting about of professors as has taken place of late. Bier of Bonn has received Bergmann's chair; his own position has been filled by Garré of Breslau, who is succeeded by Küttner of Marburg. In gynecology several chairs are to be filled—that of Winkel in Munich, of Werth in Kiel, of Martin in Greifswald, of Ahlfeld in Marburg, and of Rosthorn in Heidelberg, who will probably succeed Chroback in Vienna. Among those who have recently died are the well-known Berlin clinicians, Ottomar Rosenbach and Moritz Litten, and Jürgensen of Tübingen. Only a few days ago the death of the well-known Berlin psychiatrist, E. Mendel, occurred.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 1, 1907.

On Neurological and Psychiatric Diagnosis.—Lewellys F. Barker says that the diagnosis of nervous and mental diseases made but slow progress until comparatively recent times. Mere clinical observation unaided could do but little until laboratory studies had supplied some preliminary knowledge of the structure and functions of the nervous tissues, and until the growth of psychology as a science had yielded some insight into the workings of the normal mind. The peculiar and complex structural organization of the nervous system was appalling to the majority of investigators, and it was but little wonder that the majority of physicians have preferred to work at problems which seemed easier to solve than those which the neurological and psychiatric inquirer was compelled to face. Romberg realized the value of applying physiological knowledge to the study of neuropathology and to neurological diagnosis, and he gave modern clinical neurology a firm foundation by developing knowledge concerning disease of the peripheral nerves. In psychiatry a great step forward was taken when Griesinger made it clear that the science was a part of neuropathology and inseparable from it. His recognition of the defects in medical teaching of neural and mental phenomena led to the foundation of special clinics. Modern neurological diagnosis was a direct outgrowth of the physiological research undertaken on the nervous system about the middle of the last century. The laboratories of anatomy, physiology, and pathology have afforded the data for the diagnosis of the seat of lesions and their nature. Perhaps the greatest progress making at present lay in the improvement of methods of investigating the psychic states and processes in nervous and mental diseases. Among the more interesting features of contemporary psychiatric diagnosis was the attention which is being paid to the so-called psychoanalytic method. A great impetus would be given to neurological and psychiatric diagnosis in America if psychiatric clinics were to be established in connection with every great hospital or medical school. This country is fifty years behind Germany, Italy, and France in the recognition of this need, but there can be no doubt but that America will sooner or later lead in this, as she is doing in other sciences.

New York Medical Journal, August 3, 1907.

A Case of Carcinomatous Metastases in Unusual Sites.—The chief point of interest in this case, reported by George L. Peabody relates to the unusual sites at which metastatic deposits were found. The organ primarily affected was the right breast. There were metastases in situations where they are common enough, such as the lung, kidneys, thyroid, and suprarenals; but it is uncommon to find microscopic deposits of carcinoma in the pia of the brain and cord and in the peripheral nerves. These deposits in the meninges were at the autopsy all absolutely invisible to the naked eye, and for the most part were discovered only by a general microscopical search for them. Only one of those found in the peripheral nerves caused a change in the appearance which the naked eye could detect, and that was a slight bulbous enlargement of the trunk nerve of the cauda equina. A matter of secondary interest was the development of what might be called a partial Addison's disease, the skin pigmentation being probably connected with the disease of the suprarenals. This pigmentation was chiefly confined to the skin in front of the chest and was not visible in any mucous membrane.

Etiology and Treatment of Pruritus Ani.—Herman A. Brav says that it is sometimes impossible to ascertain the cause of pruritus ani, but in the large majority of the cases the following are the most common exciting causes: Constipation and fecal impaction; local disease of the rectum or anus; want of cleanliness in the anal region; pediculi and seat worms or vegetable parasites; constitutional or systemic disease; diet and irregular habits. Again pruritus might also be a reflex phenomena of uterine or bladder disturbances, excessive and perverted sexual indulgence, and lastly some disease of the brain and cord, or senility. In the treatment of pruritus ani the cause must be sought for and removed. Where no distinct cause can be found the diet must be regulated. Meat should be used sparingly and overseasoned food avoided; likewise alcoholic stimulants and tobacco, tea, and coffee. He finds a soothing application most reliable: ℞ Chloral and camphor, ʒiv; rub these into an oil and then add: Unguenti simplicis, pulv. acidi boraci, aa, ʒiv. M. S. Apply with a brush three times daily after cleansing the parts with hot water. In some cases the addition of 20 grains of carbolic acid, in others again 20 grains of menthol, is extremely beneficial, and is often sufficient to secure a good night's sleep. Where more heroic measures are required he employs successfully pure carbolic acid, the saturated solution of nitrate of silver, or the Paquelin cautery.

The Leucocytes in Dengue.—From the observations of Edward B. Vedder the following conclusions are drawn: (1) Leucopenia is a constant feature of dengue. (2) A marked reduction in the polymorphonuclear count takes place early in the disease; is very evident by the second or third day, at latest, and this reduction is constant, with slight variations, throughout the course of the disease, until convalescence is complete, and possible for some time after convalescence. (3) Coincident with this decrease in polymorphonuclears is an increase in the small lymphocytes, which takes place with equal rapidity and is of a similar duration. (4) There is a gradual though much more moderate increase in the large lymphocytes. (5) There is a similar gradual, but slight, increase in the eosinophiles.

Examination of the Eyes of the Pupils in the Public Schools of Memphis.—J. L. Minor makes a comparison of the whites and blacks. The entire number of pupils examined was 5,030. Of these the whites contributed 3,181, 2,685 with perfect sight and 465 with imperfect vision, 89 of whom were absent when he made his examination, leaving 376 whom he did examine. The negroes contributed 1,849, 1,726 with perfect and 123 with imperfect vision, 40 of whom were absent when he made his examination, leaving 83 whom he saw. Among the whites were 42 cases of corneal opacity in each eye, with average vision of two boys and two girls, 20-70; two cases of heterochromia; one case of albinism; one of nystagmus; one of dislocated lenses; one of zonular cataract; one of optic neuritis; one of phthisis bulbi; ten of strabismus convergens; one of strabismus divergens. An accompanying table is interesting as showing practically a relative diminution of hyperopia, and increase of myopia, from the lowest to the highest grades. Among the blacks were eight cases of corneal opacity; one of retinochoroiditis, two of phthisis bulbi; none of strabismus. The accompanying table is interesting as showing not a single cases of myopia. Not only were the blacks free from myopia, but their average for perfect vision was two and a half times as great as in the whites, the proportion of badly seeing whites being 1 to 6 and black 1 to 15. There were no records of pupils with vision of 20-30.

Journal of the American Medical Association, August 10, 1907.

Gonorrhea as a Factor of Depopulation.—J. T. Johnson accepts the larger estimates of the frequency of gonorrhea in the male, calling it "the most frequent of adult diseases," and attributes to it largely the decreasing birth rate. Statistics show, he claims, that men are responsible for from between 78 and 70 per cent. of the sterility of the world, the cause being bilateral gonorrheal epididymitis, and are also responsible for a large part of the involuntary sterility of the female. The often quoted estimate of half the abdominal operations in the world being due to gonorrheal infection, falls far short, he thinks, of the actual facts. Its influence as a depopulator is shown not only in causing these mutilating and unsexing operations, but also by the production of what is known as "one child sterility," and in the recognition of its activity as a causer of abortions and premature deliveries far more often than was formerly supposed. It is also an important factor in the production of extrauterine pregnancy, and we have the authority of Jacobi and Currier that the "vulvovaginitis of little girls," which is generally of gonorrheal origin, is responsible for the frequent retardation and even prevention of the development of the female reproductive organs. The effect in adult life is to render them sufferers from amenorrhea and dysmenorrhea and practically sterile. It is a frequent and troublesome institutional disease, originating in gonorrheal infection, but spreading in other ways, of course, than by sexual connection. Johnson says that gonorrhea may be considered to have fairly earned the title of the "chief moral and physical pest of our age," and, in contradistinction to tuberculosis, might be called "the great black plague."

Clinical Method for Determining the Alkalinity of the Blood.—Herman M. Adler discusses the desirability of a practical clinical method for determining the alkalinity of blood. He notes the two general methods by which the reaction of a fluid may be quantitatively measured: (1) Titration to an end point; (2) determination of the H and OH ionization. The former yields information concerning the amount of base or acid present in a solution, but no direct evidence concerning the exactness of the equilibrium. The latter yields no direct information regarding the absolute

amounts of base and acid in solution, but gives evidence concerning the intensity of alkalinity, that is, the condition of the equilibrium. Heretofore only titration methods have been used on account of the difficulty of technic and the want of an indicator to show the slight degree of ionization in the blood serum. Salm, however, has shown that rosolic acid and neutral red give sufficiently sharp indications at the degree of ionic concentration of the blood. Adler found that rosolic acid with 1 c.c. of rabbit's blood gave a pink color which could be compared with a standard. Laked blood from which the proteids had been removed by coagulation by heat gave the same degree of color. By excluding the corpuscles he was able to avoid the difficulty due to the color of the blood and found that a drop of serum from a capillary tube produced a strongly marked red color when allowed to fall on prepared rosolic acid test paper which contrasted well with the delicate salmon pink of the unchanged parts of the paper. The red color indicates alkalinity. The serum in two cases of diabetic coma and in a case of meningitis accompanied by acetonuria did not produce this change in color, but the blood was alkalin in cases of meningitis without acetone in the urine.

Treatment of Tetanus by Intraspinal Injections of Magnesium Sulphate.—G. Canby Robinson reports a case of tetanus occurring in a boy, aged 11, with no history of traumatism or abrasion, other than a small swelling on right side of head, in whom the illness set in eleven days before his admission to the Pennsylvania Hospital. The first symptoms had been slight pain and stiffness in the jaws, diagnosed as muscular by the attending physician. On the sixth day, after playing ball, there was profuse sweating followed by stiffness of the right side, especially the leg. On the following day—the seventh—there was general rigidity, which increased until his admission to the hospital, at which time abdominal pain was the chief symptom complained of. A diagnosis of tetanus was made and a lumbar puncture was made; about 8 c.c. of cerebrospinal fluid was withdrawn and 3 c.c. of a 25 per cent. solution of magnesium sulphate were rapidly injected. Five minutes later the neck was less rigid; in an hour there was distinct relaxation of the muscles. In two and one-half hours the boy was drowsy, his neck could be freely moved and his jaws separated; the abdomen was soft, the legs and arms relaxed; no knee jerk could be obtained. Six hours after the injection the rigidity began to return and 18 hours after it was almost as bad as on admission. On the evening of the second day another injection was given; 3.5 c.c. of the solution was injected. The small swelling on the scalp—which was first described by the boy's mother on this day—was excised. The tissue contained a subacute abscess, but no tetanus bacilli could be found in either smears or sections. From this time the patient improved slowly till the twenty-third day, when the temperature reached normal not to rise again; after this the improvement was marked, and the boy was discharged on the fifty-ninth day. Besides magnesium sulphate in the treatment, sodium bromid, 1 dram, and chloral hydrate, 30 grains, in twenty-four hours, were used during the first two weeks. Bromids were given throughout the illness, and a few doses of morphine, ⅛ of a grain, were employed hypodermically. The boy weighed 65½ pounds on the forty-sixth day, but weighed 70 pounds when discharged two weeks later. Robinson concludes with a plea for more extensive use of this method of treatment in tetanus, and urges that all cases, whether successful or not, be reported.

Experimental Anemia.—C. H. Bunting thinks that pernicious anemia is due to the absorption into the circulation of a substance or substances of hemolytic power toward human red blood cells, and in such amount as to produce not only destruction of circulating red cells, but also destruction of, and injury to, cells of the erythrogenetic groups of the bone marrow. This results in defective and atypical blood formation, partly compensatory, partly the result of injury. In secondary anemias there is a loss or destruction of red blood cells from the action of toxins, but the bone marrow is uninjured and its proliferative power continues until at some time in the disease the toxin may be so increased that the marrow is affected and the anemia takes on the pernicious type. One toxin that will produce the pernicious anemia type is known—that of *Bothriocephalus*—but in most cases we are in ignorance of the nature of the poison. There is a tendency, however, to credit it as coming from the gastrointestinal tract, and Bunting is inclined to think there is much in Hunter's theory which attributes the infection to oral sepsis, and refers to two cases recently observed by himself, in which, together with chronic gastritis, there were dental caries and pyorrhea, and in one of the two, chronic glossitis, and in the other also chronic pathologic alterations of the tongue. The clinical history of remissions and relapses in pernicious anemia suggest that the infection is one that does not confer lasting immunity but may, on the contrary, leave the patient even more susceptible.

The Lancet, July 27, 1907.

The Carriage of Infection by Flies.—R. M. Buchanan presents a communication telling of experiments which conclusively show that flies alighting on any substance containing pathogenic germs are capable of carrying away those organisms in large numbers on their feet and of depositing them in gradually diminishing number on surface after surface with which they come in contact. They further serve to demonstrate the necessity for the exercise of stringent measures to prevent the access of flies to all sources of infection and to protect food of all kinds against flies alighting on it. The diseases which were made the subject of the experiments were typhoid fever, swine fever, staphylococcus abscess, pulmonary tuberculosis, and anthrax.

A New Microscopical Diagnostic Method and Some Simple Methods for Staining Liquid Blood.—Roland Ross, J. E. Salvin-Moore, and C. E. Walker, in a recent publication, showed that certain strings of granules were the remains of the nucleus of the original cell, and called them *chromolinin granulations*. In health they occur in about one per cent. of the corpuscles, but more frequently in a few pathological conditions. Probably the simplest method for demonstrating the granulation is the glass-rod method of liquid staining. A large drop of blood is taken up on a glass slide, and a drop of stain is quickly placed close beside it. The two drops are thoroughly mixed together, and small quantities of the mixture are transplanted on to other slides, where each is covered with a coverslip. A polychrome saturated solution of methylene blue in 0.5 per cent. salt solution should be used. The granules look like small particles of stain adhering to the surface of the corpuscle. True nucleated red corpuscles can be readily distinguished by the fact that the nuclear membrane is still intact. Another procedure is the agar method. Ordinary agar is melted and mixed with filtered saturated solutions of various stains and poured on sloped glass slides. While the agar surface is still moist a coverslip charged with a droplet of blood is dropped upon it. In a few minutes the elements take up the stain, and the centrosomes and chromolinin granulations become apparent. The drained drop method consists in charging a coverslip with a fairly large droplet of blood slightly spread out upon it and then inverted on a shallow cell made with vaseline on a glass slide. This gives the usual hanging drop preparation. They call attention to this phenomenon in the hope that clinicians may find it useful for diagnosis and treatment.

Cerebral Hyperemia as a Factor in the Therapeutic Action of Lumbar Puncture.—Frank C. Eve has, during the past few years, always measured the intracranial pressure during a lumbar puncture, and has been led to the provisional conclusion that relief of tension should be given therapeutic credit only in cases where the hypertension is considerable; and that where the tension is normal or slightly raised the benefit which sometimes results should be ascribed to other causes. These causes may be manifold, but he says he would like to advocate the predominant claims of one factor which has not received attention, a marked passive *hyperemia* of the cerebrospinal vessels which must inevitably result from the removal of any considerable quantity of cerebrospinal fluid. He then cites a case of tetany treated by lumbar puncture. This illustrated that the therapeutic value of lumbar puncture is largely, and sometimes solely, due to the hyperemia produced. He believes, too, that it is a new treatment for rebellious cases of tetany which have resisted all other ordinary methods.

British Medical Journal, July 27, 1907.

Abnormal Fat Assimilation Associated with Some Diseases of the Intestine.—Owen T. Williams presents clinical and chemical observations which tend to show that there are conditions in the intestines in which certain soaps and other insoluble compounds of fatty acids are not absorbed by the intestinal mucous membrane, and that with the presence of these conditions diseases of the alimentary tract are related. The analyses given show that true intestinal sand, appendix concretions, and some bodies formed in the intestines are largely formed of fats and soaps. The fats and soaps present are compounds of saturated

fatty acids. The constitution of these bodies and their relation to each other in chemical constitution throws much light upon the etiology of appendicitis and mucous colitis and possibly upon the underlying factors in certain diseases accompanied by colic.

On the Etiology and Pathological Histology of Beri-Beri.—R. Tanner Hewlett and W. E. De Korte, in concluding their article, as a working hypothesis, suggest that beri-beri is a protozoan infection; that the infecting agent is eliminated in the urine, and that the urine is the source of infection.

Arthritis and Erythema Nodosum.—J. Odery Symes reports three cases to illustrate the fact that not only is it difficult in a large proportion of cases of erythema nodosum to recognize any rheumatic taint, but that even when arthritis is present it may differ very markedly from that found in acute rheumatic fever.

Interstitial Pancreatitis in Its Relation to Sprue.—A. W. Mayor Robson thinks that it is highly probable that some of the cases diagnosed as sprue owe their origin to inflammatory disturbances of the pancreas, and in other cases the pancreatic disease forms an important complication requiring treatment.

Berliner klinische Wochenschrift, July 22, 1907.

The Habitual Vomiting of Infants.—Peiser says that the infants who habitually vomit may be divided into two general classes. The first of these appear to thrive fairly well in spite of the disorder. Some of them indeed may exhibit unusually good development. A large number of these children are breast-fed and the condition frequently depends on irregular feeding at too short intervals. On regulating the hours of nursing the vomiting stops promptly. In another group the vomiting is the result of a milk that is too rich in fat and treatment must be directed toward diminishing this constituent either by reducing the size of the meals, by removing some of the fat from the milk, or most simply, by reducing the total daily amount, by lengthening the interval between meals. Another group belonging to the first class consists of the neuropathic children who are always restless, sleep badly, are subject to laryngismus stridulus, and are hard to manage. The treatment of these cases is difficult, but the symptoms ordinarily disappear on weaning. Children belonging to the second class are apt to be undernourished and possess flabby muscles with much reduced gastric motility. Their vomiting is more in the nature of regurgitation, and they ordinarily manifest the symptom only if disturbed after meals. As the result of x-ray observations of the stomachs of such children the author has come to the conclusion that owing to the universal muscular relaxation the cardia is incompetent and through the lessened motility the food remains a long time in the stomach and is thus easily forced up into the esophagus. The treatment of these children is mainly constitutional and should be directed toward an improvement in their general condition. The author leaves out of account the typical and well characterized cases of pyloric stenosis, but describes one unusual case which came to operation. This infant's abdominal cavity was found to exhibit exceedingly numerous adhesions binding together the coils of intestine and probably resulting from a fetal peritonitis.

Localized Adhesive Cerebral Arachnitis.—Placzek and Krause apply this term to a condition discovered at an operation performed on a woman of twenty-five years for what was supposed to be a tumor of the posterior cerebral fossa. No new growth could be discovered in spite of the fact that the technique employed by Krause permits very extensive inspection of the cerebellum and base of the brain, but there was found a considerable accumulation of fluid forming a cyst-like swelling over the lower part of the cerebellum and apparently due to distention of the meshes of the arachnoid with fluid. The patient recovered completely, though a singular complication was the long persistence after the operation of irregular elevations of temperature, which in the absence of all other explanations were ascribed by the authors to disturbances of the heat regulating center occasioned by the manipulations in the posterior fossa.

Munchener medizinische Wochenschrift, July 16, 1907.

The Constipating Action of Morphine.—Magnus describes observations on the effect of morphine on the intestinal tract. These were made mainly on cats, though some dogs were also used. Nothnagel maintained that therapeutic doses of morphine stimulated the splanchnic inhibitory fibers and in this way checked intestinal motility. Some observers have agreed with this view, others have opposed it, but most of them have regarded the small intestine as the chief site of the morphine action. Magnus found by means of radiographic observations on cats in whom diarrhea had been induced by milk diet that it is the stomach that is most affected by the alkaloid. The constipating effect is not produced through the sympathetic inhibitory fibers, for section of these in the experiment animals did not modify the results. The chief action of the morphine consisted in a persistent contraction of the stomach wall in the neighborhood of the so-called sphincter of the pyloric antrum. At the same time the pylorus retarded the passage of the food into the duodenum so that it entered the small intestine much belated and then only very slowly and in small portions that were more fully digested than usual. The small intestine was but slightly affected and the colon least of all. The author reminds the reader that these results as yet apply only to the two varieties of animals experimented on and suggests careful clinical observations with a view to estimating the fidelity with which the conditions in man are reproduced in the animals.

The Results of Pessary Treatment in Gynecology.—Schwab says that although the treatment of gynecological conditions by means of pessaries is usually passed over very lightly or ignored altogether in the text-books of the subject, appliances of this sort are still very widely used in general practice. In order to get some idea as to the actual utility of the instrument he collected records of 124 cases in which the pessary had been used in the university clinic at Erlangen. Seventy-three of the 124 patients received their pessary treatment in the clinic, whereas the other 51 had been treated in this way by previous physicians. Those subjected to the pessary in the clinic were all patients for whom operation was inadvisable for one reason or another, and the results were satisfactory in less than half of the number. Of the 51 patients who had been fitted with pessaries outside practically none had been benefited. The author considers that while the value of the instrument when applied by the specialist is comparatively slight, when used by the average practitioner it is of practically no use at all.

Deutsche medizinische Wochenschrift, July 18, 1907.

A Case of Banti's Disease Cured by Operation.—Caro describes this unusual case. The patient was a man of thirty years who was in an extremely precarious condition when he came under observation. The abdomen was distended with fluid, which rapidly recurred after tapping, and the spleen was much enlarged, the liver was not palpable, and there was gastric achylia. The hemoglobin was 35 per cent., the red blood cells were 1,400,000, leucocytes 2,600, of which 60 per cent. were polynuclears. As a last resort splenectomy was decided on and was successfully carried out. The patient's temperature remained high during the four weeks following the operation, but aside from this the recovery was uncomplicated. A year later the hemoglobin was 80 per cent. and the red cells 400,000. There was no ascites and no subjective symptoms. The author regards the postoperative temperature as evidence of the toxic or infectious nature of the disease.

A New Method of Testing the Motility of the Stomach.—Strauss and Leva say that all the methods that have so far been suggested for the purpose of investigating the motility of the stomach are open to objections of one sort or another. They consider it as a desideratum that both the secretory function and the motility be tested with the same test meal. Sahli's method in which the portion of the test meal retained is estimated by determining the amount of fat present in the stomach contents at a specified time after the ingestion of a specially prepared soup composed of flour and butter has many advantages, but is open to the drawback that the patient is required to take a separate test meal for this purpose. The authors have devised a method which is intended to permit of ascertaining information of both kinds from a single meal. For this purpose a particular kind of zwieback containing about 5 g. of butter to 50 g. of the finished product is used. The test meal consists of 50 g. of the zwieback and 400 c.c. of tea, an hour later the stomach contents is removed. The organ is washed with 100 c.c. of warm water and this result is considered as specimen number 2. Finally the stomach is washed out with a sufficient quantity of water to effect complete cleansing, and this is marked portion three. Portions one and two are used for the purpose of making any desired tests in regard to the secretory function, and then all three specimens are evaporated on a water bath and their fat content is determined by means of the refractometer. The authors consider the latter an essential feature of the method and give detailed instructions for the use of the instrument.

French and Italian Journals.

Neurasthenic Syndrome from Insufficiency of the Salivary Glands.—U. Baccarani contributes to the study of the internal secretion of the salivary glands. In former

researches he demonstrated that two new functions of the salivary glands should be recognized, an antitoxic function in the sense of contributing with other organs to the protection against poisoning of the organism, and one of internal secretion. He reports three observations of patients in confirmation of his statements, resulting from experiments in the laboratory. In three persons the author observed a syndrome of muscular and nervous asthenia with slight loss of flesh, which disappeared in two weeks after the reestablishment of the salivary secretion. He interprets these symptoms in conjunction with the experiments already made as resulting from the absence of the salivary secretion. Zagari has reported a case of absence of salivary secretion due to atrophy of the salivary glands, in which death ensued in a state of marasmus. In others there appears an exaggerated neurasthenic condition as a result of paresis or paralysis of the salivary function.—*La Riforma Medica*, March 30, 1907.

Diagnosis of Late Hereditary Syphilis.—L. Landouzy says that in some way the effects of syphilis are evident in two-thirds of the patients seen at hospitals. The method by which we cannot miss making the diagnosis is that of a systematic examination of the patient's history, his bodily condition, and the condition of the other members of his family, including collateral branches. Study the physiognomy and appearance of the patient first, looking for dystrophies. The stigmata of the habitus have the greater diagnostic importance. Then come infantilism, early obesity, cranial, facial, ocular, and dental manifestations of syphilis. There are many changes in the shape of the bones of the skull. There are changes in the skin and mucous membranes, testicular and nervous stigmata, such as absence of reflexes, tic, epilepsy, tabes, intellectual and moral lack of development; there are diathetic conditions, hemoglobinuria, bradytrophies, failure of growth, visceral conditions, cardiovascular, and cerebrospinal affections that are congenital. The discovery of such stigmata alone or combined in a patient may be confirmed by examination of other members of the patient's family. These persons should be seen and examined. Factors of importance are infantile polymortality, abortions, twin pregnancies. All these conditions will be of diagnostic value.—*La Presse Médicale*, April 10, 1907.

Treatment of Chronic Coryza in Scrofulous Children at Borboule.—E. F. Christin eulogizes the value of the warm arsenical waters of Borboule, France, in those cases of children, from the ages of five to fifteen years, who present a pale, flabby condition generally, accompanied by a mucopurulent catarrh of the nasopharynx. This causes them to swallow pus continually while it runs over the lip. The cause of this condition is one of bad general condition rather than local lesion. Examination shows mucopus in the anterior nasal space, with an atrophied condition of the mucous membranes, while in the post-nasal space there are pale, flabby growths and traces of operations, with Luscha's tonsil ridged and the hollows filled with mucopus. The elevated situation and protected valley at Borboule, with its southern exposure, is of great benefit to these patients from a climatic point of view. The warm arsenical waters may be used directly from the pipes as nasal douches. There is a congestion of the mucous membranes produced, which causes increased capillary circulation, and phagocytic reaction. The swollen glands are reduced, and the general and local conditions are improved.—*Le Progrès Médical*, March 23, 1907.

Bier's Stasis Method in Osteomyelitis and Tuberculous Osteoarthritis.—Tammaso Costa has found that the stasis method of Bier as applied to tuberculous joints is not a success, and even results in the destruction of tissues that could be useful in an operation for excision. He concludes that in tuberculous ostitis and osteomyelitis with large loss of tissue and communications of the joint with the external air the method produces no benefit and should be avoided. It has some beneficial effect in postoperative cases. The passive hyperemia is of much value in closed osteoarthritis, and has produced excellent results, especially when combined with other therapeutic methods.—*Giornale Internazionale delle Scienze Mediche*, May 31, 1907.

Hemorrhages and Coagulation Diseases of the Blood.—P. Emile Weil and Octave Claude say that hemorrhages constitute a frequent symptom of nephritis, but the cause of these hemorrhages has not been thoroughly studied. They occur in both acute and chronic forms of nephritis. In the acute form blood in the urine is generally the symptom noticed, while in the chronic forms there are epistaxis, cerebral hemorrhages, retinal hemorrhages, and purpura hemorrhagica. The author believes that difference in the coagulating power of the blood, slight or severe, accounts for these hemorrhages. Their frequency is great, although the coagulation goes unnoticed. The treatment to arrest these hemorrhages consists of subcutaneous or intravenous injections of fresh serum, and the use of such serum will give excellent results. The original cause of the lack of coagulation may be toxoinfectious, or due to marked congestion. The author describes four cases illustrative of these statements.—*La Tribune Médicale*, April 20, 1907.

Remote Results of Treatment of Cancer of the Breast; Prognosis; Statistics of Fifty Cases.—E. Villard and E. Mouriquand give the statistical report derived from fifty cases treated in the service of Villard. In all the cases a racquet shaped incision was made, amputation of the entire breast was done outside the limits of the tumor, with a systematic excision of the subjacent aponeurosis when the tumor was adherent to it, removal of the pectoral muscles and other tissues down to the chest walls, and removal in mass of the axillary glands and adipose tissue. Following the operation some patients were submitted to radiotherapy. These were all undoubted cases of cancer, and all but twelve were confirmed by examination of removed tissues. Of these fifty patients twenty-two are living without recurrence, five are living with recurrences that have been treated by radiotherapy, and are probably cured. The cases are now from eighteen months to eleven years from the time of operation. In twenty-eight cases the glands were examined; fourteen were normal, fourteen cancerous. Thirteen of these are cured. The prognosis of cases in which glands are involved is bad. The *x*-rays have reduced the tumors in size and shown destructive action on the cellular elements. In some cases the rays have shown themselves as causes of serious accidents, causing a severe glandular reaction which renders their action dangerous. The treatment sterilizes the tissues after operation and here they are very useful. The authors conclude that cancer may be cured by early operation in a large number of cases, especially when the glands are not involved. Any tumor of the breast after the age of thirty should be removed.—*Lyons Médical*, May 19, 1907.

Suppurative Mammitis After Typhoid.—Henri Roger describes the case of a young woman attacked with typhoid fever and convalescing in whom the left breast gradually underwent abscess formation without pain and with a very slight elevation of temperature. After opening the abscess it healed rapidly. On examination of the pus from the abscess it was found that the bacillus present resembled most the paratyphoid bacillus. In this case the typhoid intoxication had been very severe, characterized by vomiting, myocarditis, and dyspnea of bulbar origin with cyanosis. Only twenty-four cases of mammitis after typhoid can be found in literature. It appears at the end of the disease and with slight elevation of temperature. As soon as the collection of pus has been incised it heals. Previous lactation with its attendant congestion favors this complication. Of the cases in which the pus was examined two contained *Staphylococcus aureus*, one *Staphylococcus albus*, two the bacillus of Eberth, and one the paratyphoid bacillus. Hence the cause of the complication is not always the same.—*Gazette des Hôpitaux*, May 18, 1907.

Pulsating Points in the Diagnosis of Arteriosclerosis.—Leone Minervini goes over the etiological factors in the production of arteriosclerosis, the cerebral tension, degenerations as a result of intoxications, and infectious diseases being the principal ones. The arterial changes may appear in the heart, liver, kidneys, spinal medulla, brain, or peripheral vessels. An early diagnosis is most important, since there is a presclerotic state that may be recognized, and the causes eliminated by individual and social prophylaxis. The general arterial condition is shown by the tone of the vessels, character of the pulse, and auscultation of the aorta. The principal signs are instability of the pulse, digitocapillary sign, sphygmographic tracings, accentuation of the second aortic sound, systolic bruit over the aorta, with a hard but not small pulse, slightly retarded, systolic silence over the aorta, doubled first aortic sound, intermittent claudication, vertigo, cerebral symptoms, pericorneal ring, spinal symptoms, premature senility, radial rigidity, and pulsating points over the radial and other arteries. The author occupies himself especially with the pulsating points. Those of the radial are three, at the division of the humoral artery into the radial and the cubital, at the junction of the upper and middle thirds of the radial artery, where it ceases to be oblique, and at the pulse point. There are important pulsation points also in the jugular fossa, over the carotid, in the omohyoid (triangle, subclavian, axillary, humeral, femoral, and popliteal regions. Visible arterial pulsation is due to four factors: Increased cardiac contraction, increased distension of the arteries due to decreased aortic tension, greater expansion, and rapid pulsation. These points do not pulsate in the normal man. By the number and force of the pulsating points we may be assisted in the prognosis of the cardionathy.—*Giornale Internazionale delle Scienze Mediche*, March 15, 1907

Book Reviews.

A Practitioner's Handbook of Materia Medica and Therapeutics. Based Upon Established Physiological Actions and the Indications in Small Doses. To which is Added Some Pharmaceutical Data and the Most Important Therapeutic Developments of Sectarian Medicine as Explained Along Rational Lines. By Thos. S. Blair, M.D., Member American Medical Association, Pennsylvania State Medical Society, Harrisburg Academy of Medicine, etc. Philadelphia: The Medical Council.

This volume contains in small compass what the author considers of most value in the Materia Medica of all schools. In many instances all three schools agree upon the indications; and where such agreement is not obvious, divergent views have been carefully considered, and preference given to such data as show the greatest physiological, chemical, and clinical foundation. Purely theoretical discussions are avoided. The book appears to be written in a fair and impartial spirit, and while not designed to replace the larger works on the subject, it will form a useful and handy supplement to any of them.

Le Cerveau et la Moelle Épinière, avec Applications Physiologiques et Medico-Chirurgicales. Par Ch. Debierre, Professeur d'Anatoime à l'Université de Lille; Membre correspondant de l'Académie de Médecine et de la Société de Biologie. Avec 373 figures en noir et en couleurs dans le texte et 14 planches hors texte. Paris: Felix Alcan, 1907.

Such great advance in the knowledge of the anatomy and physiology of the central nervous system has been made in comparatively recent years, and so many theories promulgated, that an occasional new book by a competent authority, bringing us up to date, is welcomed, and when such a book combines physiological function with anatomical description, we who have passed through the mill of learning histological nervous anatomy at the start, without it, can still further appreciate the book. The physician will find the work convenient for reference in diagnosis, and to refresh his memory; and the surgeon, who is becoming more and more bold and self-feliant, in brain and cord surgery, will note many drawings and illustrations, as well as descriptions, that should be of assistance to him. The scope of the work takes in the gross and microscopic anatomy of the brain and cord, with descriptions of the functions of various parts, in health, and as modified in pathological conditions. The book is profusely illustrated.

Opuscula Selecta Neerlandicorum de Arte Medica. Fasciculus Primus quem Curatores Miscellaneorum quae vocantur Nederl andsch Tijdschrift voor Geneeskunde Collegerunt et Ediderunt und celebrandam Seriem Quinquagesimam in Lucem Nuper Editam. Amstelodami: Apud F. van Rossen, MCMVII.

In order to commemorate the fiftieth anniversary of the foundation of the Nederlandsch Tijdschrift voor geneeskunde, its editors and publishers decided to issue a volume containing noteworthy contributions to medical literature by eminent Dutch scientists. The present volume is the outcome of this project and is made up of addresses or essays by six authors. The first is a lecture by Erasmus in praise of the art of medicine; the second a letter written by van Leeuwenhock to the Royal Society of London and describing the circulation in the tadpole and small fish; the third observations in the muscles of the frog by Swammerdam; the fourth an address by Boerhaave on the mechanical method in medicine; the fifth an inaugural address by Gaubius, in which it is shown that chemistry should be classed among the academic sciences; and lastly an address by Donders on the harmony existing in animal life. These dissertations are printed on one page in their original Latin or Dutch and on the opposite page is a translation into English, French, or German. Very artistic reproductions of the portraits of these worthies, including the well-known Dürer portrait of Erasmus, preface each section of the book, and reproductions of some of the old wood cuts used by the authors are also included. Altogether the volume represents a happy conception exceedingly well carried out.

Wellcome's Photographic Exposure Record and Diary. 1907: Burroughs Wellcome & Co., London, Eng.; New York, Montreal, Sydney, Cape Town. New York offices, 45 Lafayette street.

British photographers have long appreciated the utility of this well arranged pocket book, and no doubt the edition modified to suit the requirements of workers in this country will prove equally popular. In addition to the pages arranged for the reception of the photographer's field notes and dark-room records, a great deal of useful information is given in regard to methods, formulas, etc., and a very ingenious exposure meter, which gives the required length of exposure by one setting, is affixed to the back cover. The number of physicians who practice photography not only for pleasure but also as an important adjunct to their system of case records, is rapidly growing, and this little volume may be commended to their attention.

Makers of Modern Medicine. By James J. Walsh, M.D., LL.D., Acting Dean and Professor of the History of Medicine and of Nervous Diseases, Fordham University Medical School, and Adjunct Professor of Medicine at the New York Polyclinic School for Graduates in Medicine; Professor of Physiological Psychology at St. Francis Xavier's College in New York. New York: Fordham University Press, 1907.

There are no more fascinating biographies than those of the leaders in medical science, and Dr. Walsh has in this volume chronicled the lives of some of the worthiest in the annals of the history of medicine. In accordance with the plan of the volume, which is to trace the development of the science and art as we of to-day know it, the author has begun his work with what may be termed the renaissance period of medical history, and the first biography is that of Morgagni, the father of pathology. The essays that follow are on Auenbrugger, Jenner, Galvani, Laennec, Graves, Stokes, Corrigan, Müller, Schwann, Claude, Bernard, Pasteur, O'Dwyer. While this list is not above criticism it is a fairly representative one, and at any rate the life histories are agreeably told and hold the reader's attention. To some the author's ecclesiastical divagations may seem unnecessarily numerous, but this again is a matter of personal opinion and the book is a pleasing addition to the all too limited field of medical *belles lettres*.

Diseases of the Lungs. Designed to be a practical presentation of the subject for the use of students and practitioners of medicine by Robert H. Babcock, M.D., Author of "diseases of the Heart and Arterial System." Until recently Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons (Medical Department of the Illinois State University), Chicago; Consulting Physician to Cook County Hospital; Consulting Physician to Mary Thompson Hospital, Hospital of St. Anthony de Padua, and of Marion-Sims Sanitarium; Fellow and Former President of the American Climatological Association; Fellow of the Association of American Physicians; Corresponding Member of the Medico-Chirurgical Society of Edinburgh and of the International Tuberculosis Institute, etc. New York and London: D. Appleton & Co., 1907.

In view of the many excellent treatises on diseases of the chest which have appeared within the last five years, it requires no little confidence, not to say temerity, on the part of an author to add another volume on diseases of the lungs to the already prolific literature. Nevertheless Dr. Babcock's long practical experience justifies the publication of the present volume which, while presenting nothing that is particularly new in the diagnosis or treatment of pulmonary diseases, is replete with excellent chapters on such subjects as can never become trite to the student of medicine. The five opening chapters on the various forms of bronchitis and the respective treatment of each are clear and forceful. Naturally the most important feature of the work is that which deals with the subject of tuberculosis, upon which there are eight chapters. Here, as elsewhere, the author has drawn largely from personal experience, and the work is replete with illustrative cases. In fact, clinical phases predominate throughout the book, perhaps somewhat at the cost of the pathological aspects. To the all-important subject of pneumonia the author has devoted six chapters, covering the subject satisfactorily and in an especially commendable manner in the case of acute fibrinous pneumonia. The three concluding chapters of the work are devoted to diseases of the pleura, a subject which the author has perhaps treated less exhaustively than might be desired. The work is well illustrated and excellently indexed.

Notes on Blood-Serum Therapy, Preventive Inoculation and Toxin and Serum Diagnosis for Veterinary Practitioners and Students. By Walter Jowett, F.R.C.V.S., D.V.H., Formerly Demonstrator of Comparative Pathology and Bacteriology in the University of Liverpool. Chicago: W. T. Keener & Co., 1907.

This book contains a short account of the subject of immunity, and the vaccines, sera, and toxins used in present day veterinary practice for the prevention, treatment, and diagnosis of disease. The first chapter is an excellent *résumé* of the subject of immunity; it also explains Wright's opsonic theory, agglutination and precipitation. The remainder of the book deals with the application of the subject to veterinary practice.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Held at Exeter, July 27 to August 2, 1907.

PRESIDENT, RICHARD ANDREWS REEVE, B.A., M.D., LL.D., TORONTO.

PRESIDENT-ELECT, HENRY DAVY, M.D., F.R.C.P., EXETER.

(Special Report to the MEDICAL RECORD.

GENERAL MEETINGS.

THE earlier days of the week were occupied only with the general meetings and official business, so that it was not until Wednesday that the sections opened and scientific work began in earnest. On Tuesday, however, the introduction of the new President, Dr. Henry Davy, F.R.C.P., took place with the usual ceremony, and in the evening he delivered his address.

President's Address.*—Dr. HENRY DAVY, after some introductory remarks of welcome and a brief sketch of the secular and medical history of the City of Exeter, said that he desired to invite the attention of the members of the association to a consideration of some of the ways in which the important advances in science might be applied to the furtherance of national health. He began by saying that the most important function of the medical profession was the practical application of the science of their day to the health and life of the individual, and through him to the community, and our success and usefulness depended on the truth and the value of the knowledge which the science of the day has reached. In earlier times there was very little in the knowledge of the day of which medical men could avail themselves usefully to explain or to combat disease, and the place of true scientific knowledge was occupied by more or less inaccurate theories as to the causes and the best way of treatment of the various diseases. In considering the changes which have taken place in medical knowledge and treatment, we had to remember that the knowledge which we use in the profession of medicine was of two kinds—empirical and scientific, using these terms in their highest sense. Each of these systems was of great importance. Much of the best information about disease, and many of the most useful plans for its treatment, had been handed down to us from remote ages as the product of experience and observation, and was thus truly "empirical"; and a large part of the empirical observation of the early forties was as good to-day as it was then. The knowledge which we called scientific—that gained by systematic experiment and reasoning—was of even more importance; in fact, when founded upon proved truth it was all-important, and it was the possession of such accurate and true knowledge that distinguishes the medicine of to-day from the medicine of the early forties. One of the greatest events which had happened in the last sixty-five years had been the promulgation of the Darwinian theory. The speaker considered that the importance of this theory had not as yet been sufficiently recognized by the public at large, and that the lessons to be drawn from it had not been sufficiently insisted upon. It had hitherto been used and discussed as though it explained or did not explain the creation of the world and man, and it had been examined and reexamined from this aspect, with very little benefit to any one. Nevertheless, Darwin's work had a great meaning for our profession, for his demonstration "that the only way to maintain any organ or structure of the body in its proper condition of health and development is by a proper and adequate use of it" was the great scientific keynote of health in every department of life, while his statement that "in the struggle for existence the fittest will survive" seemed to be as entirely a law of Nature as Newton's law of universal gravitation. But, if the survival of the fittest in the struggle for existence were true, then it followed that in this struggle the healthiest must be the fittest. It would be well if in these days people could be made to understand thoroughly that the cultivation of health was the first necessity of useful lives, and, if they strove to attain it, as the first object of their solicitude; if they recollected that the chief and best asset of a nation was the number of healthy individuals it contained, and if they would also recognize the great principle that no educational system was good which did not aim at producing well-developed, healthy bodies as well as well-trained minds. The speaker quoted several passages from the writings of Carlyle in this connection, and went on to discuss the question of health. This, he said, involved harmony—the actions of all the parts of the body perfectly adjusted to each other in order to produce this effect, and our work as medical men often was to bring about this necessary adjustment. In considering all questions of health it was necessary, however, to think of not only the individual patient, but also of his environment, meaning by this the sum total of influences which modify and determine the development of his life and character. This question of "environment" had of late years come very much to the front with regard to the question of physical deterioration of the nation as illustrated by the number of would-be recruits for the army, who were found to be so physically undeveloped that they did not come up to the requisite standard. In this connection he asked attention to one or two points that illustrated the scientific teachings we had gained since the middle of the last century. Darwin shows "that the only way to keep any organ or structure in health is by proper and adequate use thereof," and the value of this axiom had not been sufficiently recognized in considering the question of physical deterioration and its remedy, especially as it affected the muscular system; for many changes had taken place in the environment of the individual and of the nation, all tending to reduce the muscular work done by the people, and in advance of everything else which had effected this result the speaker placed the extended use of machinery. In every department of work, in every trade and business, each succeeding year found us depending more and more on "labor-saving machines," every new machine tending more and more to replace muscular work, until at last in some manufactures the operative had little or no work for his muscles to do except just attending to the machine, driven by steam or electricity, by which all the work which used to be the result of his muscular activity is now accomplished. But, in addition to the development of machinery, many other causes had contributed to the same end. The nation had become much more urban than it used to be. Villages and country towns, with all their facilities for healthy muscular work in the open air, had diminished; big centers of trade and manufactures had increased in population; railroads had extended networks of lines in every direction, so that traveling was made easy without any exertion, and the inhabitants of our towns had in addition tramways and omnibuses to take them from their houses to their work, without the necessity of even the exercise of a long walk. Habits also had changed and athletic games were less often indulged in, and in consequence disorders of metabolism resulted. It was something of a reflection on our profession that we often treated patients with drugs who needed more exercise and less food. Physical culture was one of the most pressing questions of the day, for

*Abstracts of the President's Address and of the Addresses in Medicine and in Surgery were made from advance sheets received through the courtesy of the Editor of the *British Medical Journal.*

it was by it alone that we had a proper remedy for the state of muscular degeneration which was so prevalent. It ought to be considered by every educational authority, for by its use dwellers in city and country alike could have their muscular systems built up and developed to a healthy standard. He then spoke of the great importance of medical supervision of school children, and stated that every school in the country, without exception, should be under the supervision of a properly trained medical officer. It should be his duty, with his assistants, to examine every pupil, to see who are healthy and who are diseased, who are fit for a course of physical culture and who are not, and generally to look after the health and development of the children. How necessary such medical supervision must be is proved by the fact that Dr. Alfred Greenwood, Medical Officer of Health for Blackburn, in an examination of 388 school children of that town, found that no less than 54 children were affected with some form of tuberculosis, and of this number 34 had tuberculosis of one or both lungs. A very essential feature of the supervision of the schools was the proper physical training of the children by suitable out-of-door games and sports. Next to this question of physical culture, and of equal importance, was that of the feeding of the people, and it was one of the problems on which we, as teachers of the science of our day, ought to have much to say. In the consideration of this question of food, the fads and fancies of various more or less eminent individuals had been allowed far too much prominence, so that the scientific principles which should guide the people to a sensible and right conclusion had been entirely obscured, and the opinions expressed have sometimes brought the whole subject under ridicule. We must remember that food could never be served out by weight, and that, provided the average amount of the various elements of food was kept fairly well within the scientific limits required of them, no great harm would be done to health by non-insistence on fractional details. We must also realize that the feeding of civilized man was not merely a question of "stoking the engines" of the body, and that no harm was done to the system by cooking the food in a tempting and pleasant way, provided the scientific amounts of food be not greatly exceeded. The exquisitely cooked food of a first-class chef was far more digestible and healthful than the same food unappetizingly cooked by an ignorant general servant. In conclusion he spoke of the great reduction in mortality from pyemia and typhoid fever that had been effected by the modern methods of education and sanitation, and expressed the conviction that similar measures were necessary in order to check the prevalence of tuberculosis. This subject he considered as urgently demanding appropriate legislation.

As a part of the ceremony of induction the vote of thanks to the retiring president, Dr. R. A. Reeve of Toronto, was carried amidst great applause and excited more than usual interest, especially as he was present and replied in person. He said much of the credit of the success of the Toronto meeting which had been so cordially referred to by the proposer of the vote was due to the loyal and united efforts of those who acted on the various committees.

Dr. Deas, president of the local branch of the British Medical Association, then, in a brief speech, referred to the "Book of the Southwest," which had been distributed as a guide to the members and which was a step in advance of previous issues of the kind, as it constituted a guide-book to the city and district, the scenery, the climate, and other points of interest. A copy, with an inscription, form[illegible] handed to the president by the speaker, elicited another pleasant speech acknowledging the unexpected compliment.

It was then decided to hold the next meeting at Sheffield and Mr. Simeon Snell was unanimously appointed president-elect. The financial statement next occupied the meeting and a new treasurer was appointed to succeed Dr. Crocker, who had resigned.

The Middlemore prize was presented to Mr. Sydney Stephenson, M.B. The report of the Council was adopted. The representative meeting also occupied much time, and many questions of importance as to organization, the reports of committees, and general official business, were discussed, but these were of interest chiefly, if not altogether, to the profession at home.

By Wednesday, when scientific work began in the sections, some 900 members had put in an appearance. On the afternoon of this day the address on medicine was delivered by Dr. Hale White of Guy's Hospital, but the fine weather induced the majority of members to take advantage of the many outdoor events provided for their amusement, and the attendance suffered in consequence.

Address in Medicine.—Dr. W. Hale White, in this address, said that while no one else felt a greater pride in his profession than himself, he did not intend to discuss the advances that had been made, but to indicate some ways by which he believed that the solution of many of the problems of the science could be expedited. Before commencing to speak of some of the directions in which we could help ourselves by greater accuracy of thought when attacking medical problems, he wished to beg his hearers to take all possible opportunities of bringing before the public the duty they owe to medicine. Those who do that successfully do, indeed, help the profession. We and our allies working at physiology and pathology were constantly trying our hardest to diminish suffering and get rid of disease, yet we received little help from the very public whose suffering we were endeavoring to lessen. There ought to be fully-endowed professorships for teaching and research, so that those having a taste and ability for such work might do it, and not, as now, have to pass it by because they could not earn their bread and butter by it. A little had been done by a very few wealthy, far-seeing, generous donors, and all of us, both public and doctors, were grateful to them, but to show how much more help is needed it was only necessary to mention that in London not a single medical school had a fully-endowed professorship of pathology. He then continued by expressing the fear that the progress of science was retarded by our being afraid to say we do not know. The desire for explanations was not always beneficial, since wrong explanations might be worse than none, as many people accepted them comfortably without stopping to inquire if they were reasonable, but if no explanation were in the field thinkers would devote themselves to the problem which they now pass by, being soothed by the current false interpretation. He took gout as an illustration of this and said that accumulated observation and experience had taught us a great deal about gout, but all we really knew of its pathology was that urate of sodium is deposited in some cartilages and other structures, and that there is an excess of uric acid in the blood. Nevertheless, often, instead of boldly saying to ourselves we do not know the cause of many cases of neuralgia, sciatica, bronchitis, and several other diseases, we set them down to gout: but where were the figures from the post-mortem room showing that urate of sodium is excessively frequently found in the cartilages or fibrous structures of, for example, people suffering from sciatica, or that they have an excess of uric acid in their blood? If we thought accurately, we ought not to say a person had gouty sciatica unless we believed that he had urate of sodium in some of his cartilaginous or fibrous structures, or an excess of uric acid in his blood, and that these facts were etiologically related to his sciatica; further, we ought, as a result of the experience of ourselves or others in the post-mortem

room, to have such good evidence in support of our belief that we should not feel our reputation for skill in diagnosis seriously damaged if the patient were killed on the spot and no urate of sodium or excess of uric acid was found. Some, perhaps feeling the impropriety of calling these conditions gouty on such slender evidence as others deem sufficient, and yet susceptible to the Mesopotamia-like soothing influence of words, irrespective of their meaning, had said: "Here are a number of symptoms we cannot explain. We do not think they are due to gout; but let us imagine that the gout is irregular, or atonic, or undeveloped, or suppressed, and then we can ascribe them to it." In passing, the thought arose, If gout is undeveloped or suppressed, how can it cause symptoms? This method of nomenclature was worthy of Gilbert and Sullivan; but, seriously, is it creditable? Other loose conceptions were those regarding the excess of uric acid in the blood and the dietary restrictions imposed on gouty persons, such, for example, as the injunction to eat no red meat and to take white in its stead. Another instance of our accepting an explanation that had nothing to support it was in making the diagnosis of "hepatic dyspepsia" in certain cases of indigestion. The liver might be almost destroyed by new growth or abscess and yet none of these symptoms arise, they had never been produced experimentally as a result of interference with the liver, there was no constant appearance in the liver after death when these symptoms had been present during life, and it had been shown that the so-called cholagogue drugs which experience has taught us benefit these symptoms have no effect on the secretion of bile. The diagnosis of gastric ulcer also was made much more frequently than the facts warrant, and it was gradually coming to be recognized that there is a condition, to which the term "gastrostaxis" has been applied, in which blood oozes from the gastric mucous membrane without ulceration, and that this is commoner in women than in men. The so-called selected action of alcohol on certain tissues, and the diagnosis of lesions of the heart muscle that did not in reality exist were further examples of lack of accuracy in expression or thought. An important instance of the same thing was the abuse of figures, as if there were no science of statistics. Frequently the mistake was made of dealing with far too few figures; often the very data were wrong; allowance was rarely made for the number of persons alive at different ages; it was very common to see figures published believed to prove the effect of this or that treatment, without any allusion to the rapidity of recovery if no treatment had been adopted, and often figures did not tell us what we desired to know. For example, statistics were published showing the frequency of recovery after some difficult operation. In the first place, for these to be of any practical use we want to be able to contrast them with figures showing the mortality among those not submitted to operation. Next, we ought to compare the expectancy of life among those who are not operated upon with that of those who submit to operation, for it was clear that if the operation considerably shortened the life of many, the total harm done by the operation might be more than the total good. Then, again, although it was interesting to know the degree of perfection to which any particular surgeon could carry the difficult art of operating, and so lower the mortality, yet, as all the patients could not possibly go to the one skillful man, it was far more important to know the usual mortality among operating surgeons. A good illustration of the extreme difficulty of dealing with medical statistical problems was the question whether tuberculous disease is hereditary, or, as we should now say, whether the children of tuberculous parents inherit any special liability to infection by the tubercle bacillus. Many papers had been written on this subject, but hardly any were free from fallacy; some were so full of errors that they were quite valueless. In closing, the speaker said that another hindrance to the advance of medical knowledge was the acceptance of facts upon authority. The speaker would say to all but the youngest students: Accept nothing on authority, but look for yourselves and see if the usual teaching is true; believe nothing you do not see, be skeptical about everything you are told. He did not mean that no respect should be paid to the experience of skilled clinical or pathological observers or experimental pathologists, but all of us should be always on the alert to see if they were correct, and we should respect those who were. Much of the excessive zeal for treatment by drugs arose not only from an unwise adhesion to so-called authority, but from a lack of appreciation that pathology is the basis of all medicine. The primary duty of a physician was to find out what was the matter with his patient, proper treatment could only be secondary to that; all treatment apart from a correct diagnosis, which in most cases should include a correct visual impression of the way in which the body was disordered, was bad, and might well lead to more harm than good. The last point to which he wished to draw the attention of his hearers was that it usually required considerable trouble to train ourselves to receive new ideas properly and by failing in this respect we retarded the progress of medical thought. In this matter there were two chief kinds of mind. Those having the one usually claimed that they were critical, but they were obstructive rather than fair critics. For the most part they were extremely slow to assimilate anything new, strange to say they frequently prided themselves on this and took great comfort from the sad fact that many suggestions which when first promulgated appeared fruitful have turned out to be barren. Those having the other were easily enticed away by new notions just because they were new, they absorbed new ideas too rapidly without digesting them, in popular language they were ready to swallow anything. Fortunately, our profession contained many who fell into neither of these classes, because they had an evenly balanced mind trained to estimate the value of novel suggestions.

Thursday opened with the temperance breakfast, which has now for many years been provided by the National Temperance League, and which always attracts a good number of guests and elicits some able speeches.

In the afternoon came the address in surgery by Mr. Trentham Butlin, who devoted it to cancer, on which he is so distinguished an authority, dealing especially with the question of contagion and autoinfection.

The Address in Surgery.—Mr. Henry Trentham Butlin chose as the subject of his address "The Contagion of Cancer in Human Beings; Autoinoculation." The reason for the difference of views regarding the contagion of cancer lay in the fact that, regarding this as regarding most theories and events, there were two kinds of evidence—that which satisfied the inquirer who wished to believe and that which was required by the skeptic. If the occurrence of cancer in a man and his wife who lived in the same rooms were accepted as evidence of the contagion of cancer, whether the two were affected at the same time or years apart, whether the cancer of the one was of the same kind as the cancer of the other, whether the cancer was exposed or covered, then the case of contagion was not difficult to prove. And of such a kind, for the most part, was the evidence which is adduced to prove the case. Certain conditions of cancer which were quite well known should be actively before the mind of him who investigated this subject. Thus, two or more cancers might occur in the same individual. It was a matter of common observation that several rodent ulcers might attack the face, but no direct relation could be traced between them. In like manner, the surface of the tongue might present two or more squamous carcinomata. Or an individual might suffer from squamous carcinoma of the larynx and

from cylindrical carcinoma of the rectum. All these were spoken of as cases of multiple carcinoma, and it was believed they had no direct relation to one another, in the sense that no one of them depended for its occurrence on any other of them. Next, carcinoma might occur in parts of the body in direct relation with one another through the medium of the lymph or blood. Thus, the breast was the seat of carcinoma, and the axillary glands become affected. Or, carcinoma attacked the rectum, and growths of carcinoma were discovered in the liver. In these cases the carcinoma of the glands or liver was of the same variety as the carcinoma of the breast or rectum, and the theory was universally accepted that the one disease depended for its existence on the other, and that some part of the carcinoma, or something derived from the carcinoma, was conveyed from the breast into the glands through the medium of the lymph, or from the rectum into the liver through the medium of the blood. Such transference of the carcinoma was spoken of as a metastasis. Again, carcinoma was conveyed experimentally from one part of the same body to another, or from one animal to another of the same species. It was sometimes said that every successful implantation was neither more nor less than a metastasis; and this, to a certain extent, was true, but only within limits, for the conditions which surrounded the material which was implanted differed in some important respects from those which occurred in metastasis. Nevertheless, so frequent and successful was natural metastasis, that it might reasonably be expected that carcinoma would be most easily and readily conveyed from one animal to another by introducing some of the carcinomatous material into the blood, which presumably would convey it to various organs of the body, in one or other of which it would be likely to find a suitable soil and nourishment for its maintenance and development. Experiment had, however, taught us that this method was very unsuccessful, and it had almost ceased to be employed by those who experimented with cancer.

The accumulation of knowledge of the last few years enabled us to formulate, much more definitely than we could before, the conditions under which carcinoma was likely or unlikely to be accidentally communicated from one human being to another. Thus it would be at once apparent that all cases of reputed contagion of cancer in which the disease was not of the same variety must be unhesitatingly rejected; that cases must not be accepted where there was no evidence that the affected parts of the two individuals were from time to time in contact; that it was extremely improbable that contagion should take place from a covered cancer—such, for instance, as a cancer buried in the breast; or that the disease could be implanted in a part the covering of which had not been broken. These exclusions largely limited the number of possible cases of contagion, and the limitation was still greater when it was taken into account that sepsis of the tumor or of the broken part which came in contact with it was an almost absolute obstacle to the success of accidental implantation. For it was notorious that cancers which were exposed for the most part rapidly became septic, and ulcerated and suppurated. Indeed, the conditions which generally prevail were so unfavorable to accidental implantation in human beings that the event might be regarded as wellnigh impossible and scarcely worth the trouble of investigation, were it not for the occasional occurrence of what appeared to be examples of successful implantation in different parts of the body of the same individual. Such cases had long been known under the name of autoinoculation, and it was these, the speaker said, which would be studied in his address, for the key to the problem of the communicability of cancer in human beings surely lay in the study of autoinoculation. If autoinoculation could be proved on such evidence as would be admitted in a court of law, there was a *prima facie* case for contagion. And, if the proof of autoinoculation fell through from lack of sufficient evidence, whether in quality or quantity, it was no longer worth while to pursue the study of contagion from individual to individual. There were two locations in which autoinoculation would be likely to occur, if it occurred at all, and these were the vulva and the vocal cords, and accordingly Mr. Butlin had issued a circular letter to a large number of specialists or persons interested in gynecology, begging of them cases of contact-cancer of the vulva, and a similar letter was sent to those persons who were interested in laryngology. To these letters quite a number of replies were received, and from them he collected eight cases in which the evidence of autoinoculation was satisfactory. He also cited a case of contact epithelioma of the lips reported to the Boston Medical Society by von Bergmann in 1887. Several other cases were also referred to of apparent autoinoculation of cancer in other parts. The cases, he said, were not so numerous, but that he would fain have more of them; nevertheless, he thought they were too many and too constant in the circumstances of their occurrence to be explained on the theory of coincidence, and he believed they afforded conclusive evidence of the possibility of autoinoculation. He confessed, however, that his belief that carcinoma was a parasitic disease, and that the carcinoma cell was the parasite, predisposed him to think that the disease was capable of autoinoculation.

The study of autoinoculation was, however, only preparatory to that of the communicability of cancer from one human being to another, and he had set himself the task of investigating this question. Coition seemed to him the most likely of all conditions to place either the male or the female in danger of contracting cancer, yet from the nature of the case such occurrences must be rare, since the occurrence of open cancer in the case of the male would render him disinclined to coition, and in the case of the female an ulcerated cancer was generally septic, and so not likely to be communicable. Far, then, from wondering at the rarity of the reports of coition-cancer, he would be surprised if they were more frequent, and the small number of such cases must be compensated by the quality of those which were discovered.

The close of the week was, as usual, marked with numerous entertainments, excursions, etc., and the whole time the inhabitants of the city displayed the well-known Devonian hospitality.

SECTION OF MEDICINE.

Wednesday, July 31.—First Day.

WILLIAM GORDON, M.D., OF EXETER, IN THE CHAIR.

Indications for Operation in Cases of Intracranial Tumor.—Dr. J. S. RISIEN RUSSELL, in opening this discussion, prefaced his remarks with a plea for the early diagnosis of cerebral tumor and for early operation in suitable cases. In discussing the influence of diagnosis, he said that among affections that might be mistaken for cerebral tumor were hysteria (especially in tumor of the frontal lobe, general paralysis, disseminated sclerosis (especially in tumors of the cerebellum and mesencephalon), cerebral thrombosis (especially from those cases of tumor in which the symptoms came on rapidly), and cases of thrombosis with headache and vomiting and other severe initial symptoms. As to the conditions under which operation might be recommended: When there was reasonable certainty of the diagnosis of cerebral tumor a decision had to be arrived at whether the object in view was to effect cure or merely to relieve symptoms and prolong life. Before recommending an operation to effect cure, the first step was an accurate localization of the position of the tumor. Localization might, however, be not absolutely accurate and yet be near enough to allow of valuable results being obtained by operation. Cases were referred to in which, though localization was apparently obvious, no tumor was found at the operation, and in which much relief in regard to the symptoms followed the opera-

tion. But even if the localization were quite accurate, the position of the tumor had an important bearing on the question of operation, which might be negatived if deep in the hemisphere, if far forward in the middle cerebellum, or if lodged in the mesencephalon; in there, no cure could be hoped for. The nature of the growth also was of great moment. Guidance might be obtained from the length of the history, but it was to be remembered that tumors in the silent regions of the brain might last for a long time without giving any indication of their existence. Slow progress in a non-silent region, however, was somewhat in favor of its simple nature. The more diffuse the tumor the less likelihood was there of cure; similarly, operation was contraindicated if the tumors were multiple, especially if metastatic. Cases of simple nature were more common in the cerebellum and lateral recesses than in the hemsipheres. In regard to syphilitic tumors, some were of so chronic character as to be apparently incapable of benefit by giving mercury and potassium iodide; unless marked improvement followed in a few weeks from medicinal treatment, operation should be had recourse to. The probable effects of the operation had to be taken into account—as paralysis and risk to life from shock, hemorrhage, sepsis, etc. The rule of operating in two stages tended in some cases to obviate these risks, although death had been known to occur from failure of respiration in the interval between the two operations. No definite rule should be laid down on this point. It was to be looked for that a certain degree of paralysis would follow removal of tumor of the brain; such should be accepted, but whether a permanent aphasia should also be was a question for the patient to decide. As to recommending the operation merely with the view to relieve symptoms and prolong life, the former object was attained by opening the skull alone. It had, however, been thought that removal of part of the tumor retarded its growth and so prolonged life. No patient should be allowed to become blind from discarding operation. Lumbar puncture as a temporary measure was, as such, of value in relieving symptoms until a set operation could be undertaken.

Sir William MacEwen thought operation should sometimes be done in the absence of the classical symptoms of cerebral tumor. He agreed, moreover, that in some cases of syphilitic tumor operation was urgently required, especially if the tumor was large or there was caseation. What might be a sufficient trial of drugs was ordinarily left to the physician, but it should not be, he thought, many months. As to doing the operation in one or two stages, it was a good plan to decide after the first stage was done whether the further operation should be proceeded with or be postponed, according to the condition of the patient in regard to shock at the time. Relief of distressing symptoms was strongly to be desired, and operation recommended accordingly, and he had often seen the paralysis resulting from operation entirely clear up. In cases where aphasia or sphincter paralysis seemed inevitable, he would hesitate to recommend operation. In regard to lumbar puncture, there were not sufficient data to show its degree of efficacy or otherwise.

Dr. Mitchell Clarke referred to the cases of apparent tumor in which no tumor was found—cases of so-called "pseudo-tumor," in some of which blindness occurred. Some of these cases were doubtless, as Oppenheim had suggested, cases of internal hydrocephalus with serous meningitis. The difficulty of distinguishing between direct and indirect symptoms (as from edema) was alluded to, also the recent improvement in the prospects of patients suffering from tumor of the cerebellum, especially of the lateral lobes, to cases of cerebellar tumor commencing with auditory symptoms; to the value of tenderness of the scalp in localization; to the method of percussing the skull. If in syphilitic cases there was no definite improvement in three or four weeks, he thought there was no reason to persist in medicinal treatment. If the blood pressure were well maintained, the operation might be done at once and not in two stages.

Mr. Marcus Gunn said that in regard to so-called optic neuritis in its early stages evidence of inflammation was wanting, and the ophthalmoscopic changes were due, he believed, not to inflammation, but to the pressure of edema. The occurrence of these signs in greater frequency among hypermetropic patients was emphasized, and it was suggested that the shape of the globe of the eye had a mechanical influence on the production of these signs, the increased pressure within the optic sheath acting more on the nerve than in myopia with its wider sheath space. Certain stages of the papillitis were enumerated, including redness of the disk, swelling hemorrhages, impairment of vision, and late pallor. By a relief of intracranial tension, when the swelling was not of long standing, the prognosis as regards sight was good; if pallor had ensued, *i.e.* in the later stages, it was bad. Much swelling or the presence of hemorrhages were not absolute contraindications of recovery. Removal of the tumor did not seem to have any more beneficial effect than mere opening of the dura. Some of the best results as regards the eyes had followed removal of cerebellar tumors. His impression was that lumbar puncture would not give such relief of the papilla changes, as opening the skull; the cranial operation afforded more and more permanent relief.

Dr. Newton Pitt asked in what proportion of cases where intracranial tumor had been diagnosed was operation possible or advisable. Internal hydrocephalus following accident was discussed as confused with intracranial tumor. The question arose what good could be done in this condition when discovered by the operation; one case was mentioned in which drainage of the lateral ventricles had done much good, in most cases. This was not so. Cases of "pseudotumor" were mentioned, and the suggestion that they might be obsolescent tubercle made. At necropsies on cerebral gumma, he had always found a fibrous caseous mass left behind; he knew of no evidence of a gumma in the brain having entirely cleared up under drug treatment.

Mr. Donald Armour thought some ambiguity had arisen in regard to the term "operable" as applied to cerebral tumor; it had been applied by some as to be almost synonymous with curable. He would describe as operable any brain tumor which could be wholly or partly removed with improvement in the patient's symptoms. The chief cause of failure to obtain a cure was the infiltrating nature of the tumor. It was a question to be decided in each case whether removal of portion of the tumor was likely to benefit by arresting the growth or ameliorating the symptoms. Operation in every case should include exposing the tumor, and removal of the whole should be aimed at. Palliative operation might be undertaken for tumors which, though localizable, could not be removed, or even in non-localizable cases. Should exploration for subcortical growths be undertaken? The reply depended on whether any important function of the brain would be interfered with thereby.

Dr. W. Osler thought it a reasonable scepticism on the part of the profession in regard to the value of operation in cases of cerebral tumor, when general surgery, and not highly special surgery, was involved. He alluded to the remarkable interludes in the symptoms seen in certain cases of brain tumor. He was not sceptical of cure of cases of gumma in the brain by medicinal treatment if begun early. In the brain the coexisting arterial change had an influence on the result.

Dr. W. B. Lees said he believed that in some cases of

tumor of the lateral lobes of the cerebellum very great relief might be obtained by tapping the lateral ventricles, and referred to several instances, both of congenital hydrocephalus and of cases of posterior basic meningitis. He alluded to the occasional occurrence of prominence of the bone over intracranial tumors, particularly in cerebellar tumors and in children.

Dr. E. Bramwell thought that in every case of intracranial tumor coming to operation a definite plan should be determined upon between the physician and surgeon as to what should be done under certain circumstances, and particularly bearing on this question whether it was worth while to attempt to remove a subcortical tumor.

The President, Dr. William Gordon, described a case of tumor above the tentorium with unconsciousness, in which no relief was obtained from tapping of the lateral ventricles; trephining below the tentorium gave permanent relief; and another case with improvement after the second operation.

Dr. Risien Russell, in closing agreed that the absence of classical signs did not negative operation. As to drainage of the lateral ventricles, he thought it was not an operation for permanent relief any more than lumbar puncture, and was not to be compared with trephining. He had not himself seen any necropsy on a case of gumma healed by medicines with complete disappearance of the gumma. In decompression operation it was of the first importance to trephine over silent regions of the brain.

Cerebrospinal Meningitis.—Dr. A. G. Robb then read a paper based on observations on the recent outbreak of cerebrospinal meningitis in Belfast, including 230 cases. Three kinds of meningococcus (Kolle's, Wassermann's, and Ruppel's) serum were used in seventy-nine cases, with a mortality of 74 per cent. Lumbar puncture gave occasionally much relief. The opsonic method after the sixth day gave more reliable diagnostic indications than lumbar puncture and bacteriological examination of the cerebrospinal fluid. There was no evidence in any case of direct infection through contact.

Dr. William Osler congratulated the Belfast profession on the way they had combated the epidemic. It was a most mysterious epidemic disease, paralleled only by one other disease—pneumonia. In view of the alarm stirred up in regard to direct infection, the experience of the Belfast epidemic was of much value. He regretted the failure there of the serum treatment.

Dr. F. J. Poynton remarked on the increase in the number of cases in two London hospitals of posterior basic meningitis during last winter. Two or three remarkable recoveries followed serum treatment. He alluded to cases with arthritis.

Dr. McKisack alluded to the evidence bearing on the identity or otherwise of the epidemic and the sporadic posterior basic forms. In the present epidemic agglutination tests suggested that there were different strains at least of the microorganism, and some evidence pointing to the occurrence of different organisms.

Dr. Clive Riviere read a paper on the tuberculin treatment of tuberculosis in children.

Thursday, August 1—Second Day.

Diagnosis of Acute Pancreatitis. Dr. W. Osler, in opening the discussion, referred to the time when the pancreas was considered of little or no importance, to the time of the appearance of the work of Pitz, and to the later period dealing with the pancreatic ferments, and the relation of the pancreas to diabetes.

Of acute pancreatitis there were two groups—one with swelling of the gland, which might be due in part to coincident hemorrhage, and the other in which the gland was in a state of suppuration or necrosis. It was often difficult to say whether the hemorrhage had preceded or followed the inflammation. One important distinctive point anatomically was that in the acute pancreatic hemorrhage there was no fat necrosis. Of acute pancreatitis there were three chief causes: first, a mechanical one, as a stone in the common bile duct, leading to bacterial infection, but stone in the pancreatic duct was rare; secondly, chemical irritants as bile, duodenal contents, and gastric juice; thirdly, and most important, the various forms of pathogenic bacteria existing in the intestine. The pancreatic juice had bactericidal properties, and it was only when stasis occurred that infection resulted. The frequent association of gallstones with acute pancreatitis (in nearly half the cases) was remarkable; the stone situated in the ampulla of Vater was especially a cause. But a stone might exist for years in this position without causing suppuration, merely showing recurring chills, slight jaundice, pain, and fever from time to time. It was in these cases, however, with stasis of the pancreatic juice that acute pancreatitis was apt to occur. Bile alone could not probably cause the disease short of bacterial infection. A very large group of cases were those with gastrointestinal disturbance, many of whom were alcoholic, and possibly had duodenitis with catarrhal blocking of the duct. Of other less common causes were such as mumps, typhoid fever. From the point of view of diagnosis there were two types of cases, the acute and subacute. The acute was one of the severest forms of the "acute abdomen" with sudden prostrating agony referred to the abdomen, occurring in paroxysms, almost immediately followed by vomiting, like that of an acute obstruction of the upper part of the small intestine, intense shock, often a diffuse lividity, while tenderness might be present from the onset over the upper part of the abdomen, and a diffuse swelling might appear, which might, however, be obscured by the rapid distention of the abdomen. A diagnosis of acute pancreatitis was often quite impossible; all the symptoms might be found in severe hepatic colic or in acute perforation of the stomach. The history was of the greatest importance, as of alcoholism in the middle-aged, or with record of gallstones, and then the sudden symptoms. Death usually took place in three or four days from the onset. In the suppurative form the symptoms were less acute at first; there was less urgent pain, but fever occurred, and a tumor mass between the ensiform and the navel. The tumor might extend to the left reaching to the flank. The stools and urine were characteristic of pancreatic disease. The stools might contain fragments of necrotic pancreas or the typical excess of fat. As to prognosis of a large series, 90 per cent. of those not operated on died, and over 50 per cent. of those operated on were saved. Those due to gallstones were more especially fatal.

Dr. P. J. Cammidge referred to fifty recent cases, of which only five were diagnosed during life, showing the difficulty of the diagnosis. As helps, he recommended the examination of the excreta. In the majority of the cases of acute pancreatitis there was constipation. As to the urine, he had investigated seven cases of acute pancreatitis and one of subacute; the only striking feature was a considerable quantity of acetone and diacetic acid, many calcium oxalates, crystals, bile in the urine, and urobilin. It had been said that 10 per cent. of the cases had glycosuria, but none of these had this except one, when seen nearly a year after the attack. He referred to the pancreatic reaction in the urine he had devised, which was given by several of his cases.

Dr. W. Newton Pitt referred to the question of the mortality of the acute cases, describing a supposed case following a blow on the abdomen with epigastric swelling, which recovered; a second case, with a very septic mouth, suggesting a bacterial extension of the pancreatic duct, a swelling to the right of the epigastrium, and suppuration found on operation.

Dr. Craven Moore referred to four necropsies he had made on cases of acute pancreatitis. In three of the cases there was distinct history of alcoholism; in all there was history of anomalous dyspeptic attacks, called "bilious," the final attack coming on with sudden, severe pain, tenderness, pyrexia (101°), rapid pulse (100+), and extreme collapse with cyanosis of the extremities. His patients

looked far more ill than those suffering from perforative peritonitis. In one case the pain, at first general, became later most marked in the right iliac region simulating appendicitis. Two of the cases developed acute maniacal delirium with dilated pupils. The possibility of recovery from acute pancreatitis must be kept in mind. It was possible that the preceding attacks of causeless dyspepsia were really slight attacks of acute pancreatitis. Cases of gastric succorrhea might possibly belong to the same group.

Dr. F. J. Poynton referred to a case of ulcerative endocarditis, in which infarcts with acute inflammation were found in the pancreas, and to celiac disease in children with white stools and symptoms of severe abdominal disease and wasting.

Dr. H. Davy referred to a case of pancreatic disease with an acute onset, followed by the development of a large cyst in the abdomen, recovery following drainage.

Dr. Northrup remarked on the importance of directing attention to obscure diseases.

Dr. Tyson referred to two cases of embolism of the superior mesenteric artery, which had been diagnosed as acute pancreatitis, but which showed blood in the stools.

Dr. Morrison alluded to cases of epidemic chronic diarrhea with fatty stools, but without jaundice, and in some of these was found evidence of fibrosin of the pancreas and ulceration of the colon.

Dr. Nolan also alluded to and described a case of embolism of the superior mesenteric artery simulating acute pancreatitis.

Dr. Osler, in closing, said he had seen several instances in which all the symptoms of angina pectoris were abdominal. The great majority of the cases probably went on to a fatal termination unless operated on; the patients were really hardly in a condition to encourage operation. The picture was much more severe, as a rule, than in cases of acute perforative peritonitis. He did not think the picture of gastric succorrhea was at all like that of acute pancreatitis. Celiac disease quite possibly had an association with the pancreas. Bloody stools differentiated embolism of the superior mesenteric artery from acute pancreatitis.

Dr. W. P. Northrup of New York then read a paper on the treatment of pneumonia and other acute infectious diseases by open-air roof wards in metropolitan hospitals.

Dr. J. Michell Clarke of Bristol reported a case of lymphadenoma treated with *x*-rays.

Dr. Samuel West of London read a paper on pericarditis, including observations on symptomatology and treatment, recommending the administration of opium in many cases, and discussing the precautions for paracentesis.

Dr. W. Hunter of London read one on the effect of oral sepsis and antisepsis in scarlet fever bearing on such complications as angina and adenitis.

Dr. W. J. Tyson of Folkestone read one on the prevention of appendicitis.

Friday, August 2—Third Day.

Rheumatoid Arthritis and the Morbid Conditions Which Simulate It, with Special Reference to Pathology and Treatment.—Dr. A. P. Luff, in opening this discussion, said that although there were many forms of infective arthritis resembling rheumatoid arthritis, yet he believed it to be an entity—a constitutional disease due to bacterial invasion. The toxins produced by the organisms gave the nervous changes, pigmentation, etc. It might be distinguished from subacute rheumatism by not reacting to salicylates. It always began in one joint, but shortly it became polyarticular. The "monarticular forms" he thought were traumatic and should be called osteoarthritis. Rheumatoid arthritis occurred in two forms, acute and chronic, according to the degree of virulence of the infection. Comparatively slight injuries might lead to the commencement of the manifestation of the disease. In the acute form the synovial membranes were mainly affected. In the chronic, the cartilages and bones. The cases with Heberden's nodes, the mildest type, were more common in women than in men. In the majority of cases it was a final disease, but in some cases a previous arthritis of other forms might predispose, as might any debilitating condition. Uric acid had nothing to do with the disease. As to treatment, to be successful, it should be commenced early and persevered with for a year or two. Everything must be done possible to keep the patient's health at a high level. If taken early it was curable; if late it might be relieved, but not more than that. It required good and nutritious feeding, unlike gout; animal food should be taken freely. The drugs he had found most useful were guaiacol and potassium iodide. The guaiacol probably acted by inhibiting the organisms in the alimentary tract, and possibly by combining with the toxins. The iodide probably acted as an absorbent. The best way of giving guaiacol was as the carbonate in cachets increased from 5 to 15, or 20, grains three times a day. It was capable of arresting the disease in a large number of cases. In late cases mobility of the joints might be promoted by superheated air, massage, passive movements; brine baths, and douche massage. As to climate, dry heat improved the condition, and damp cold increased it. Egypt was one of the best winter resorts.

Dr. Strangeways said he believed there was no such disease as rheumatoid arthritis. At Cambridge they had studied the cases of arthritis (groups usually termed rheumatoid arthritis) from the literature, mostly valueless, from clinical notes (which were too much based on the clinical entity theory) on the lines of geographical distribution; family history, sex, age at onset, etc., from the morbid anatomy and histology, bacteriology, metabolism (the excretion of urates was altered) and from *x*-ray changes—some cases showing no joint changes, others atrophic (infective), and others hypertrophic, the last allied to gout, and all probably infective diseases.

Dr. Henry Davy thought little or nothing was known about the disease. Rheumatoid arthritis, so-called, was rare in the Exeter district of Devonshire. He had never seen a case cured. He believed that rheumatoid arthritis included a mass of very different kinds of arthritis, including even cases of tuberculosis of the joints.

Professor T. McCrae argued that the disease had a definite character, but many different types. He believed it to be an infectious process, and resembling in some respects the arthritis of gonorrhea or typhoid, though clinically different. He had never seen a case of rheumatic fever pass on to rheumatoid arthritis. If, in cases of the polyarticular forms of rheumatic fever, any permanent changes were left in the joints, it was necessary to revise the diagnosis. The *x*-rays were most useful in regard to diagnosis and for ascertaining how much damage was present in the joints. The treatment should be very much on the lines of that of tuberculosis—hygienic and dietetic. He believed in palliative treatment by Bier's hyperemic methods. Morbid anatomy was of little value in the study of the disease; much more was to be learned from operation. Apparently, monarticular forms on examination proved to be really polyarticular. Patients were often left with but little damage. He believed that in most cases the changes began in the cartilages, but not advancing far in some.

Dr. W. R. Gore believed the original cause of the disease was an infection from the gastrointestinal tract. The chief differential diagnosis was between early gout and rheumatoid arthritis. Treatment must be systematic and prolonged; the digestion should be put in order, easily fermentable food avoided, and proteid and fat freely given. He believed in Spa treatment for the condition, endeavoring especially to combat the intestinal fermentation. Electric light baths and massage were the best forms of local treatment; he also had found the hyperemic treatment of Bier good.

Dr. W. J. Middleton drew attention to the importance of considering the previous health history of patients. He believed the disease to be due to many different organisms, and thought its immediate cause was toxemia. He ap-

proved of the sanatorium principle in the treatment of the disease. He believed in counterirritation to the spine, Dr. Latham's method for the condition.

Dr. W. J. Tyson argued for the prevention of rheumatoid arthritis by daily exercise of the joints with good ventilation and dryness of dwelling houses.

Dr. Preston King really doubted whether there was such a disease as rheumatoid arthritis. He thought many cases were allied to gout, and that gonorrheal rheumatism was clinically indistinguishable from it sometimes.

Dr. J. O. Symes thought that two distinct diseases were included under the name of rheumatoid arthritis—one with fibrous structures affected, and the other the bones, and he believed that the two did not pass into each other. Some cases were due to bacterial infection and some due to altered metabolism in both groups. As to the bacteriology, he had found various cocci, but never anything specific. He believed it might arise from the gonococcus and many other organisms. The chief distinction to be made was between subacute rheumatism and commencing rheumatoid arthritis. Among other distinctive points was that the fluid from a subacute rheumatism joint showed an excess of polymorphonuclear leucocytes, but not that in rheumatoid arthritis, which showed a mononuclear count.

Dr. Michael Foster believed climatic treatment was useful for the relief of pain, but it was impossible to say which climate would effect this. For improvement of nutrition, probably the warmer place within limits the better, sunshine favoring an open-air life. The essentials of treatment were, he believed, identical with those of the open-air treatment of tuberculosis, with the exception that he would give stout. Except for the relief of pain, he believed drugs useless. Passive movements and electric baths were of great value.

Dr. W. B. Lees considered that the group called rheumatoid arthritis were in urgent need of analysis; excluding gout, rheumatism, syphilis, tubercle gonorrheal, and tabetic cases, the rest were called rheumatoid arthritis, but in this group there were probably at least three or four diseases. First, among these were the cases described by Dr. Still, an insidious polyarthritis occurring in children and associated with enlargement of the spleen and lymph glands—that must be a microbic disease. Secondly, there were the acute or subacute cases occurring in young women. Some of these at least were distinguishable from rheumatism, but others were probably truly rheumatic, and should be treated energetically as rheumatism with sodium salicylate. Thirdly, cases in middle-aged women with much bony deformity, also probably microbic and possibly associated with an insufficient consumption of fluid.

Dr. F. J. Poynton had investigated with Dr. Paine a case of rheumatoid arthritis, and had isolated a micrococcus with which they had produced a rheumatoid arthritis in rabbits—a periarthritis and an osteoarthritis—but the same organism might produce a monarthritis or a synovitis. Many cases of rheumatoid arthritis of the joints were, he believed, essentially rheumatic, comparable in their pathology with malignant endocarditis as affecting the heart valves. He believed, too, that there was much in the rheumatic gout idea, the soil provided by a gouty inheritance aiding the infection.

Dr. Sykes also thought there probably was a gouty factor. In some of the cases there might be a bacterial factor from the beginning, but in the majority he believed that came in later. He approved of the system of collective investigation. Physical treatment—exercise, electricity, and heat—was the chief thing

Dr. Fox had found rheumatoid arthritis very prevalent in the Plymouth district of Exeter. Drugs, he thought, were useless; heat, electricity, and physical exercises were the mainstay.

Dr Draper thought that ground air was an important cause

Mr Greenver advocated surgical treatment of the joints in some cases of rheumatoid arthritis—washing out the joints.

Dr. Odell had found guaiacol and hypophosphites, and ichthyol of especial use.

Dr. T. Morrell Thomas had found the breaking down of adhesions useful.

Dr. W. Gordon thought our knowledge of the subject was chaos which was shaping itself. He had found guaiacol carbonate of much value.

Dr. Luff, in reply, emphasized the necessity of early diagnosis. The simple method of distinguishing it from rheumatism was that it did not react to salicylates. Its prevalence in Plymouth he ascribed to the moist seaside climate. He had not found it possible to use the Bier method when many joints were involved. He had not found counterirritation to the spine of any value in rheumatoid arthritis. He could not agree that it was a rheumatic disease; he believed the microorganisms would be found to be different.

(*To be continued.*)

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-fourth Annual Meeting, Held at Washington, D. C., May 7, 8, and 9, 1907, in Conjunction with the Congress of American Physicians and Surgeons.

(Special Report to the Medical Record.)

The President, Dr. Thomas Darlington of New York, in the Chair.

(*Continued from Vol. 71, page 840.*)

The Effect of Florida Climate Upon Acute and Chronic Disease.—Dr. Frank Fremont-Smith of Washington read this paper, pointing out the advantages of the climate of Florida, from which it was manifest that there was little fear of serious acute illness by winter residents of that State. The improving effects of the climate upon chronic diseases was said to be greater than that of sea-level summer in the north by reason of almost continuous sunshine, absence of evening chill, and the slighter diurnal temperature variations. Diseases of the circulatory and excretory systems were said to find their specially favorable conditions, particularly those forms dependent upon arteriosclerosis, local or general. He had seen cases of albuminuria greatly benefited by prolonged residence. Gouty and rheumatic subjects with incipient neuralgias or neurites had improved. Acute stages of pulmonary tuberculosis did not receive the same advantage as in the more invigorating climates. The advantages of easy accessibility, freedom from acute and climatic illness, and the toning down of overworked nerves, associated with its tendency to simulate Nature's restorative processes were claimed for Florida's influence upon health and disease.

The Blood Pressure as a Guide in the Treatment of Hemoptysis.—Dr. Edward O. Otis of Boston said that in the treatment of no symptom or complication of disease did the old aphorism of Hippocrates, "Experience is fallacious and judgment difficult," seem so true as in that of hemoptysis. Eighteen cases, mostly recurrent, had been observed in which the blood tension was taken at or as soon as possible after the hemorrhage began. The author suggested a plan of treatment somewhat as follows, provided, that any active treatment was indicated: First, a knowledge of the blood pressure of the patient from previous observations. On the occurrence of the hemorrhage, ice, morphine, and atropine subcutaneously, and, depending upon the amount and rapidity of the hemorrhage, the inhalation of nitrite of amyl. A laxative dose of sulphate of magnesia, and, if the bleeding persisted or was recurrent, nitrite of sodium or nitroglycerin if blood pressure was high for the individual, or if low, ergot or ergotin subcutaneously. The suggestion

of ergot, although a heretical doctrine, had apparently proved itself of value in at least a few cases when other remedies had failed.

Dr. Delancey Rochester was convinced of the very slight effect upon blood pressure of any drug, nitroglycerin being the only one having influence in lowering the pressure, and this only temporarily.

Dr. Samuel A. Fisk suggested the beneficial effect of fresh air in coagulating the blood and of calomel in diminishing blood pressure.

Dr. Thomas A. Claytor of Washington agreed with Dr. Rochester in his observation of the temporary effect of nitroglycerin in reducing blood pressure. Rest, diet, and purgation had been about the only satisfactory methods in his experience.

Dr. Frank Fremont-Smith observed that the value of the nitrites seemed to lie principally in relieving the spasm of the blood-vessels in which high tension exists.

Dr. R. H. Babcock of Chicago was surprised at the moderately high blood pressure—126 according to the Janeway instrument—in tuberculous conditions. His experience also showed that the nitrites had little influence. In hemoptysis with high blood pressure, in addition to rest he would use remedies to quiet the heart's action. With low blood pressure he would question the advisability of giving ergot, believing that abdominal pressure or ligation of the extremities would be more efficacious.

Dr. Charles Denison advocated immobilizing the part of the chest from which the hemorrhage started.

Dr. Judson Daland agreed with Dr. Babcock in the importance of quieting the heart's action. He believed that ergot had not yet established itself as a remedy of value in the treatment of hemoptysis. His opinion had been somewhat influenced from observation of hematuria in acute Bright's disease in which the hematuria ceased upon the withdrawal of the ergot.

Dr. F. M. Pottenger's experience was that hemoptysis was not so severe in sanatoria is in outside practice. He rarely did more than to quiet the patients by reassuring them mentally. When necessary to use morphia he gave it only in small doses. For lowering the blood pressure he employed nitroglycerin and veratrum viride, giving the veratrum viride at about the time the blood pressure was again rising.

Dr. Thomas Darlington spoke of analyses made by the Department of Health of New York of nitroglycerin tablets. The small percentages of nitroglycerin found made the tablets practically useless. Another point in connection with nitroglycerin, personally investigated some years ago, was that any form of ammonia overcomes the effect of nitroglycerin. Reference was made to the fact of the occasional combined use of these drugs which are directly incompatible.

Dr. Otis, in closing, said that the main object of his paper was to bring out any observations which would aid in definite and precise treatment of hemoptysis and blood pressure and expressed the hope that any observations made in sanatoriums and private practice would be published.

Wednesday, May 8—Second Day.

The Relative Value of High and Low Altitude in the Treatment of Tuberculosis.—Dr. F. M. Pottenger of Monrovia, Cal., concluded from his observations upon this subject that high altitude is not an essential in the treatment of tuberculosis and that the great majority of cases can be treated to best advantage at low elevations. The first point to be considered in choosing a climate for a tuberculous patient was said to be his ability to respond to the demand for tissue change which will be made by such climatic change. This point must be determined upon regardless of the question as to the adaptability of high altitude to the treatment of tuberculosis. High altitude was regarded as contrary to the principles of rest in inflammation in general and in tuberculosis in particular in causing greater activity on the part of the lungs and throwing great strain upon the already overtaxed heart. Another point considered was the apparent unreasonableness of placing an individual deprived of a portion of his aerating surface under conditions subjecting him to a demand for increased respiratory effort and subjecting the heart to more strain. An explanation of the necessity of patients in whom the disease had been arrested in high altitudes remaining there would seem to be explained by the increased size of the heart and lungs attained in the adjustment to the high altitude, and that in the return to the low altitude these organs underwent readjustment, entailing a retrograde process.

Report on Two Hundred Charity Cases of Pulmonary Tuberculosis, under Sanatorium Treatment at Los Angeles (1903-1907).—Dr. W. Jarvis Barlow of Los Angeles in reporting these cases laid emphasis on the fact that patients in all stages were taken and that 92 per cent. were beyond the first stage. The purpose of the report was to show the possibilities in the treatment of advanced cases. The best working plan had been found to be not to take the poor absolutely free but to make a charge of $5, which is usually paid from charitable funds. The necessity of making the patients absolutely comfortable physically and mentally was mentioned. The outdoor treatment was described. No tents are used, but cottages, so arranged that the improved patients are practically in the open the whole of the twenty-four hours. From the 60 per cent. of the 200 cases treated, three were Californians; 82 per cent. of the total number had followed indoor occupations. The average gain in weight in all patients was seven pounds and the average loss 5.9 pounds. The weight on discharge was about 4½ pounds gain, because there were included the patients that died at the sanatorium. The best gain in three months of a far advanced case was 22¾ pounds. Of the total 200 cases, 46 1-5 per cent. of the second and third stages showed a marked improvement. Many of these again became wage earners. The great difficulty in the work of the sanatorium was found to lie in the fact that many of these patients must necessarily return to their wretched surroundings. Such patients kept under proper supervision could reach an arrested condition.

Subsequent Histories of One Hundred and Sixty "Arrested Cases" of Tuberculosis Treated at the Sharon Sanatorium, 1891-1906.—Dr. Vincent Y. Bowditch of Boston and Dr. Walter A. Griffin of Sharon, Mass., presented this paper, which was read by Dr. Bowditch. The histories of the patients discharged as cases of "arrested" pulmonary tuberculosis were given. The writers adhered to the conservative term "arrested" in speaking of cases in which the most important symptoms had disappeared before discharge, after a stay of varying periods of time in the sanatorium, many of these cases having justified by their subsequent histories the use of the less conservative term "apparently cured." Among the 362 patients discharged, 35 remained too short a time to accomplish definite results or were found to be nontuberculous and were not considered. of the 327 considered, 160 were classed as "arrested." Up to April, of these there were still living, 133; number doing well at last account, 6; number who relapsed and died, 21, many of whom were advanced cases. The diagnosis in the great majority of cases in later years was corroborated by the tuberculin test, when the sputa failed to show tubercle bacilli and the physical signs and history were not sufficient to give proof of tuberculous disease. Tuberculin was used therapeutically with caution in some cases which after a comparatively long period of hygienic treatment remained *in statu quo*. The results had been sufficiently impressive to the writers to warrant more extensive use of the remedy, although they still held a conservative position in regard to the efficacy of such treatment. They deprecated the indiscriminate or careless use of the substance. They emphasized the importance of sanatoria as educational centers and deplored the exaggerated statements of overzealous

people who claimed too much after favorable results were obtained. The belief was expressed that a certain number of patients received greater benefit by a radical change of climate when pecuniary conditions did not have to be considered, when the attitude of mind was favorable, and the case was not one of advanced disease.

Importance of Supervision of Patients After Leaving Sanatoria Apparently Cured of Tuberculosis.—Dr. Frederick I. Knight of Boston said that the satisfactory control of tuberculosis in the future would involve a continued knowledge on the part of some authority, not only of the individuals infected, but of their families and all surroundings. This duty should be assigned to special local boards composed of persons really interested in the subject who would work cautiously. One of the functions of such a board should be to supervise the patients returning from sanatoria apparently cured. The establishment of labor or farm colonies was regarded as one of the most promising ways of helping to maintain the health of those restored at sanatoria. Reference was made to the account by Woodcock of Leeds (Congrès Internationale de la Tuberculose, 1905) of his investigation of the possibilities of labor colonies. He reported that at Kelling in Norfolk, at Dr. Fanning's Sanatorium, which was practically a farm, all patients worked; even those unable to leave the shelters, carved wood and made mats, and their work was sold. An "after care" committee concerned itself with getting suitable situations for discharged patients. Dr. Fanning believed that idleness was the worst curse to the consumptives. Boucard, of Cannes, at the same Congress, had insisted that a part of the millions appropriated for the erection of sanatoria be used in establishing farm colonies.

Daily Care of Consumptives at a General Hospital as an Aid in Solving Local Tuberculosis Problems.—Dr. Arthur K. Stone of Boston gave a statement of the experiment of the House of the Good Samaritan in the care of ambulatory cases of tuberculosis. This care was shown to include daily medical supervision, out-door treatment, good food, and home supervision. The circumstances attendant upon the treatment was said to keep up the general morale of the patient. The patient's home was kept intact and the patient allowed to participate in the home duties night and morning. One disadvantage of the plan mentioned was the wear and tear of the patient incident to the coming and going to and from the hospital. Twenty-five patients thus cared for had added small addition to the administration force of the hospital. The cost per patient had been very small and the results good.

The Sleeping Canopy.—Dr. Charles Denison of Denver in presenting this paper described this canopy, which was designed to afford tent advantages indoors, and remarked upon the need of such means of ventilation. The author's design was exhibited and was illustrated by photographs and drawings suitable to enable anyone to construct or procure his own canopy according to his sleeping-room conditions. Dr. Denison thought there should be a rule of space per capita for sleeping purposes so advocated and enforced (by legal enactment if necessary) that no one could plead ignorance as an excuse for unappreciation of the relation of air space to health, such rule to carry with it the condition of renewal per hour. This necessity of sufficient air space, especially during the probably more susceptible sleeping hours, was regarded as the most vital consideration in connection with the tuberculosis crusade, not second in preventative importance to the quality of air in that space, nor to the infective germ of tuberculosis.

Personal Hygiene in the Prophylaxis and Treatment of Consumption.—Dr. Richard Cole Newton of Montclair, N. J., read this paper, remarking upon the relative prevalence of tuberculosis in the lower animals under varying conditions of habit and environment, and considered some of the predisposing causes of tuberculosis in man other than heredity. Conclusions were drawn from the foregoing as to the method of life best calculated to prevent the occurrence of consumption in man. Tuberculosis was shown to be a disease following maladaptation to the environment, improper habits, and defiance of nature's laws, and the assertion was made that nothing would stop its ravages entirely except a life controlled by the physical conscience and the prevention of the contraction a-- the disease. Were dairy cattle given more exercise, and never confined in stables, the author believed normal metabolism would be promoted, and that they would probably not suffer from consumption. In the same way, should negroes and Indians return to their life to which centuries of evolution had fitted them, the disease would probably disappear from among them in a generation. Infection was said to play a secondary part in the production of consumption, as did also heredity, the principal cause being a man's life, habits, and environment.

Dr. Roland G. Curtin believed that home-sickness would nullify the effect of the best climatic treatment possible. He believed also that it was possible to keep a person at home too long.

Dr. Charles L. Minor agreed that the care after return from sanatoria of patients filling positions with moderate salaries was a difficult question. Unless they could work in well-ventilated offices, have adequate provision for nourishing lunches and be much in the open air, the return to their occupations meant relapse to their former condition.

Dr. James M. Anders favored Dr. Barlow's efforts in the treatment of advanced cases, and thought that too often active measures were here abandoned. He felt that the profession failed in its plain duty when it failed to keep in touch with patients after their return from sanatoria. With a return to home environment resistance was lowered and the patient made especially susceptible to intercurrent attacks of bronchitis and influenza. The latter, if not properly handled, led to a relapse of the original disease. The same was true of cases apparently cured of pleuroeffusion. He thought it a reproach to the medical profession that so many of these cases developed into tuberculosis.

Dr. Delancey Rochester protested against the position he understood to be taken by Dr. Bowditch that the discovery of the tubercle bacilli is absolutely necessary to the diagnosis of tuberculosis. In place of the cloth and rubber bags with the paper napkins mentioned by Dr. Stone as supplied to the patients, he suggested the employment of paper bags which could be purchased for a few cents and destroyed. In the matter of proper nourishment for those returning to occupations from sanatoria he advises his patients to have milk delivered at the office, or take it from home, having two or three raw eggs mixed with it.

Dr. Otis agreed with Dr. Wright concerning the very great importance of properly caring for patients returned from sanatoria, and knew of no better way in which this could be done than by means of the farm colony. This should be attached to the sanatorium, and the patients there trained to work that they might be physically able to resume their occupations, or to take up outdoor work in country places.

Dr. Thomas W. Harvey regarded the question of sex of great importance in advising a patient whether he should be treated at home or in a sanatorium. In his experience women can be taken care of better at home than men. The fact that the man is the wage earner is an important factor in this. Men, however, do not bear well the discipline of sanatoria.

Dr. Leonard Weber thought the tendency was to look only at the patient in considering tuberculosis, while attention should be directed to the men who contribute to the development of the disease in employing child labor, running sweat shops and maintaining unsanitary tenement houses.

Dr. Pottenger joined with Dr. Barlow in his plea for active efforts in the advanced cases, believing they were not all hopeless. In addition to the improvement that could be made in the advanced cases an additional advantage

in their treatment in sanatoria lay in their removal as sources of infection and their return after treatment to educate those in their community in methods of prevention.

Dr. Bowditch, answering Dr. Rochester relative to diagnosis by the tubercle bacilli, said he did not regard the discovery of the bacilli necessary for an absolute diagnosis, but that in cases of patients not readily convinced this evidence was conclusive.

Dr. Denison had found the tuberculin test satisfactory in diagnosis. He referred to the statistics made in Glasgow showing the relation of the mortality in tuberculosis to poverty, estimated upon the ratio of one to three persons occupying a room. The mortality was shown to be twice as high in instances of three persons occupying one room as in cases where there was but one. He thought this favored the argument of his own paper that a certain air space per capita should be provided.

Some Notes on Aix-les-Bains.—Dr John W. Brannan of New York City gave some personal impressions of Aix. The water was said to be chiefly remarkable for its constant high temperature, 44° C., and its abundance, averaging over six million liters a day, delivered under very high pressure. The various ways of its employment were enumerated. The method which gives to it its reputation is the douche combined with the massage, and a detailed description of this was given from the author's personal experience. The chief contraindications to the treatment were said to be organic disease of the kidneys or liver and valvular disease of the heart with imperfect compensation.

Hemoptysis Due to Tuberculosis.—Dr. J. M. Anders of Philadelphia subdivided the cases into those occasioned by (a) congestion of the bronchial mucosa and lung-texture, and (b) ulceration or erosion of vessels, or rutpure of miliary aneurysms. The two classes were fully considered. The subject was further discussed under exciting factors; incidence, age, and sex; seasonal influence; clinical peculiarities, and a résumé given of treatment. Certain well-founded principles were said to be but dimly recognized by the present generation of physicians; for example, the bleeding from a hyperemic lung-texture afforded decided relief to the local pathological condition with symptomatic improvement as a secondary result. The therapeutic value of absolute rest in this condition and of restricted feeding, with light, unwarmed articles of diet seemed to be imperfectly grasped. The employment of prophylactic measures was inexcusably neglected. Dr. Anders' best results during the early active stage of hemoptysis have been obtained from the strict enforcement of absolute recumbency and quiet, and an arrest of the cough by codeine in mild forms and morphine hypodermatically in the severer cases. Unless there be obvious danger of inundation of the uninvolved lung-tissue, as in cases of profuse hemorrhage, the cough should be so arrested. Excepting the small class of cases in which opium is contraindicated, morphine, or opium in some form, rightly administered, was emphasized as the most serviceable single remedy available, its signal virtue being ascribable to the remarkable enhancement of a coagulum at the seat of bleeding.

Paroxysmal Tachycardia.—Dr. Philip Marvel of Atlantic City, N. J., in this paper said that the slight physical disability incidental to paroxysmal tachycardia, and the promptness with which the slight disturbed functional forces were again restored, following the arrest of the attack, should the attack be of short duration, contrasted with the marked disability often observed in tachycardia associated with myocardial disease, present two interesting features, and to some degree symptomatically characterize the two types. In the paper presented there were collated some of the recent views advanced as the probable cause of the disturbance and the probable reason pointed out for the absence of great systemic involvement in the former

Two cases were reported and reference made to cases reported in the literature. To the fact that the cardiovascular balance, early in the attack, in spite of the very rapid heart action, is so slightly disturbed, is attributed the absence of marked physical inability. The treatment, so far as the author knew, was said to be purely symptomatic.

Surgical Suggestions.

Epididymitis.—Crouse recommends the following dressing for the ambulatory treatment of this affection: Clip the hairs, lay the patient down, elevate the scrotum to deplete the parts as much as possible, then cut a pad of absorbent wool so that it will amply cover the parts reaching from the perineum and projecting up over the cord. Place a piece of wool, smoothly cut, between the penis and the abdomen, or permit the cord strip to be so cut as to approximate there, taking care that the part for the penis protrusion is not made too large. With these essentials one is ready for the application of the guaiacol, which should be applied to the extent of fifteen to twenty-five minims. Then quickly cover the entire scrotum, dipping the perineal portion of the absorbent wool well under the scrotum; hand the cord ends to the patient, who will thus support the organ while you cover the wool with oiled silk or gutta percha, which is cut to the same pattern as the wool. Work the suspensory from the perineal region forward over the entire mass, but while doing so avoid wrinkling the scrotal covering; slip the penis through the opening in the suspensory, pass the waistband about the body, buckle back straps, and then draw the waist-band as snugly as possible, elevating the entire scrotal mass as far up against and onto the pubis as possible.—*Indiana Medical Journal.*

Vomiting in Infants.—H. Ashley says that vomiting may be the expression of an irritant or toxin acting upon some distant part, as well as one acting locally on the stomach. In infancy the vomiting reflex is always sensitive, like the crying reflex, the coughing reflex, and the heat reflex. With children of a neurotic type, those who are sick and those who are badly nourished, this sensitiveness is exaggerated. Nearly all the troublesome cases are in those babies who are artificially fed. If there is stenosis of the pylorus vomiting cannot be prevented, while if the infant is breast-fed the mother's milk is, as a rule, too rich. In many of the cases there is gastric inertia, dilatation with gas from decomposing contents, and then rejection and intolerance. Washing out the stomach and then beginning again with small quantities of whey or diluted milk will often enable an infant to get a fresh start. Vomiting with fever may be the initial vomiting of scarlet fever, the severe and continuous vomiting early in pneumonia, the severe vomiting with high fever in influenza, persistent vomiting during diphtheria or convulsions, etc. Attacks of vomiting in neurotic children may begin suddenly and continue for several days, with drowsiness, with acetone in the breath and in the urine. These attacks are very suggestive of meningitis, but may be due entirely to gastrointestinal intoxication. Vomiting with peritonitis and obstruction of the bowels points necessarily to urgent conditions within the abdominal cavity.—*Pediatrics.*

Plaster-of-Paris Dressings.—Meisenbach says of the setting of plaster-of-Paris that chloride of sodium in small amounts hastens the set; in large amounts retards it; in any amounts it weakens the dressing by decreasing the crushing force and tensile strength. Dextrin in small amounts strengthens the dressing by increasing both the crushing force and tensile strength, but it also lengthens the time of set in direct proportion to its use. If the time of set is no object, it may be used to good advantage in certain cases, as for instance in making a plaster bed for multiple tuberculous bone lesions. Starch in small amounts (that which is contained in starch sized bandage) adds to the strength by increasing the tensile strength. It does not interfere with the set of the bandage. Portland cement when used in the plaster-of-Paris bandage has the great advantage over chloride of sodium and dextrin in that it can be mixed with the plaster before the bandages are made and that it materially strengthens the bandage in all of its essentials, *i.e.* increases the crushing force, tensile strength, and at the same time reduces the time of set and density. The density with it is less than the density of the pure plaster itself. The dressings made of the cement bandage are of a light sage color and are not as easily affected by perspiration. They are much stronger and lighter than the pure plaster dressings.—*American Journal of Orthopedic Surgery.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

DELAWARE STATE MEDICAL SOCIETY EXAMINING BOARD.

December 11, 12 and 13, 1906.

THERAPEUTICS.

1. What analogy exists between the nutrition of health, the disturbances of disease, and the action of remedies?
2. Give the origin of benzoin and menthol, with their therapeutical applications.
3. In uremic poisoning what remedies are required?
4. What is the physiological antagonism between belladonna and morphia?
5. What are the principal preparations used as antiperiodics?
6. Of what therapeutic value is amyl nitrate?
7. What respiratory stimulants exalt the functions of the respiratory center of the medulla?
8. For what is stramonium used, what are its physiological actions?
9. Give the preparations and doses of the mineral acids with their therapeutic effects.
10. Give the preparations of bismuth, how administered, and indications for use.

MATERIA MEDICA.

1. Give the preparations and classifications of phenacetin, somnal, and hydrogen dioxide.
2. What are the principal anthelmintics, mode of action?
3. Name twelve officinal alkaloids.
4. What are the officinal extracts, how obtained?
5. What is chrysarobin, where found and how applied?
6. Name the alkaloids of veratrum viride.
7. What are the preparations of guaiacum, give physiological action?
8. Name six motor excitants and six motor depressants.
9. Name the preparations of iron, their doses and incompatibles.
10. What is picrotoxin, what combinatory action does it represent?

CHEMISTRY.

1. What is analysis, and synthesis?
2. What is the difference between physical and chemical action?
3. What are the essential ingredients in air? Is it a mixture or a chemical compound? Give proof.
4. What are the chemical properties of phosphorus?
5. What is Labarraque's Solution, and upon what does its disinfectant value depend?
6. What are the physical and chemical properties of ammonia, and how does it differ from other alkalies?
7. Give method of disinfection in detail—1st, with sulphur; 2d, with formaldehyde.
8. Which is the more efficient, and why?
9. What are the best tests for albumin and sugar in urine?
10. What is eucalyptol, and what are its uses in medical practice?

HYGIENE.

1. Will the destruction of offensive odors remove the conditions injurious to health?
2. In what way may the application of fertilizers affect the public health, and how can it be avoided?
3. What are the nitrogenous constituents of food, from whence derived, and what are their functions?
4. What is the period and source of infection and the necessary time of quarantine, in (a) smallpox, (b) scarlet fever, (c) diphtheria, and what do you understand by quarantine?
5. How would you manage an outbreak of contagion among school children? Answer in detail.
6. Describe a practical method for the disinfection of clothing, bedding, etc.
7. How would you provide for an infant who never has the breast available? Name food you would prefer, quantity you would advise, and frequency of feeding, according to age.
8. What general preventive measures would you recommend to stay the increase of tuberculosis?
9. Give the advantages or disadvantages of a state sanatorium for the treatment of tuberculosis. How should it be constructed and managed?
10. What in detail is the duty of physicians in attendance upon infectious disease, to prevent its spread?

PATHOLOGY.

1. Give morbid anatomy of cerebral hemorrhage and name the common cause when it appears in early life.
2. How does the pathology of locomotor ataxia differ from that of ataxic paraplegia?
3. Define dementia and give its pathology.
4. State pathology of tinea circinata.
5. Define indicanuria, name its chief sources and the pathological conditions in which it is most usually found.
6. What is the pathological anatomy of pyelitis?
7. Name morbid anatomy of Hodgkins' disease.
8. Give pathology of biliary calculi.
9. State difference in pathology of catarrhal, ulcerative, and interstitial appendicitis.
10. How does tachycardia differ from bradycardia, and in what pathological conditions are they found respectively?

PHYSIOLOGY.

1. What is the function of the sudoriparous or sweat glands, where is the dominating sweat center located, and how is this excited to action?
2. Name the functions respectively of the anterior and the posterior roots of the spinal nerves.
3. Give functions of the liver and name the blood-vessels entering it.
4. In what way does the blood circulate through the heart?
5. What are the mechanical uses of saliva?
6. What gases have we in the stomach?
7. How do arteries differ from veins?
8. Are the movements of the lungs passive or active?
9. What changes are produced in the atmospheric air by respiration?
10. How does the function of an afferent or centripetal nerve differ from that of an efferent or centrifugal one?

SURGERY.

1. In ligating the superficial femoral artery at its lower third, what structures are severed and what are the anatomical relations?
2. Describe traumatic inflammation.
3. How and why are fever and delirium induced by physical injuries?
4. Bone fractures are how classified? Diagnose and treat a typical fracture of each variety.
5. Dislocations are how classified? Diagnose and treat a typical case of each variety.
6. Explain reasons for preferring any special operation for amputation of both forearm and leg.
7. Explain method of procedure in operating for relief of fistula in ano.
8. In operating for relief of urinary calculi, what method would you use and why?
9. Differentiate hydrocele and chronic orchitis.
10. Deep seated pus cavities are how treated?

ANATOMY.

1. The first vertebra is how attached to the skull?
2. Give shape, size, formation, and articulation of first and second vertebra.
3. Give shape, approximate size, origin, and insertion of trapezius muscles.
4. Describe choroid plexus and situation of 4th ventricle of the brain.
5. Give origin and distribution of superior maxillary nerve.
6. Explain origin and distribution of brachial artery.
7. Give branches of internal carotid artery and their distribution.
8. Give structure, situation, and size of gall-bladder.
9. Give structure, formation, situation, and size of the gastrohepatic omentum.
10. Give location, shape, size, structure, and blood supply of the diaphragm.

OBSTETRICS.

1. Name the internal female organs of generation and state the functions of each.
2. How would you diagnose pregnancy in the early months, before quickening?
3. Mention conditions that may require induction of premature labor. How would you produce the same?
4. What is ectopic gestation? Name its varieties and state how its diagnosis may be established.
5. How would you proceed if called to a case of neglected shoulder presentation?
6. Give causes, pathology, and treatment of ophthalmia neonatorum. What is the great danger?
7. State the causes and give the management of postpartum hemorrhage.
8. State causes and treatment of mammary abscess.
9. Name the important diameters and measurements of (a) the female pelvis, (b) the fetal head.
10. Give the positive and doubtful signs of pregnancy, beginning with those you consider of the most importance.

PRACTICE OF MEDICINE.

1. Mention the conditions that contraindicate general anesthesia.
2. Define arteriosclerosis. Give its etiology and state the age at which it is most liable to occur.
3. What are the symptoms and treatment of acute laryngitis in children?
4. Mention five possible complications of typhoid fever and your treatment of each.
5. Give symptoms and treatment of acute lobar pneumonia.
6. What is meant by immunity? In what ways may immunity be acquired?
7. Define neurasthenia. Give symptoms and treatment.
8. Differentiate tubercular arthritis from rheumatic arthritis.
9. State the symptoms and outline the treatment of (a) opium poisoning, (b) strychnine poisoning.
10. Give the symptoms and treatment of hydrophobia.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

DELAWARE STATE MEDICAL SOCIETY EXAMINING BOARD.

December 11, 12, and 13, 1906.

THERAPEUTICS.

2. *Benzoin* is a balsamic resin derived from the *Styrax Benzoin*. It is an antiseptic and disinfectant; it renders the urine acid; it is used in acute rheumatism, acute laryngitis, chronic bronchitis, and chronic cystitis.

Menthol is a stearopten derived from oil of peppermint. It is used in neuralgias and migraine, vomiting of pregnancy, gastralgia, and colic.

3. In *uremic poisoning* the first indication is to open up all the emunctories; measures must be taken to make the skin, kidneys, and bowels active; the hot pack, elaterin, pilocarpin are suitable agents. Then the respiratory and circulatory functions must be sustained; this can be done with strychnine and digitalis. If convulsions are present or impending, chloral or chloroform or bromides are indicated.

4. The physiological antagonism between *Belladonna* and *Morphia* is as follows: *Belladonna* (1) acts as an excitant and stimulant of the cerebrum; (2) produces dilatation of the pupil; (3) quickens the pulse; (4) first stimulates and then depresses the respiratory center; (5) decreases all the secretions, except urine.

Morphia (1) acts as a sedative on the cerebrum; (2) contracts the pupil; (3) slows the pulse; (4) does not at first depress respiration, but in overdose it paralyzes the respiratory center; (5) checks all the secretions except perspiration.

5. The principal *antiperiodics* are:—Cinchona bark and quinine, Warburg's tincture, arsenic, salicylic acid and the salicylates, eucalyptus, and iodine.

6. *Amyl nitrite* is used for the relief of angina pectoris, epilepsy, spasms, convulsions, whooping cough, asthma, laryngismus stridulus, strychnine poisoning, tetanus, and in threatened death from chloroform anesthesia.

7. Respiratory stimulants:—Strychnine, ammonia, digitalis, alcohol, ether, atropine, apomorphine, hydrocyanic acid, cold douche.

9. Mineral acids, with their preparations and doses:—Dilute sulphuric acid, 30 minims; aromatic sulphuric acid, 15 minims; dilute nitric acid, 30 minims; nitrohydrochloric acid, 3 minims; dilute nitrohydrochloric acid, 15 minims; dilute hydrochloric acid, 15 minims; dilute phosphoric acid, 30 minims; sulphurous acid, 30 minims; boric acid, 7 grains; (liquor antisepticus, 1 dram).

MATERIA MEDICA.

1. *Phenacetin* is an antipyretic and analgesic; there are no official preparations.

Somnal is a hypnotic; there are no official preparations.

Hydrogen dioxide is an antiseptic; preparation, aqua hydrogenii dioxidi.

2. *Anthelmintics* are agents which kill or expel worms inhabiting the intestinal tract.

Vermifuges (which expel the worms) are:—Scammony, jalap, and other purgatives.

Vermicides (which kill the worms) are:—Turpentine, male fern, kousso, pomegranate, santonine, quassia, tannin, spigelia, chenopodium.

3. *Twelve official alkaloids*:—Strychnine, atropine, quinine, morphine, codeine, cocaine, caffeine, physostigmine, hyoscine, hyoscyamine, pilocarpine, sparteine.

4. *Fluid extracts* are liquid alcoholic preparations of vegetable drugs in which one cubic centimeter represents the medicinal properties of one gramme of the crude drug. They are obtained by percolation and partial evaporation with menstrua of alcohol (either pure or diluted).

5. *Chrysarobin* is a neutral principle obtained from Goa powder, which is found in the wood of *Vouacoupoua Araroba* in Brazil. It is applied externally in an ointment.

6. The alkaloids of veratrum viride are:—Veratrine, veratroidine, jervine, pseudojervine.

7. The preparations of guaiacum are:—Tincture of guaiac and ammoniated tincture of guaiac.

Its action is:—diaphoretic, laxative, expectorant, and emmenagogue.

8. *Six motor excitants*:—Strychnine, digitalis, picrotoxin, pilocarpine, ergot, brucine.

Six motor depressants:—Alcohol, opium, aconite, chloral, belladonna, tobacco.

9. The preparations of iron, with their doses, are:—Reduced iron, 1 grain; ferrous sulphate, 3 grains; dried sulphate of iron, 2 grains; granulated ferrous sulphate, 3 grains; pills of ferrous carbonate, 2 pills; saccharated ferrous carbonate, 4 grains; syrup of ferrous iodide, 15 minims; pills of ferrous iodide, 2 pills; ferric chloride, 1 grain; solution of ferric chloride, 1½ minims; tincture of ferric chloride, 8 minims; Basham's mixture, 4 drams; solution of ferric subsulphate, 3 minims; ferric hydroxide with oxide of magnesium, 4 ounces; ferric ammonium sulphate, 7 grains; soluble ferric phosphate, 4 grains; tartarated iron, 4 grains; iron and ammonium citrate, 4 grains; iron and strychnine citrate, 2 grains; iron and ammonium tartrate, 4 grains; iron citrate, 4 grains; iron and quinine citrate, 4 grains; soluble iron and quinine citrate, 4 grains; pyrophosphate of iron, 4 grains; dialyzed iron, 10 to 30 minims.

Incompatibles:—Acids, acid salts, alkalies and their carbonates, and vegetable astringents.

10. Picrotoxin is a neutral principle found in the seeds of the *Anamirta paniculata*.

It represents the combined action of belladonna and nux vomica.

CHEMISTRY.

1. *Analysis* is the splitting up of a compound into its elements or into simpler compounds.

Synthesis is the building up of a compound from elements or from simpler compounds.

2. "A bar of soft iron may be made to emit light when heated, or sound when caused to vibrate, or magnetism when under the influence of an electric current. Under the influence of these *physicel forces* the iron suffers no change in composition, and, on cessation of the action of the inciting force, the iron returns to its original condition. But if the iron be heated in an atmosphere of oxygen, both the iron and a part of the oxygen disappear, and a new substance, a new chemical species, is produced, having properties of its own, different from those of either the iron or the oxygen. In this case there has been *chemical action*, causing change of composition, as the new substance contains both iron and oxygen. The result of such action is, moreover, permanent, and the new product continues to exist, until modified by some new manifestation of chemical action."—(Witthaus' *Manual of Chemistry*.)

3. The essential ingredients in air are:—Oxygen, nitrogen, carbon dioxide, water vapor, argon, and ammonia.

Air is a mixture, and not a chemical compound.

This is proved by the following facts:—(1) the composition is not always absolutely the same; (2) the proportion of the elements, oxygen and nitrogen, is not in any relation to their atomic weights; (3) when oxygen and nitrogen are brought together in the proper proportions, no chemical action occurs, and yet the resulting mixture has the properties of air.

4. *Chemical properties of phosphorus*:—Phosphorus has an atomic weight of 31 and a molecular weight of 124, there being four atoms to the molecule; it has a valence of three or five; it combines readily with oxygen, chlorine, bromine, and iodine; it is a good reducing agent; it is not acted on by hydrochloric or cold sulphuric acid, but is oxidized by nitric acid.

5. *Labarraque's solution*, or solution of chlorinated soda, is an aqueous solution of several chlorine compounds of sodium.

Its disinfectant value depends upon the presence of the chlorine which can be liberated.

6. *Ammonia. Physical properties*:—A colorless gas, with a pungent and irritating odor, and a caustic taste; it is very soluble in water and in alcohol.

Chemical properties:—It combines directly with acids to form ammonium salts.

It differs from the other alkaloids in being volatile, having a pungent irritating odor, being a gas, and in its action with acids.

9. Good tests for *albumin* in the urine are:—(1) the heat test, and (2) the nitric acid test.

Good tests for *sugar* in the urine are:—(1) Fehling's test, and (2) the fermentation test.

10. Eucalyptol is a neutral body obtained from oil of eucalyptus.

It is used for lotions and nasal applications, also in malaria, bronchitis, gonorrhea; on ulcers it has a disinfectant and stimulating action.

HYGIENE.

1. The destruction of offensive does not necessarily remove the conditions injurious to health.

3. The nitrogenous constituents of food are derived chiefly from the flesh of animals, fish, fowl, milk, eggs, and certain vegetable products (wheat, oatmeal, peas, beans, etc.). The constituents and functions are shown in the following table adapted from Notter and Firth's *Hygiene*:

Nitrogenous Substances	Examples	Functions
1. All substances containing nitrogen, of a composition identical with, or nearly that of albumin; proportion of N to C being nearly as 2 to 7.	*Animal:* Albumin, Fibrin, Syntonin, Myosin, Globulin, Casein, Albumoses, Peptones. *Vegetable:* Glutin, Legumin, Albumoses	Formation and repair of tissues and fluids of the body. Regulation of the absorption and utilization of oxygen. May also form fat and carbohydrate, and yield energy sometimes. In most foods the above, both animal and vegetable, are largely converted into albumoses and peptones during digestion.
2 Substances containing a larger proportion of N are apparently less nutritious; proportion of N to C about 2 to 5½.	Gelatin, Ossein, Chondrin, Keratin	These perform the above functions less perfectly, or only under particular circumstances.
3. Extractive matters, such as are contained in the juice of the flesh.	.....	These substances appear essentially as regulators of digestion and assimilation, especially with refereuce to the gelatin group.

7. For an infant seven weeks old the following will do:—Cream, half an ounce; milk, ten drams; milk sugar, half a dram; a pinch of salt, and ten drams of water. This quantity should be given every two hours, except at night (from 11 P.M to 5 A.M.).

PATHOLOGY.

2. In *locomotor ataxia* the degeneration of the posterior columns is most marked in the lumbar region; in *ataxic paraplegia* it is equally or more intense in the dorsal region. In *ataxic paraplegia* the lateral columns are also involved.

5. *Indicanuria* means the presence in the urine of an excess of indican. It is derived from the indol produced in intestinal putrefaction.

It is most usually found in gastric cancer, peritonitis, ileus, empyema, gangrene of the lungs.

6. The mucous membrane is congested and covered with mucus and desquamated epithelium. The inflammation (and pus) may extend into the substance of the kidney. When there is complete obstruction the calyces may be dilated, the kidney substance atrophied, and the entire kidney may become a sac of pus.

10. *Tachycardia* means increased frequency of the pulse. It is found in fevers, exophthalmic goiter, many forms of valvular disease of the heart, hemorrhage or tumor at the base of the brain, and after the ingestion of certain drugs.

Bradycardia means an abnormal slowness of the pulse. It is found in aortic stenosis, chronic myocarditis, during the puerperium, the convalescence from many fevers, hemorrhage or tumor of the brain causing increased intracranial pressure, myxedema, from certain poisons in the blood (as alcohol, tobacco, opium, and lead), and after the ingestion of certain drugs.

PHYSIOLOGY.

1. The function of the sudoriparous glands is the secretion of sweat. The location of the sweat center or centers has not been determined. There *may* be a dominating center in the medulla.

The center is excited to action (1) by direct action on the central nervous system, (2) by stimulation of certain afferent nerves, and (3) by changes in the composition or quantity of the blood.

2. The *anterior* roots of the spinal nerves are efferent and motor, and cause contraction of the muscles to which the nerves are distributed.

The *posterior* roots of the spinal nerves are afferent and sensory, and are distributed to the skin.

3. The functions of the liver are: (1) the secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material

The blood-vessels entering the liver are the hepatic artery and portal vein.

5. The mechanical uses of saliva are: (1) to moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition.

6. Gases which may be found in the stomach are:—Air, oxygen, nitrogen, hydrogen, carbon dioxide, marsh gas, and sulphuretted hydrogen.

7.

Arteries	Veins
Generally carry arterial blood	Generally carry venous blood.
Carry blood from the heart	Carry blood to the heart.
Do not collapse when cut	Collapse when severed.
Are found contracted and empty after death	Are not found empty after death.
The middle coat is the thickest	The external coat is the thickest.
Do not have valves	The medium-sized veins have valves.

8. The movements of the lungs are active in inspiration and passive in expiration.

9. The changes produced in the *air* by respiration are:

	Inspired Air	*Expired Air*
Oxygen	.21 per cent.	16.6 per cent.
Nitrogen	.79 per cent.	79 per cent.
Carbon dioxide	0.04 per cent.	4.4 per cent.
Other gases	Rare.	Often present.
Watery vapor	Variable.	Saturated.
Temperature	Variable.	That of body.
Volume	Varies.	Diminished.
Bacteria	Always present.	None.
Dust	Always present.	None.

10. Efferent or centrifugal nerves carry impulses away from the nerve centers. Afferent or centripetal nerves carry impulses to the nerve centers.

SURGERY.

1. In ligating the superficial femoral artery at its lower third the following structures are severed:—Skin, superficial fascia, fascia lata, fibres of sartorius, and the aponeurotic roof of Hunter's canal.

The anatomic relations of the artery here are:—*Anteriorly*, the structures just named and the internal cutaneous and long saphenous nerves; *posteriorly*, the junction of the vastus internus with the adductor longus and magnus, femoral vein; *externally*, vastus internus and femoral vein; *internally*, adductor longus and magnus.

9. In *hydrocele* the swelling is first noticed at the lowest part of the scrotum, and it increases in size slowly; it is tense, smooth, and fluctuates; there is no pain and no symptoms of inflammation; *it is translucent.*

In *orchitis* the swelling comes on more rapidly; it is very painful and also tender to the touch; the skin over the affected gland is red and shiny; *it is not translucent.*

OBSTETRICS.

3. Conditions that may require the induction of premature labor:—(1) Certain pelvic deformities, (2) placenta prævia, (3) pernicious anemia, (4) toxemia of pregnancy, (5) habitual death of the fetus toward the end of pregnancy, (6) hydatidiform mole.

4. Ectopic gestation is a pregnancy in which the ovum is developed outside of the uterine cavity.

Varieties:—Ovarian, tubal, interstitial, abdominal.

Diagnosis:—"When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

9. (a) The diameters and measurements of the female pelvis are easily remembered from the following table:

	Antero-posterior	Oblique	Transverse
Brim	4 inches	4½ inches	5 inches
Mid-plane	4½ "	4½ "	4½ "
Outlet	5 "	4½ "	4 "

(b) The fetal head has the following diameters: Occipito-frontal, occipito-mental, bitemporal, biparietal, suboccipito-bregmatic, trachelo-bregmatic, and mento-bregmatic. Of these, the occipito-frontal is 4 1-2 inches, the occipito-mental is 5 1-2 inches, and all the others are approximately 3 1-2 inches.

10. *Positive signs of pregnancy*:—(1) hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

Doubtful signs of pregnancy:—(1) progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix: (8) pigmentation and striæ; (9) morning sickness.

PRACTICE OF MEDICINE.

1. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics*: "*Ether* should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

2. *Arteriosclerosis* is a condition in which the walls of an artery, especially the intima, become hard, dry, and thickened.

Etiology:—Syphilis, alcoholism, gout, Bright's disease, overeating, and excessive muscular exertion. It is not liable to occur in old age.

6. Immunity is the power of resistance of cells and tissues to the action of pathogenic bacteria.

Immunity may be acquired by:—(1) a previous attack of the disease; (2) inoculation, with small quantities of bacteria, so as to produce a mild attack of the disease; (3) vaccination; (4) the introduction of antitoxins; (5) the introduction of the toxins of the bacteria.

9. *Opium poisoning*: *Symptoms*:—In opium poisoning there may be three stages: (1) a period of excitement, in which the patient is active, talkative, and has hallucinations; (2) a period of drowsiness, in which the patient is sleepy, but may be aroused; his face is pale, lips livid, pupils contracted; this passes into (3) the stage of coma, from which the patient cannot be aroused, the reflexes are abolished, the pupils are very contracted, the pulse is slow and irregular, and the respirations are infrequent and shallow.

Treatment consists in washing out the stomach, preferably with a dilute solution of potassium permanganate; ambulatory treatment, to keep the patient awake: artificial respiration is indicated, and strong coffee should be administered by the mouth or rectum; the bladder should be emptied by the catheter.

Strychnine poisoning: *Symptoms*:—"Strychnine produces a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five to six hours, usually within two hours.

"*Treatment*:—The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry*.)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.
Alabama*	W. H. Sanders, Montgomery	Montgomery..Sept. 1–6
Arizona*	Ancil Martin, Phoenix	Phoenix..October 7
Arkansas*	F. T. Murphy, Brinkley	Little Rock..October 8
California	Chas. L. Tisdale, 1870 Sutter Street, San Francisco	San Francisco.
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver..October 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven..Nov'ber 12
Delaware	J. H. Wilson, Dover	Dover..Dec'ber 10
Dis. of Col'bia	W. C. Woodward, Washington	Washington..October 10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville..Nov'ber 20
Georgia	E. R. Anthony, Griffin	Atlanta..October 8
Idaho	J. L. Conant, Jr., Genesce	Boise..October 1
Illinois	J. A. Egan, Springfield	Chicago..October 23
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis..October 22
Iowa	Louis A. Thomas, Des Moines	Des Moines..Sept'ber 17
Kansas	T. E. Raines, Concordia	Topeka..October 8
Kentucky*	J. N. McCormack, Bowling Green	Louisville..October 2
Louisiana	F. A. La Rue, 211 Camp Street, New Orleans	New Orleans..October 15
Maine	W. J. Maybury, Saco	Portland..Nov'ber 12
Maryland	J. McP. Scott, Hagerstown	Baltimore..Dec'ber 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston..Sept'ber 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing..October 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul..October 1
Mississippi	J. F. Hunter, Jackson	Jackson..October 8
Missouri	J. A. B. Adcock, Warrensb'g	St. Louis..Sept'ber 10
Montana*	Wm. C. Riddell, Helena	Helena..October 1
Nebraska	Geo. H. Brasb, Beatrice	Lincoln.
Nevada	S. L. Lee, Carson City	Carson City.
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord..January 14
New Jersey	J. W. Hennett, Long Branch	Trenton..October 22
New Mexico	B. D. Black, Las Vegas	Santa Fe..Dec'ber 2
New York	C. F. Wheelock, Unv. of State of New York, Albany	New York.. / Albany.. / Syracuse.. / Buffalo.. — October 1
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem..May 1908
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks..October 1
Ohio	Geo. H. Matson, Columbus	Columbus..Dec'ber 10
Oklahoma*	J. W. Baker, Enid	Guthrie..Sept'ber 24
Oregon	B. E. Miller, Portland	Portland..January 7
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg.. — Dec'ber —
Rhode Island	G. T. Swartz, Providence	Providence..October 3
S. Carolina	W. M. Lester, Columbia	Columbia..June 9, '08
S. Dakota	H. E. McNutt, Aberdeen	Mitchell..January 8
Tennessee*	T. J. Happel, Trenton	Memphis.. / Nashville.. / Knoxville.. — May, 1908
Texas		
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City.October 7
Vermont	W. Scott Nay, Underhill	Montpelier..January 14
Virginia	R. S. Martin, Stuart	Staunton..Dec'ber 10
Washington*	C. W. Sharples, Seattle	Spokane..January 7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg..Nov'ber 12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee..January 14
Wyoming	S. B. Miller, Laramie	Laramie..Oct. 9

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

REQUIREMENTS FOR MEDICAL LICENSURE.

In the following table the States requiring of the candidate both a diploma from a recognized college and an examination are printed in roman; those requiring either a diploma or an examination, in italics; those requiring an examination only, in small capitals.

State	Fee	State	Fee
Alabama	$10.00	Nebraska	$25.00
Arizona	10.00	*Nevada*	25.00
Arkansas	10.00	New Hampshire	10.00
California	20.00	New Jersey	25.00
Colorado	25.00	*New Mexico*	25.00
Connecticut	15.00	New York	25.00
Delaware	10.00	North Carolina	10.00
District of Columbia	10.00	North Dakota	20.00
Florida	15.00	Ohio	25.00
Georgia	10.00	Oklahoma	5.00
Idaho	25.00	Oregon	10.00
Illinois	10.00	Pennsylvania	25.00
Indiana	25.00	Rhode Island	10.00
Iowa	10.00	South Carolina	10.00
Kansas	15.00	South Dakota	20.00
Kentucky	10.00	Tennessee	10.00
Louisiana	10.00	Texas	15.00
Maine	10.00	Utah	15.00
Maryland	15.00	Vermont	15.00
Massachusetts	20.00	Virginia	10.00
Michigan	25.00	Washington	25.00
Minnesota	10.00	West Virginia	10.00
Mississippi	10.00	Wisconsin	10.00
Missouri	15.00	Wyoming	25.00
Montana	15.00		

New York.—The subjects assigned to the new State Board Examiners are:—Anatomy, to Dr. W. S. Ely; Physiology, to Dr. R. H. Williams; Chemistry, to Dr. F. S. Farnsworth; Hygiene and Sanitation, to Dr. E. Beach; Surgery, to Dr. F. M. Crandall; Obstetrics and Gynecology, to Dr. W. W. Potter; Pathology, to Dr. W. S. Searle; and Bacteriology, to Dr. F. W. Adriance.

West Virginia reciprocates, under certain conditions with the following States:—District of Columbia, Georgia, Kansas, Kentucky, Michigan, Missouri, Nebraska, North Dakota, South Carolina, Tennessee, Virginia, and Wisconsin.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. NEWMAN DORLAND, A.M., M.D. 16mo, 578 pages, flexible leather. W. B. Saunders Co., Philadelphia.

PRACTICAL GYNECOLOGY. By E. E. MONTGOMERY, M.D., LL.D. Third revised edition, 8vo, 970 pages, illustrated, muslin. P. Blakiston's Son & Co., Philadelphia.

THE PRINCIPLES AND PRACTICE OF DERMATOLOGY. By WILLIAM ALLEN PUSEY, A.M., M.D. 8vo, 1021 pages, illustrated, muslin. D. Appleton & Co., New York.

CLINICAL PSYCHIATRY. By A. ROSS DIEFENDORF, M.D. New revised edition, 8vo, 562 pages, illustrated, muslin. The Macmillan Co., New York.

POSTOPERATIVE TREATMENT. By NATHAN CLARK MORSE, A.B., M.D. Second edition, revised and enlarged, 8vo, 499 pages, illustrated, muslin. P. Blakiston's Son & Co., Philadelphia.

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DIE HYGIENISCHE-DIÄTETISCHE BEHANDLUNG DER SYPHILISKRANKEN. Von Dr. JULIUS MÜLLER. 8vo, 118 pages, paper. Verlag von August Hirschwald, Berlin, 1907.

DIE CHRONISCHE PROGRESSIVE SCHWERHÖRIGKEIT. Von AUGUST LUCAE. 8vo, 302 pages, illustrated, paper. Verlag von Julius Springer, Berlin.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 10, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	398	148
Diphtheria	211	22
Measles	221	20
Scarlet Fever	117	6
Smallpox	1	..
Varicella	14	..
Typhoid Fever	82	18
Whooping Cough	39	17
Cerebrospinal Meningitis	7	14
Malarial Fever	.....	.....
Totals	1090	245

The Coincidence of Diseases.—Edmund Cautley believes that the coincidence and interaction of diseases rarely receive due attention. Thus errors in diagnosis, treatment, and prognosis are not uncommon. Acute diseases may be coincident and run their course without influencing each other to a recognizable extent. The severity of the illness, however, is generally increased. As an example, the concurrence of measles and diphtheria in the very young is almost invariably fatal. A more common coincidence of disease is that of acute illness in a patient affected by a chronic one. Variations in the course and duration of the latter are commonly noted under these circumstances. The beneficial effect of an attack of erysipelas on new growths has often been observed. The writer then gives a number of instances of the coincidence of diseases which have come under his immediate notice. Among these are two cases of typhoid plus paratyphoid fever, tuberculous plus cerebrospinal meningitis, and acute anterior poliomyelitis plus diphtheritic paralysis.—*The British Journal of Children's Diseases.*

Incipient Chronic Osteomyelitis.—A. Venot states that a careful differential diagnosis ought to be made in cases of this kind. Tuberculosis and syphilis should be excluded. To differentiate this affection from tuberculous osteitis is sometimes very difficult. When osteomyelitis develops without elevation of temperature it is not infrequently difficult to distinguish it from syphilis. If an examination of the patient for syphilis gives negative results the physician must not conclude absolutely that he is not dealing with osseous syphilis. Rheumatism also must be considered as well as osteosarcoma. Growing pains are in reality only a very slight form of osteomyelitis. Bone abscess, too, is but another form of chronic osteomyelitis, and the same treatment is indicated for both affections. Incipient chronic osteomyelitis is always difficult to diagnose because it is an osseous affection which develops without general phenomena, without the striking symptoms of acute osteomyelitis. This affection is a serious one because its evolution takes a long time. Slowly and insidiously it brings about in the bone disorders for which there is no other resource but amputation or disarticulation. Early diagnosis will save a limb and prevent months, and even years of suffering for the patient.—*Journal de Médecine de Bordeaux.*

Acidification of the Viscera as a Symptom of Death.—Ascarelli Attilio draws our attention to the difficulty of ascertaining whether death has really taken place, which has been recognized in Germany by attaching to every cemetery a mortuary room in which every body is retained for a certain number of hours before burial, while attached to it are instruments of precision which will give warning of the slightest movement. The author has made an extended series of experiments on dogs to ascertain whether the acidification of the tissues of the body, which takes place soon after death, cannot be made use of as an exact demonstration of death. He gives it as his conclusion that this acidification does take place uniformly in the tissues, so that its occurrence may be regarded as an infallible sign of real death. It is the first symptom of death appearing in thirty-five minutes after the cessation of the heart beats. The removal by means of a trochar of a small portion of the splenic parenchyma and testing it will show the presence of acidity. Acidity appears first in the spleen, kidneys, heart, and liver. The cause of death makes certain variations in the phenomena, but the rapidity of death has no effect on acidification.—*Bollettino della Regia Accademia Medica di Roma.*

Medical Record

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Original Articles.

LANDMARKS IN THE BILIARY AND PANCREATIC DUCTS;

PHYSIOLOGICAL, ANATOMICAL, AND PATHOLOGICAL.

By BYRON ROBINSON, B.S., M.D.,

CHICAGO.

A LANDMARK is a point for consideration—anatomical, physiological, and pathological. There are five significant landmarks in the biliary and pancreatic ducts, viz., (1) *Pelvis of the gall-bladder* (Cholecystitis Pelvis), Hartman's pouch; (2) *Cystic duct* (ductus cysticus); (3) *Intrapancreatic segment* of the bile duct; this is the portion of the common bile duct which courses through the head of the pancreas; (4) *Relation of Vater's diverticulum to the termination of the biliary and pancreatic ducts;* (5) *The single or multiple termination of the pancreatic ducts.* On the above five landmarks of the biliary and pancreatic ducts—physiological, anatomical, and pathological—depend many clinical phenomena. It may be remarked in general that the epithelium of the biliary duct is desquamated with the most marked facility of any duct, hence infection extends also with facility through the atria via the lymphatics.

1. *The Pelvis of the Cholecyst* (see IV in figs.) —In large numbers of gall-bladders there is a peculiarly formed pouch or funnel at the exit of the gall-bladder into the ductus cysticus. This gall-bladder

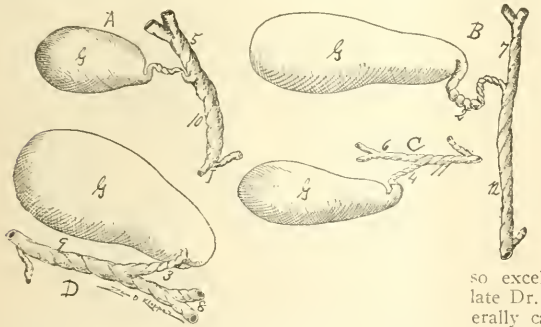


FIG. 1.—Represents four human biliary apparatuses injected with liquid paraffin and drawn from the dried specimen. The variability of the cystic duct is evident in: A, length; B, diameter. C, flexion at cholecystis pelvis; D, spirality; and in the angle of junction with hepatic duct; the location of entrance into the ductus hepaticus; number of Heister's valves; and the form and dimension of the gall bladder pelvis; 1, 2, 3, 4, ductus cysticus; 5, 6, 7, 8, ductus hepaticus; 9, 10, 11, 12, ductus choledochus.

reservoir is Hartman's pouch. He termed it the fossa Provesicalis. (Robert Hartman. German Anatomist, Berlin.) This pouch is an exceedingly important anatomical landmark because its funnel form harbors calculi with facility. Certain-shaped calculi, when once lodged in this reservoir-formed pelvis of the cholecyst, are dislodged with difficulty. The calculus may rotate, oscillate in this pouch like a ball and socket joint. Contractions of the gall-

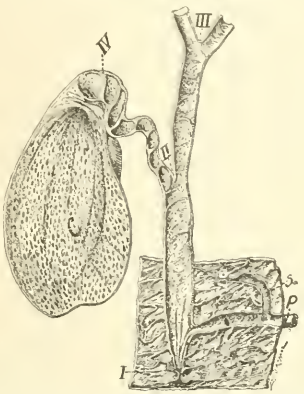


FIG. 2.—Drawn from a specimen injected with red lead mixed with starch. The bile duct and the pancreatic ducts were incised longitudinally and the material injected was evacuated from the ducts; then the interior of the ducts was sketched as a model by Z. Kloppor. Heister's valves are well demonstrated. The funnel form of Hartman's pouch is evident. The following letters and figures indicate identical matters in illustrations: I, Vater's ampulla; II, junction of ductus cysticus and ductus hepaticus; III, bifurcation of ductus hepaticus; IV, cholecystic pelvis; C, cholecystis; P, ductus pancreaticus (Hofman-Wirsung's); Sa, ductus accessorius pancreaticus (Santorini's); I to II, ductus choledochus communis; II to IV, ductus cysticus; II to III, ductus hepaticus.

bladder or vesicula bilis from calculus irritation or trauma may force the calculus more vigorously and violently into the pelvis. The gall-bladder pelvis or cholecystic pelvis is important pathologically because it is in this pouch that the calculus attempts to engage in the exit between the cholecyst and ductus cysticus, desquamating the epithelium, producing infection atria and causing the excruciating agonizing pain of gallstone. The hepatic calculus engages in the orifice of the ductus cysticus similar to the head of a child engaging in the aperture, pelvis, or proximal pelvic brim. There may be a ball valve joint present so excellently described by Courvoisier and the late Dr. Christian Fenger. The ball valve is generally caused by a spherical calculus of sufficient dimension (marble size) endeavoring to enter or engage in the gall-bladder pelvis; too great in dimension to enter the orifice of the ductus cysticus, so merely attempting to engage. The spherical calculus rotates and oscillates in the pelvis, inducing now obstruction and now allowing the bile to flow into the cystic duct—the trauma of which continually causes the fires of infection to migrate through the cholecystitis pelvis and cystic duct wall, begetting peripelvic and pericystic peritoneal adhesions by means of lymphangitis. With the spheroid or conical Hartman's pouch, practically occupied by a

spherical calculus, the chief damage is frequent recurring pain and desquamation of the epithelium

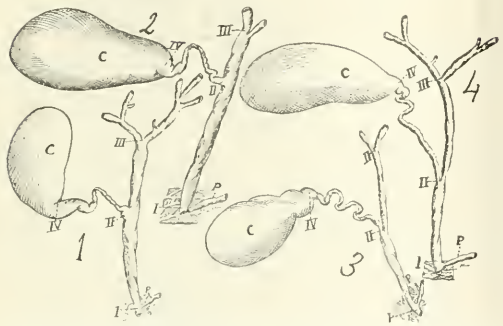


Fig. 3.—Represents four human biliary apparatuses drawn from injected dried specimens; practically each illustration represents the pelvis of the gall-bladder; note variations of biliary duct segments in form, length, diameter, spirality, and valves.

of the cholecystic pelvis producing consequent infection atria which give rise to the adjacent peritoneal

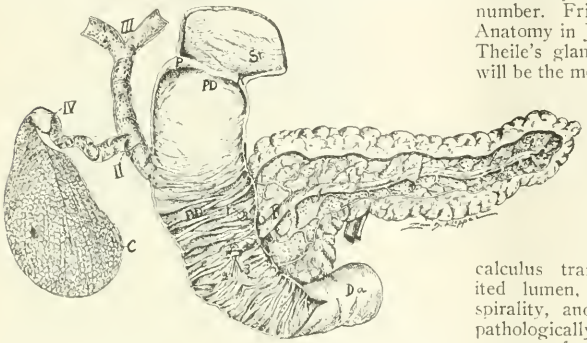


Fig. 4.—This illustration is drawn from a specimen of a healthy male, 74 years old, and presents: PD, the proximal 2½ inches of the foldless granular duodenal mucosa (practically the distal end of the stomach). Observe that DD, the vulvulæ conniventes (practically the proximal end of the enteron) begin immediately proximal to the entrance of the duct of Santorini, from which a probe projects; 2, probe projecting from Vater's ampulla and ductus pancreaticus (P); 3, probe projecting from Vater's ampulla and the choledochus (coursing dorsad to duodenal wall).

adhesions, the spider-web adhesions. It is a form of lymphangitis accompanied by peritoneal exudates

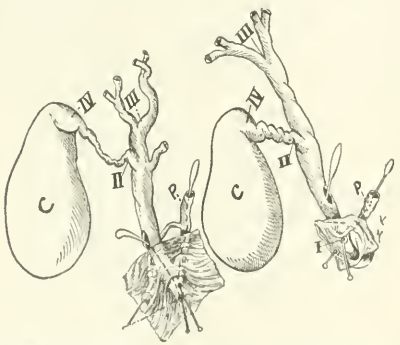


Fig. 5.—Two biliary apparatuses drawn from injected dried specimens, II to III, ductus cystieus; the cholecyst (C), ductus cystieus (II to IV), ductus hepaticus (II and III), and ductus choledochus (I to II) are in the position and relation of the living subject; the variations in the segments of the biliary and pancreatic segments are evident; note the separate and independent exit of the choledochus and ductus pancreaticus in the duodenum by the projecting probes.

which cause adherence of the vesicula bilis to adjacent organs in 40 per cent. of subjects (*e.g.* duodenum, gastrium, colon, omentum, kidney, pancreas). Fortunately the relative limitation or absence of Theile's glands in Hartman's pouch limits its facility in transmiting infection through its walls.

Frequently we find an hepatic calculus so firmly lodged, wedged, in the pelvis of the gall-bladder that it is impossible to dislodge it without fracturing. The cholecystis pelvis is located at the junction of the vesicula bilis and ductus cysticus. It is a marked flexion of the ductus bilis which enhances the difficulty and pain of calculus engagement in the orifice of the ductus cysticus. The flexion of the gall-bladder on the cystic duct at Hartman's pouch resembles the breast and neck of a swan, and is fixed in position by abundant powerful adjacent connective tissue.

The function of the gall-bladder pelvis is sensation, peristalsis, absorption, secretion. I was unable definitely to locate the presence of Theile's glands in the cholecystis pelvis, hence they must be limited in number. Friedrich Wilhelm Theile, Professor of Anatomy in Jena, Germany; 1801-1879. The fewer Theile's glands in the gall-bladder pelvis the less will be the means of conduction of infection through its walls. A pericholecystic lymphangitis is a frequent occurrence (40 per cent. of subjects).

2. *Cystic Duct* (Ductus Cysticus, see Figs. 2 to 4).—The cystic duct is one of the most important landmarks in the biliary channel, anatomically, pathologically, and physiologically. It is significant anatomically in calculus transportation on account of its limited lumen, its index-finger length, its marked spirality, and numerous valves. It is important pathologically on account of the painful traumatic passage of calculus and consequent frequent atria of infection, abetted in conducting infection through

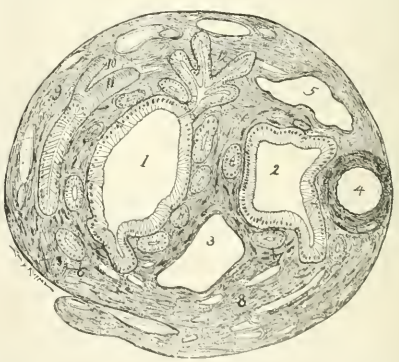


Fig. 6.—Glands of the Ductus Cysticus (Glands of Theile); cross-section of the ductus cysticus and ductus hepaticus at their bifurcation; from a girl of nine years old dying of sarcoma of the kidney; the epithelium was hypertrophied. 1, ductus cysticus; 2, ductus hepaticus; 3 and 5, veins (portal), 4, arteria hepatica, 6, glands of the cystic duct; 9, walls of the cystic duct; 8, walls of the hepatic duct; 10, arm of tubular or elongated gland; 11, tubular elongated gland; the cystic duct is surrounded by the compound gland, 12, and the tubular or elongated gland, 10 and 11; in the hepatic duct no crypt is shown because of the artist's oversight; the epithelium of this subject was hypertrophied, due to metastasis of the sarcoma from the kidney to the liver; the specimen is highly magnified; the glands of the bile ducts (Theile's glands) here present the fact that they may become infected in the ductus cysticus by trauma of calculus or infection; no doubt infection from Theile's glands explains chronic infection in the cystic duct wall and immediately adjacent structures, such as the peritoneum, *et.* surrounding lymphangitis

its walls by the presence of numerous Theile's glands. The ductus cysticus in 42 subjects measured in inches: length, maximum 2½, average 1½, minimum ¾; diameter, maximum ¼, average 1-12, minimum 1-16. The spirality of the ductus cysticus may present three distinct axial rotations. In 42 subjects Heister's valves numbered, maximum 10, average 7, minimum 3. (Lorenz Heister, German Anatomist, 1683-1758, Prof. in Leipzig and Amsterdam.) The cystic duct possesses a variation of three times its average length (1½ inches), a variation of four times its average diameter (1-12 inch), a variation one and one-half times its average number of valves (7), a marked variation of its spirality, a variation of the location of its exit to ¾ of the circumference of the ductus hepaticus, as well as a variation in its angle of entrance. The excruciating pain of a calculus passing through the cystic duct with maximum length (2½ inches), with maximum number of valves (10) projecting through half its lumen, with maximum spirality (3 axial rotations), with minimum diameter (1-16 inch), entitles the cystic duct to the dignity of a landmark in the biliary passages—a point for consideration, anatomical, physiological, and pathological. The above may seem a simple statement, but it required 42 autopsies with detailed labors to substantiate it. The mucosa of the cystic duct is more liable to trauma from a calculus and consequent atria of infection than any other segment of the ductus bilis on account of its limited lumen and its projecting mucous valves. The glands of the bile duct, Theile's glands, are numerous in the ductus cysticus and may harbor and transmit infection. The cystic duct permits the passage of air and fluid from the vesicula bilis to the duodenum, but is generally impermeable to a probe. The function of the ductus cysticus is sensation, peristalsis, absorption, secretion. The cystic duct may be obliterated by ligature or disease which excludes the function of the cholecyst and the subject lives practically healthy similar to animals who possess no gall-bladder, such as the horse, camel, elephant, and deer.

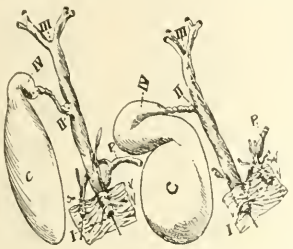


Fig. 7.—Two biliary apparatuses drawn from distended dried specimens; Sa, Santorini's ducts are patent in each specimen; the right-hand figure has a swan-shaped cholecyst (C); note spirality of ductus cysticus and typical Hartman's pouch.

3. *Intrapancreatic Segment of the Bile Duct* (see Figs. 9, 10, 11, 13, 17, 20, 21).—A significant landmark in the ductus chaledochus communis is that segment which passes through the caput pancreaticum, the pancreatic head. From my examinations at autopsies I should judge that the bile duct coursed obliquely through the head of the pancreas in 90 per cent. or more of subjects. The choledochus is imbedded in the pancreatic substance for perhaps ¾ of an inch of its length and so firmly surrounded by pancreatic substance that it may be difficult to liberate the duct by blunt dissection, and pancreatic incisions may be accompanied by alarming hemorrhage. I shall term this the intrapancreatic segment of the common bile duct. It is not only a significant anatomical landmark from its relations with the pancreas, but is also an important pathological landmark of the common bile duct. The pathological signification of the passage of the choledochus through the pancreatic head is that the pancreas may and actually does become infected through the duct. It is common in autopsies, with hepatic-duct infection, to be able to palpate an induration of the segment of the pancreas through which the common bile

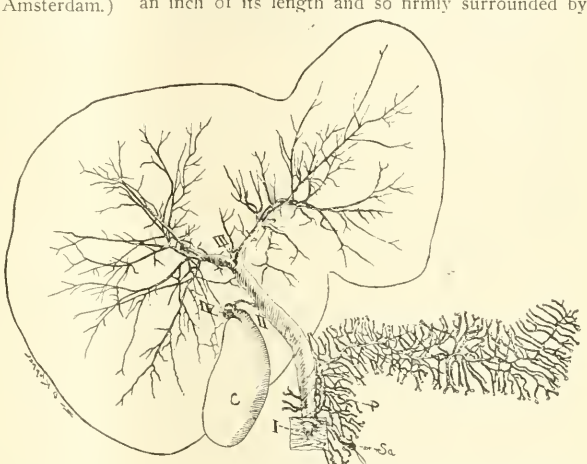


Fig. 9.—Roentgen ray of ductus bilis and ductus pancreaticus; subject had advanced hepatic sclerosis; II to III, ductus cysticus extremely contracted in dimensions, especially its diameter; its spirality and valves were so marked and rigid that it would not allow the passage of a calculus larger than a duck shot; observe the intrapancreatic segment of the bile duct

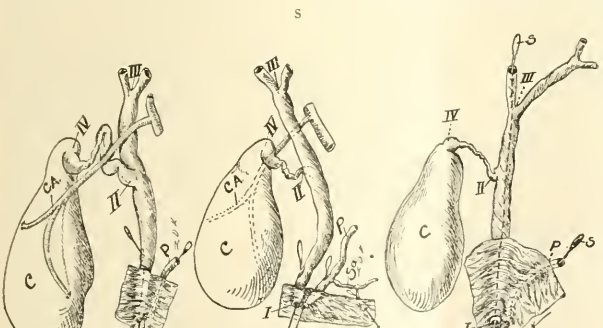


Fig. 8.—Three biliary apparatuses drawn from distended dried specimens; they are in natural position; the cystic artery (C A) is drawn in natural position, in two specimens on the left; the ductus bilis and ductus pancreaticus have each a separate exit in the duodenum (see probes); observe typical Hartman's pouch (IV), with marked spirality and valves of the ductus cysticus (II to IV).

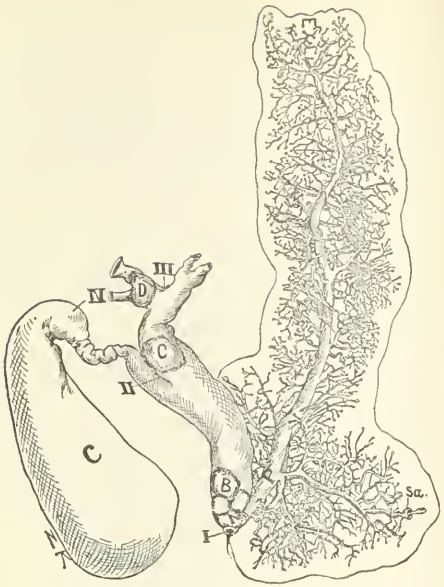


FIG. 10.—Roentgen ray of ductus pancreaticus and part of ductus bilis; I to II enormously dilated ductus choledochus containing four hepatic calculi at (A-B); II to IV ductus cysticus dilated to 1-3 of an inch in diameter and still preserving six marked Heister' svalves; IV a dilated Hartman's pouch; C, choleeystis dilated; II to III ductus hepaticus with large calculi at (C), also a calculus (D) in a minor ductus hepaticus; in this case the caput pancreaticum was indurated, owing to infection through the parietes of the choledochus; though suppuration existed at the location of the calculus (A-B), I was unable to detect pathological conditions in the pancreatic duct; the choledochus and pancreatic ducts opened separately on the floor of Vater's ampulla; observe the intrapancreatic segment of the bile duct

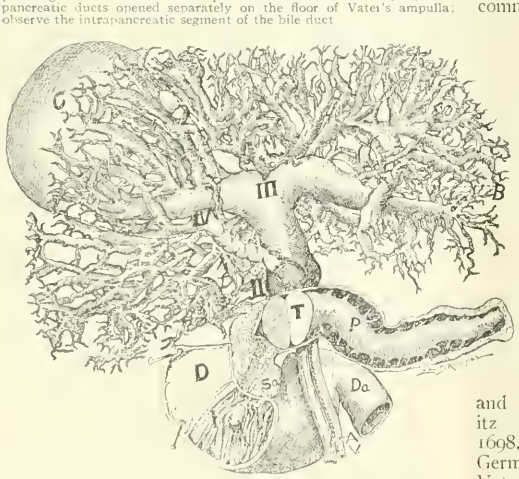


FIG. 11.—Carcinoma completely obstructing the biliary and pancreatic ducts in the intrapancreatic segment; the picture is drawn from an x-ray of the enormously dilated biliary passages, the biliary ducts (omitting the gall-bladder, which was three to four times its normal dimension) had a capacity of 32 ounces, i.e. about six or seven times the usual capacity, the ductus communis choledochus was over 1½ inches in diameter, the pancreatic duct admitted the index-finger. The man, 69 years old, a giant in stature, weighing some 250 pounds with ordinary limited fat, lost 115 pounds in weight during his last three months' illness. The ductus cysticus, extending from II to IV, had seven Heister's valves and its lumen would admit a lead pencil only. At B, the biliary ducts were deficient within the liver substance, but were really dilated on the surface, T, the carcinoma (divided with the scalpel), completely obstructing the lumen of the biliary and pancreatic ducts of the intrapancreatic segment; there was enormous gastro duodenal dilatation from the compression of the transverse duodenum by the superior mesenteric artery (A) and vein (V). D, foldless, granular, proximal 2½ inches of the duodenal mucosa, I, entrance of ductus communis choledochus in the duodenum, both ducts had their exit on the floor of Vater's ampulla, the probe indicates Vater's papilla. Sa, duct of Santorini with projecting probe. P, duct of pancreaticus enormously dilated, the ductus communis choledochus and ductus pancreaticus, located between the carcinoma and Vater's diverticulum were normal. Da, is the normal-sized duodenum located distal to the compressing superior mesenteric vein (V) and artery (A); observe the vast dilatation of the duodenum proximal to the superior mesenteric artery. (A) and vein (V). I secured this rare specimen at an autopsy through the courtesy of Dr. Charles O'Bryne

duct courses. The choledochus communis becomes attacked by catarrh, its epithelium becomes desquamated, infection, which gradually penetrates its wall, passes into the abundant glandular ductus bilis, and eventually infects the connective tissue and parenchmya of the pancreas—ending in pancreatic infection, induration, hypertrophy, or atrophy which may compromise not only the lumen and parietes of the choledochus communis but also the lumen and parietes of the ductus pancreaticus; a pericholedochus lymphangitis arises. Compromising of the hepatic or pancreatic ducts signifies retention and reabsorption of bile and succus pancreaticus.

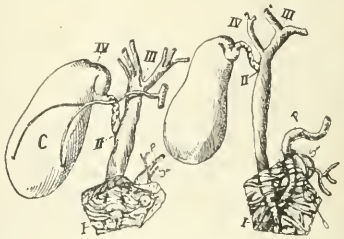


FIG. 12.—These specimens show the relation of Vater's ampulla to the choledochus, *i.e.* both ducts have their exit on the floor of Vater's ampulla, the usual arrangement, two biliary apparatuses drawn from dried distended specimens; the relative positions of the ducts are natural, (Sa) Santorini's duct in each specimen is patent.

This anatomical arrangement of the intrapancreatic segment of the bile duct explains the clinical relation of the hepatic ducts to the pancreas. The intrapancreatic segment of the ductus choledochus communis may infect the caput pancreaticus. This is the key which unlocks the information that the head of the pancreas is so frequently diseased—induration, hypertrophy, neoplasm. The cauda pancreatica, so frequently indurated, is perhaps infected, chiefly from the colon, or from the stomach or ureteral pelvis.

4. *The Relation of Vater's Ampulla to the Termination of the Biliary and Pancreatic Ducts* (see Fig. 1, also projecting probes).—The most significant anatomatical and pathological landmark of the biliary and pancreatic ducts is Vater's diverticulum (Abraham Vater, German Anatomist, 1684-1751, Prof. in Wittenberg). Vater's ampulla possesses the shape of an acorn with a single opening at its free end and two openings at its attached end. The two basal orifices of this bulb-shaped diverticulum or bladder-formed reservoir are those of the biliary duct and pancreatic or Hofman-Wirsung duct (Moritz H. Hofman, German Anatomist, 1622-1698, Prof. in Altdorf; and John George Wirsung, German Anatomist, 1643-died? Prof. in Padua). Vater's ampulla resembles the cloaca with the ureteral, vaginal, and rectal orifices opening into it or the marsupium of the marsupiala—a kangaroo pouch with the mammary nipples opening into it. The common bile duct and pancreatic duct seldom coalesce, unite, or blend; however, they usually exit separately, independently, on the floor of Vater's ampulla. The duodenal orifice of Vater's cone-shaped ampulla possesses the most limited lumen of the extrahepatic biliary channel. Vater's ampulla measures about 1-16 of an inch in length from apex to floor, and about 1-16 of an inch in diameter at its duodenal orifice. It requires some 20 serial transverse sections to extend from apex to floor of Vater's ampulla.

Anatomically, Vater's diverticulum is significant as it receives two separate important ducts—the

biliary and pancreatic—from the maximal glands, liver, and pancreas. Physiologically, Vater's diverticulum is significant, as it serves as a bladder-formed reservoir to mix the biliary and pancreatic fluid previous to their entrance into the duodenum. It is a physiological reservoir. Mixing biliary and pancreatic fluid in the diverticulum Vateri trebles their power of digestion. Pathologically, Vater's ampulla is significant, as it serves as an atrium of infection for the hepatic and pancreatic glands via the tractus intestinalis. Vater's ampulla is a dangerous location to harbor a calculus (hepatic or pancreatic), as it induces catarrh and infections from its trauma, desquamating epithelia, to travel toward the liver or pancreas. However, my observation in autopsies has been to the effect that hepatic calculus in the vast majority of subjects becomes lodged in the common bile duct immediately proximal to Vater's ampulla, and in this dilated locality of the common bile duct it does not disturb the free flow in the ductus pancreaticus. The knowledge of the anatomical fact that, in the vast majority of subjects, the biliary and pancreatic ducts possess an exit separately and independently on the floor of Vater's diverticulum, explains why disease processes in either duct affect only the duct actually involved, *i.e.* each duct is independently diseased, and seldom does hepatic and pancreatic disease occur coincidently except from excessively large calculus or neoplasm (see Fig. 11).

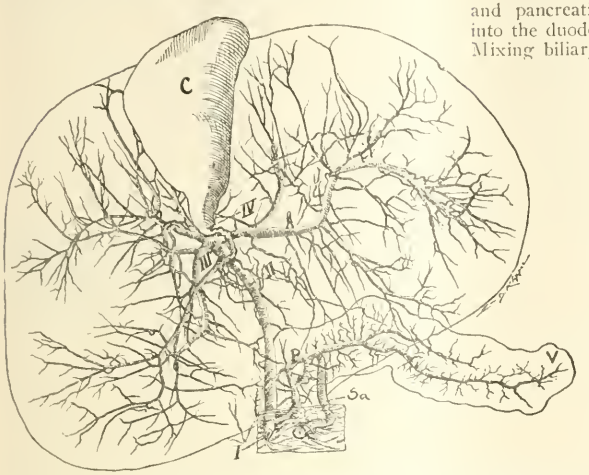


FIG. 13.—A Roentgen ray picture of the ductus bilis and ductus pancreaticus; this specimen shows the usual relation of the ductus choledochus and ductus pancreaticus having their exit on the floor of Vater's ampulla; note that the ductus pancreaticus is bifurcated; the intrapancreatic segment of the bile duct is dilated and hypertrophied.

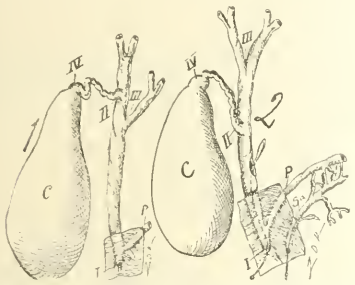


FIG. 14.—The biliary apparatus in usual relative position; drawn from dried distended specimens; these cuts show the usual relations of Vater's ampulla; I, presents the ductus cystic entering the biliary duct proximal to the bifurcation of the hepatic duct. 1, the ductus cysticus entering tbibiliary duct proximal to the bifurcation of the hepatic duct: 2, extensive anastomosis between Santorini's duct (Sa) and the Hofman-Wirsung duct.

5. *The Single or Multiple Terminations of the Pancreatic Ducts* (see Sa. or projecting probes in figures).—The single or multiple terminations of the ducts of the pancreas is a significant landmark physiologically and pathologically. The pathological signification is exposure to infection from the tractus intestinalis and the occurrence of calculus. The physiological signification of Santorini's duct is that it may act vicariously for the Hofman-Wirsung duct in case of accident. There are four kinds of terminations of the pancreatic ducts: (1) The usual termination for the ductus pancreaticus (Hofman-Wirsung's) is to exit separately independently in the base of Vater's ampulla (see Figs. 1, 2, 3, 4, 7, 9,

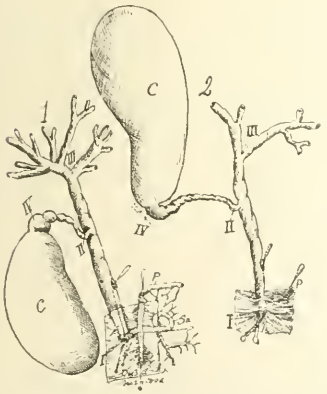


FIG. 15.—Two biliary apparatus drawn from dried distended specimens; the figure on the left is in natural positional relations; note that (Sa) Santorini's duct with a peculiar loop possesses an exit at the floor of Vater's ampulla in conjunction with that of the choledochus, while the regular ductus pancreaticus (p) has an exit at a distance from Vater's ampulla; Hofman-Wirsung's and choledochus possess separate, independent exits.

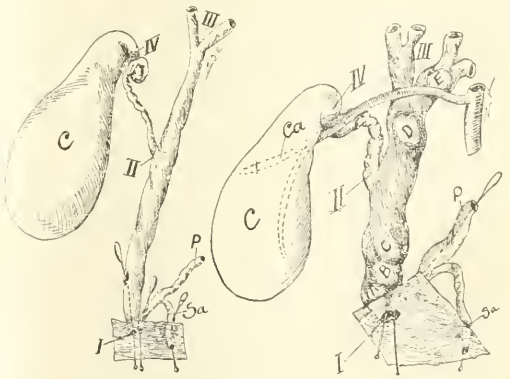


FIG. 16.—Two biliary apparatus drawn from distended dried specimens which are in natural position; the specimen on the right is pathologically dilated from calculi (A, B, C, D, E) in the ducts. Ca, cystic artery; the hepatic and pancreatic ducts have separate and independent exits in the duodenum as indicated by the projecting probes; also Sa, Santorini's ducts are patent in each specimen.

10, 11, 12, 13, 14, 18, 19, 20). (2) Another method of exit for the ductus pancreaticus is to terminate,

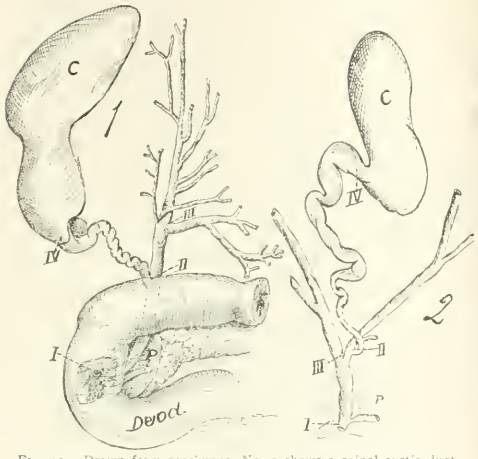
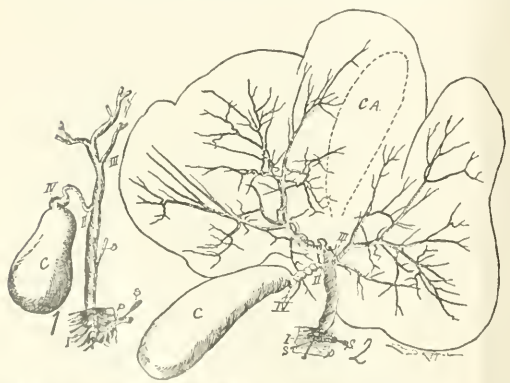


FIG. 17.—Drawn from specimens. No. 1 shows a spinal cystic duct and separate exits for choledochus and ductus pancreaticus; No. 2 is drawn from a dried injected specimen of a mountain lion weighing about 125 pounds; note the peculiar cystic duct, its form, exit, spirality and length, in the lion.

separately and independently in the duodenal mucosa (see Figs. 5, 8, 15, 16, 17 (1), 21). (3) The ductus

FIG. 18.—Biliary apparatus of man (left) and of monkey (right), drawn from injected distended specimens; No. 2, Ca, represents the original location of the cholecyst in the right-hand figure (monkey), dorsal view of monkey.

pancreaticus accessorius (Santorini's—Giovanni Dominico Santorini, Italian Anatomist, 1681-1737,



[illegible] from injected dried specimens [illegible] Drawn from Roentgen ray pictures, CA represents [illegible] location of the cholecyst; independent and separate exits [illegible] and ductus pancreaticus.

Prof. in Venice) possesses a separate independent exit within a distinct but varying distance from that of the ductus pancreaticus. Two pancreatic ducts occurred in each one of the forty-two subjects here reported, although it is not indicated in each of the

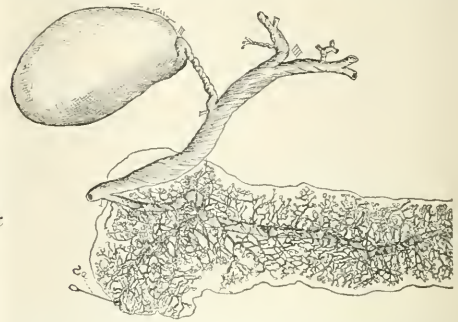


FIG. 20.—Roentgen ray picture of ductus pancreaticus and part of ductus bilis; II to III ductus cysticus, ventral view; observe that the intrahepatic segment of the biliary duct courses external to the pancreatic ducts but not to the substance of the gland.

illustrations. (4) An accidental substitution of the ductus pancreaticus (Hofman-Wirsung) for the

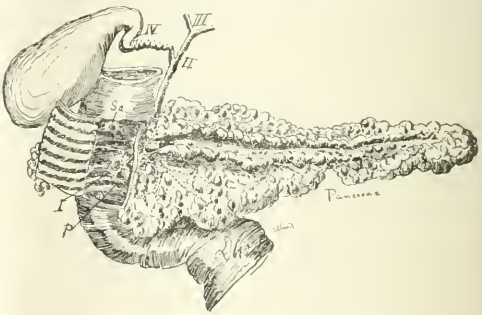


FIG. 21.—Specimen containing pancreatic calculus, from a post-mortem; man about 40 years; I to II, ductus choledochus; II to III, ductus hepaticus; III to IV, ductus cysticus; Sa, ductus pancreaticus accessorius; p, separate exit of ductus pancreaticus in duodenum; a calculus ¾ inch in length and 1-6 inch in diameter is incarcerated in the duct of the caput pancreaticum at P; the calculus of the pancreatic duct projects into the lumen of the duodenum; also six calculi lay in the ductus pancreaticus as noted in sketch; the pancreas was in an advanced stage of suppuration and fatty degeneration; this specimen was kindly presented to me by Dr. A. M. Stober; B. J. Beuker sketched it for me from the pathological laboratory of the Cook County Hospital.

ductus accessorius pancreaticus (Santorini's) may occur. In other words, the terminations of the chief and accessory pancreatic ducts may be reversed. (See Fig. 15 [1].)

There may be two pancreatic ducts (Hofman-Wirsung and Santorini) opening separately and independently on the duodenal as well as a separate independent orifice for the choledochus. The signification of two pancreatic ducts with separate exits is provisional, as if one becomes obstructed the other may serve vicariously. The termination of any duct in the tractus intestinalis is of vital significance pathologically, as it may serve as an atrium of infection—pathogenic, bacteria, calculus. However, the pancreas appears to be the most powerfully resistant and healthy organ in the abdomen. In hundreds of autopsies it has appeared to me to present fewer pathological conditions than any other abdominal viscus. Hence the ductus pancreaticus will preserve similarly healthy conditions. The common remark of the pathologist subsequent to a longitudinal incision through the pancreas is "negative." The chief induration of the pancreas occurs first in

the cauda and second in the caput (from bile duct infection). In all (42) of our reported specimens there were present two pancreatic ducts. In injecting the ductus pancreaticus and the ductus accessorius (Santorini's) it was found they functionated in some sixty per cent. of subjects. Hence perhaps the pancreatic ducts may assume vicarious function in one-half of subjects (fifty per cent.). The location of the exit of Santorini's duct may be at variable distances from Vater's ampulla, ventral, dorsal, distal, or proximal to the exit of Vater's diverticulum. Injections from the duodenum into Santorini's duct will pass into the Hofman-Wirsung duct and vice versa in perhaps fifty-five per cent. Hence either Santorini's duct or Hofman-Wirsung's duct may act vicariously for the other in case of occlusion. The function of the pancreatic ducts is sensation, peristalsis, absorption, secretion. The pancreatic ducts possess numerous glands of Theile.

REPORT ON TWO HUNDRED CHARITY CASES OF PULMONARY TUBERCULOSIS UNDER SANATORIUM TREATMENT AT LOS ANGELES FROM 1903 to 1907.*

By W. JARVIS BARLOW, M.D.

LOS ANGELES, CAL.

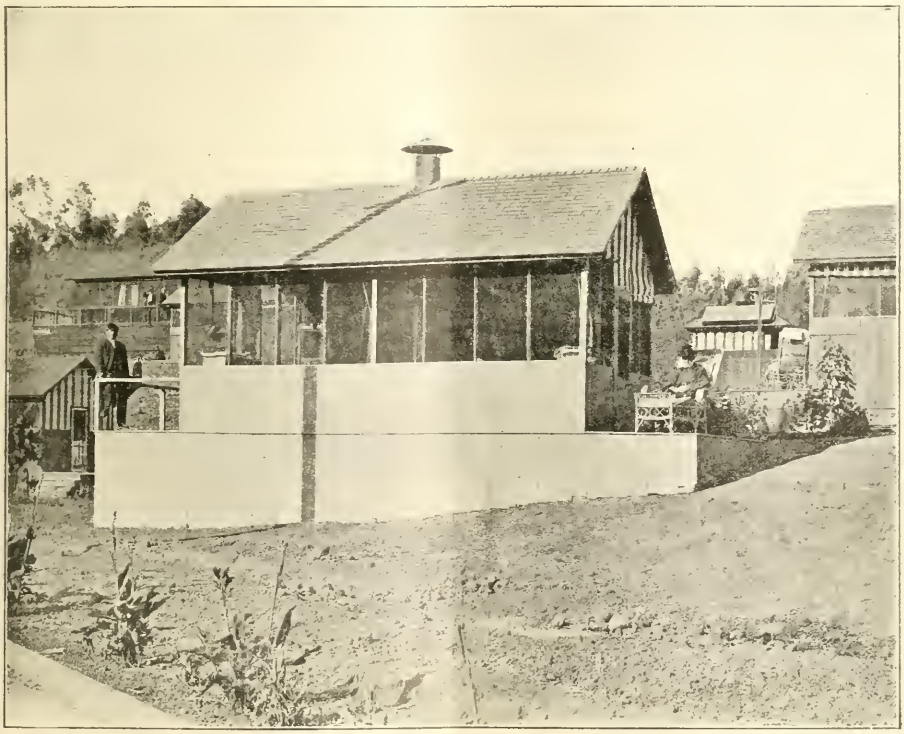
In reporting these two hundred cases of tuberculosis emphasis must be laid upon the fact that the sanatorium in Los Angeles where these were treated has taken patients in all stages of the disease, and the deductions drawn from the records show that ninety-two per cent. were beyond the first stage. Much has been shown this association of what can be done with the early or incipient cases; the purpose of this report is to bring to your notice what can be done with advanced cases. It must be remembered that the cases are taken from the poorer walks of life, yet the majority of them are refined people, the greater number single men and women on small salaries, with indoor occupation, having come to California in search of health, with funds exhausted and facing the impossible task of supporting themselves.

It is evident, and has not been too often said, that the best results are obtained by putting patients under sanatorium treatment at the earliest signs of disease. But another fact is that good results may be sometimes obtained by properly caring for those advanced in the disease. One is often astonished at the remarkable improvement that an advanced case, given up, makes when conditions have been made favorable. We must always remember, too, that in the fight against tuberculosis it is the advanced cases in poor housing which are the greatest source of danger to others. It is difficult to estimate the lives that may be saved by isolating these poor, advanced cases, who are shut out from most of the charitable sanatoria.

The majority of the patients discharged as improved have again become wage earners, and in daily life must carry the gospel of right living to others.

The plan working best is not to take the poor absolutely free, but make a charge of $5, which includes everything, even the washing and mending—often clothes. This $5 is usually given by other charitable funds, societies, unions, or brotherhoods, from which the case is referred.

*Read at the meeting of the American Climatological Association, Washington, 1907.



SUMMARY OF RESULTS FOR TWO HUNDRED INDIGENT CONSUMPTIVES UNDER

No of Patients	Age	Sex		Nativity	How Long in California	Social Condit'n		Occupation	Religion	Family History	Prior Duration of Disease	Height	Weight			
		Male	Female			Single	Married						Normal Weight in Health	On Admission	On Discharge	Difference
	Ave.	%	%	%	Ave.	%	%	%	%	%	Ave.	Ave.	Ave.	Ave.	Ave.	Ave.
First 100 Patients	32 yrs. 5 mos.	54	46	Americans 64 Foreigners 36	4 yrs 10 mos.	61	39	Indoor 90 Outdoor 8 No Rec'd 2	64 Prot. 30 Cath. 5 Jews 1 Theos.	39 Tbc. 61 Neg.	2 yrs. 4 mos. 21 days	5 ft. 8 and 8-10 in.	137½ lbs.	110 lbs.	112 lbs.	Gain of those who gained 6⅘ lbs. Loss of those who lost. 6 1-3 lbs.
Second 100 Patients	30 yrs. 8⅘ mos	60	40	Americans 56 Foreigners 44	5 yrs. 10 mos	54	46	Indoor 75 Outdoor 25	67 Prot. 18 Cath 14 Jews 1 No R.	29 Tbc 71 Neg	1 year 11¼ months	5 ft. 4 and 3-10 in.	125.9 lbs.	115.4 lbs.	120.6 lbs.	Gain of those who gained 7 lbs Loss of those who lost. 5 2-10 lbs.
Totals for the 200 Patients	31 years 7 mo nths 20 days	57	43	Americans 60 Foreigners 40	5 yrs. 4 mos. 26 days	57½	42½	Indoor 82 Outdoor 16 N. R. 2	65½ Prot. 24 Cath. 9½ Jews 1 No R.	34 Tbc. 66 Neg	2 yrs. 2 mos. 5 days	5 ft. 5 and 3-10 in.	131.7 lbs.	112.7 lbs.	116.3 lbs.	Gain of those who gained 7 lbs Loss of those who lost. 5 9-10 lbs.

* Two patients under starred headings—no record (N. R.). One patient—non-tuberculous—on first hundred

For some account of the management and care of these cases it is a pleasure to refer to the paper presented you last year by Dr. Bonney on "The Care of Advanced Cases." Our method has been much the same through the three and a half years covering the treatment of these two hundred cases. The method of feeding has varied in individual cases, digestive disturbances treated with selected diet; in general, raw eggs and olive oil are given to each patient immediately after each meal, beef juice between meals. The olive oil might stand in the place of cream recommended, and to us has the advantage of being less expensive. Eggs and milk between meals are only given to those who cannot for some reason take the ordinary meals.

In regard to comfort Dr. Bonney strikes a keynote. We have also been impressed with the necessity for making these patients absolutely comfortable physically, and contented mentally; the surroundings attractive to ear and eye, giving some form of entertainment. Two phonographs are kept in constant use and often the piano. Musicals are given by local and Eastern artists interested in this work.

Outdoor Treatment.—The same principle of comfort applies to sleeping outdoors, and in Los Angeles there is no night so cold that, when properly protected, patients may not with comfort sleep in the screened room or porch. No tents have been used for any of the patients. The arrangement and general appearance of the cottages used are here shown. Although there is nothing new in the plan, these cottages are so arranged for fresh air that the patients who show improvement are practically in the open the whole twenty-four hours. The climate throughout the year is such that no heat in the cottages is required. There is no heat provided, and such is the training derived from the older patients that never has one asked for any heat in the sleeping rooms. A separate building, the infirmary, used for the progressive cases, is of course provided with heat, and so are the detached dining room and baths. The cottages each contain two rooms for two patients, each room 12x14 feet, with a porch on three sides five feet wide, two sides of screen to each room, screen under the eves, and a ventilator in the ceiling. There are so few rainy days throughout the year that another objection to the small cottage plan is overcome, and the expense is not increased. The average number of days that it rained each year for the past three years was thirty-four; the year from September, 1905, to September, 1906, showed only thirty days; next year's report will be higher. The average number of clear, cloudless days in three years was 212. The past year to September, 1906, it was 264; the average number of cloudy or partly foggy days was 101. The porches are so arranged that patients can be either in the sun or shade the entire day, depending upon his own comfort. It is a satisfaction to feel that others of this Association are opposed to keeping patients exposed to the rays of the sun when this produces discomfort.

The two hundred cases are individually recorded under separate headings, the classification of cases and results used is that in connection with Turban's scheme, and that proposed by the committee on nomenclature of the National Association.

Time will not be taken to discuss this, but the cumbersome details will be published for those interested. Remarks will be confined to the averages for the first and second hundred, as shown by the table here given.

In the whole average there are more males than females. There is room for an equal number of men and women at the sanatorium, but many more men than women make applications. Fifty-seven per cent. of the two hundred admitted were men, but the forty-three per cent. of women really means that the greater percentage of women applicants were admitted, since there is no place provided for these cases other than the County Hospital, to which very few women will go. Of the sixty per cent. that were American born, three per cent. were Californians.

There is a large proportion of foreigners, forty per cent. of the total number, the average time for residence in Los Angeles being five years. All kinds

SANATORIUM TREATMENT AT LOS ANGELES, CAL. YEARS 1903-1907.

Pulse		Temperature		Respiration		Clinical Cond.* when Admitted				Anatom Cond.* when Admitted				Clinical Condition when Discharged*					
On Admission	On Discharge	On Admission	On Discharge	On Admission	On Discharge	Bacilli	Incipient	Moderately Advanced	Far Advanced	1st	2nd	3rd	Duration of Treatment	Improved	Arrested	Apparently Cured	Cure	No improvement or Progressive	Died at Home
Ave	Ave.	Ave.	Ave	Ave.	Ave.	%	%	%	%	%	%	%	Ave.	%	%	%	%	%	%
94	96	100.9°	99°	28	26	6 N R 11 Neg 83 +	4	12	84	4	12	81	106 days	43	5	1		29	29
108	91	97.5°	99.°	28	24	1 N R 20 Neg 79 +	9	25	66	9	21	70	90 days	46	7	6	0	26	15
101	97	99.2	99.5	28	25	¾ N R. 15½ Ng. 84 +	6½	17	75	6½	16½	75½	98 days	30½	6	3½	0	27½	32

Weather average in 3 years—clear, cloudless days, 212—cloudy or part foggy, 101—rain part or all day, 34.

of occupations are represented, the greater number clerks on small salaries; professional people not a few; physicians, clergymen, missionaries, artists, and actors, butchers, shoemakers, and stonecutters. Mark that eighty-two per cent. of these patients had followed some indoor occupation; only sixteen per cent. outdoor employment, under which list were put sailors, laborers, painters, soldiers, physicians, etc. Where it seemed in a few instances doubtful as to in- or outdoor occupation, the cases were placed on the outdoor list.

It is interesting to note that about sixty-six per cent. showed no family history of tuberculosis; in each group of fifty the greatest percentage showed no tuberculosis family history. Part of this may be explained by the fact that a few of the patients could give no satisfactory family history.

The prior duration of the disease has been shown to be a little more than two years, but it must be remember that this has been compiled from the patients' statements, and it has so often been found that the patients were unaware of the existence of the disease until it had reached an advanced stage that it would seem that this two years' duration is surely under- rather than overestimated. It is a significant fact that the average gain in weight in all patients was seven pounds, while the average loss was 5 9-10 pounds, but the tables show that the weight on discharge is only about 4½ pounds' gain, because these include the patients who died at the sanatorium. The best gain in three months of a far-advanced case was 22¾ pounds; another far-advanced patient gained 20 pounds in two months. Although the pulse, temperature, and respiration do not show marked change between admission and discharge, it must be remembered that the worst cases are included in this summary.

The average duration of treatment for the total number has been somewhat over three months. This is, of course, a smaller average than would be if one simply reported on the early cases, or even those that do well, for the latter cases are kept six months or more, so that the total average of duration of treatment is reduced on account of the bad cases, many dying after a few weeks' time, or even less.

The plan carried out in regard to the advanced cases has been to give each a trial of three months, and if the case showed progression arrangements have been made to send the patients to a place where family or friends could care for them until the end came. Many of these cases have been sent to their homes in eastern or foreign parts. The sanatorium is not yet in the financial condition to care for such cases indefinitely. Those that the sanatorium has been obliged to keep to the end are cared for in a separate building called the infirmary, isolated from the more favorable cases. The advanced cases which make a marked improvement and begin running normal temperatures are placed in the cottages above referred to, so that irrespective of the stage there is no difference made in the cases doing well.

Out of the first 100 cases 93 showed on admission the second and third stages, 62 2-5 per cent. of which showed progression or died; of these 93 cases 37 3-5 per cent. improved.

Out of the second 100 cases 91 were admitted in second and third stages, 45 per cent. showed progression or died, 55 per cent. improved.

To sum up the total 200 cases, 46 1-5 per cent. of the second and third stages showed a marked improvement. Many of these patients discharged improved became wage earners immediately. The few cases that were admitted in the first or incipient stage, that is, 13 or 6½ per cent., were all discharged as arrested or apparently cured, as well as three per cent. of those admitted beyond the first stage.

Summary.—Running a sanatorium in the way above stated does not make as favorable a report as a statement made from one where only early cases are admitted; but from the humanitarian standpoint and in view of the campaign against the spread of tuberculosis this report will, to its favor, bear critical investigation. That 46 1-5 per cent. of the advanced and far-advanced clinically recorded, or second and third stages anatomically, could, after being entirely incapacitated, so improve as to go

home, resume their duties, and many become wage earners, is worthy of recognition. The subsequent history of these will be interesting for a later day. Many are known to have become worse and died, some are living in tents in the country, others after six to twelve months are still doing light work for an existence.

The great difficulty lies in the fact that many of these patients must necessarily return to their wretched surroundings and life of privation. If, on the other hand, this difficulty could be removed and the same patients kept under proper supervision with sufficient means for their care many could go on and reach an arrested condition.

If financial conditions and housing capacity enabled us to give these patients indefinite sanatorium treatment, the ultimate results would seem to justify the care of these undesirable cases.

THE LOCAL TREATMENT OF CANCER.

By ROBERT BELL, M.D., F.F P.S.,
LONDON, ENGLAND.

During the period, fifteen years, that I have devoted to the study of the natural history of the cancer cell, I have convinced myself that though apparently little altered in character or appearance from its healthy progenitor, yet it is distinctly more depraved in its habits, and has lost considerably in vital energy. In short, it is of intrinsically weaker constitution than the normal cell from which it sprung. Notwithstanding this fact, however, it possesses the power, by contact with its environment, so to weaken this as to render it susceptible to attack and eventually to destroy and make a prey of it. There is one thing worthy of note, however, with regard to the development of cancer; this is that, though the tumor formed by the aggregation of these morbid cells is to all intents and purposes a foreign body, surrounded by more or less healthy tissue, yet it does not act as any other foreign body would do, by setting up inflammatory action and eventually suppuration and sloughing of the surrounding tissue, in Nature's endeavor to get rid of it. On the contrary, no effort would appear to be forthcoming to get quit of the incubus, and so the surrounding cellular tissue is gradually victimized, and succumbs to the cannibal propensities of the adventitious cells.

The reason for this forbearance in these circumstances is that, though a corrupt colony has been established within what otherwise is a healthy community, this colony is composed of units which, though assuming a new rôle of existence, are altered very little in feature from their law-abiding neighbors. In other words, they are composed of living tissue, differing little from that in their immediate vicinity, except in the important points, that (1) they have become intrinsically weaker, and therefore, when due precautions are taken, may be destroyed, while the normal tissue is possessed of sufficient vitality to enable it to resist the destructive effect of the agent employed in our efforts to demolish the morbid structure, and that (2) though amply supplied with blood-vessels, cancerous tumors are devoid of nerves. In consequence of this they are painless in themselves, and give rise to pain only by exerting pressure upon the surrounding parts, or by the erosions they produce in the later stages of their existence. It will be obvious, therefore, that were it possible to set up an active inflammatory process in malignant growths, this might be made to proceed to such an extent that it would prove destructive to the cancerous tissue, and also to that in its immediate proximity, which has had its vitality reduced by contact with the morbid structure. Thus we should be enabled to succeed in eradicating the disease for the time being, but I doubt very much if we could, by these measures alone, succeed in preventing recurrence of the malady, unless simultaneously we were to adopt a line of treatment which would remove those factors which had, prior to the incidence of the local manifestation of the disease, been insidiously at work undermining healthy cell metabolism. No; my conviction is this line of treatment will, as a rule, be doomed to failure, just as the knife has proved useless, unless measures be also adopted which will tend to reestablish those laws which have been so long disobeyed, and to the non-observance of which the mischief has been due. Dietetic and hygienic treatment must go hand in hand with any method that may be adopted in dealing with the local trouble if complete success be aimed at. Otherwise the relief will, I fear, prove to be only temporary.

As I have frequently averred, a cancer cell in many points still retains the characteristics of the normal cell, from which in the first instance it has its origin. But it certainly has ceased to take cognizance of those physiological laws which, in its normal condition, regulated its cycle of life. It has ceased to be under the domination of those laws and has become a law unto itself. It has also ceased to derive its nourishment from its natural source of supply, and in consequence has suffered in its vitality, though perhaps not in its activity, just as man or any other animal suffers by indulging in a diet which was never intended for him or it. Notwithstanding this, and paradoxical as it may appear, the cause of this degeneracy in the cancer cell consists in a vitiated condition of the blood stream, which is therefore precluded from supplying wholesome nutriment to the various tissues of the body, upon the purity of which their healthy functional activity depends. And, to speak figuratively, certain cells in consequence rebel and commence to seek for nourishment elsewhere, and so, from what appears to be actual necessity, become cannibals. Fortunately, however, this change of diet, though tending to make them more rapacious, succeeds at the same time in reducing their resisting power to certain agents, against which the normal cell is, comparatively speaking, immune. It is this knowledge which promises that we shall be enabled to employ irritants, but not caustic in their effect, which, though not strong enough to destroy the vitality of a normal healthy cell, will succeed in killing those that are diseased. For many years I have been experimenting on these lines, and with no little success, but unfortunately this local treatment is apparently applicable only to epitheliomata so far, though I have no doubt that eventually scirrhus will also be found amenable to its influence. As may be readily inferred, it is essential that the irritant employed must not be of a poisonous or caustic nature. A vegetable substance, therefore, is to be preferred, and one that, if absorbed, will not prove injurious to any extent.

We are all aware of the effect a mustard plaster produces upon the epithelial cells of the skin. Though, if kept on long enough, it kills the superficial layer, yet it does not prevent their speedy replacement, while the pain produced very soon passes off when the irritant is removed. But I think we have a better agent than mustard for our purpose in an infusion of capsicum pods, the strength of which can be easily regulated. Of course, the application of such a liquid will always prove painful for a time afterwards, especially round the margins of the dis-

cased tissue, but it is essential that this be included, so that none of the affected area be missed. The pain, however, can be mitigated considerably by a previous application of a 2 per cent. solution of cocaine, which I am inclined to think rather aids than retards the destructive effect upon the morbid cells. The application should be made at least once a day, and I have seen instances, when this course has been pursued, in which the secondarily affected glands have recovered before the disappearance of the primary affection, pointing, I think, to the probability that the irritant has been passed on to these through the lymphatic channels.

At present I am trying the effect of freezing the cancerous nodules in two cases of recurrent disease, and in one of primary disease in the breast, combining this, however, with dietetic, hygienic, and therapeutic measures, and with every evidence of successful results.

The strength of the infusion of capsicum I would recommend to commence with is 1 ounce of pods, broken up and infused in a pint of boiling water, and decanted in two hours.

It will be found, in the use of this application, that after a few days a crust will have formed which will separate in a short time, when the condition of the raw surface will indicate if a further application of the treatment is advisable. In any case it can do no harm. I have not had the courage so far to inject this infusion into a scirrhus tumor, but I see no reason why such a course should not be adopted, as the injection would be nontoxic to the normal cellular tissue, and could act only as a stimulant—and a highly diluted one at that—should it gain entrance to the circulation.

With regard to the freezing process which I have mentioned, I may state that in 1900 I tried this, in conjunction with the administration of a thyroid preparation and the usual dietetic and hygienic measures, in a primary cancer of the left mamma, which completely recovered; and it was the fact of my receiving a letter from my old patient a few weeks ago saying she was perfectly well, having not only regained, but retained her loss in weight, that emboldened me to have recourse to freezing again. My method consists in spraying the part with chloride of ethyl until complete coagulation takes place, and repeating this as soon as the part has recovered its natural color. Of course, it is desirable not to produce frost bite, but it will be found that the morbid cell will be destroyed long before that which is normal will lose its recuperative power.

I may be permitted to add that I have employed every device I could think of with a view to setting up an inflammatory action in cancerous tissue, but with no effect in this direction.

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PERFORATING GUNSHOT WOUNDS OF THE PLEURA AND LUNG.*

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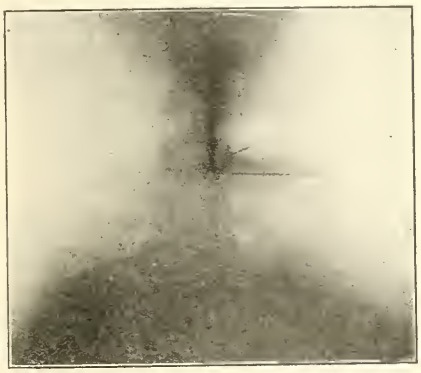
Perforating gunshot wounds of the pleura and lung are of comparatively common occurrence, and, according to Rodman,[1] are ten times as frequent as gunshot wounds of the abdomen. Barthelemé,[2] in a study of the stab and gunshot wounds, which occurred in the surgical division of the University of Strassburg, from 1894 to 1904, found 76 severe stab wounds and 23 gunshot wounds of the chest. Borséky[3] reported 80 penetrating gunshot wounds of the chest which were treated in the surgical clinic of Budapest. Halter[4] reported all the gunshot wounds under treatment in Kocher's Clinic in Berne. Of 122 gunshot wounds, 19 were injuries of the pleura and lung; in 18 the injury was at close range. Fleischhut[5] based his thesis upon the penetrating gunshot wounds of civil practice, which were treated in the Berlin Charité from 1896 to 1905. There were 40 patients; in most of the cases the injury resulted from attempts at suicide.

During the past year we had under observation several patients with perforating gunshot wounds of the pleura and lung, and the following histories of cases will serve to illustrate the forthcoming remarks:

Case I.—Miss Elizabeth K., aged twenty-one years, native of the United States, was admitted to Lebanon Hospital on July 17, 1906. Family and previous history have no bearing upon her recent condition. About noon of the day of admission she received two wounds from a .32-caliber revolver, fired at close range. One bullet entered the third intercostal space about 2½ inches to the left of the



sternum, and was found underneath the skin of the posterior chest wall, near the inner margin of the scapula. There was a second wound of entrance, almost in the median line of her back, and on a level with the third lumbar vertebra. Bleeding from the wounds was very slight. Emphysema was present on her neck, left shoulder, and axilla. She was very restless, coughed constantly, and expectorated considerable blood. She was very pale, her respirations were labored, and the pulse was feeble and 136 to the minute. She complained of pain in her back, but had no symptoms to suggest penetration of the abdomen or spinal cord, there being no abdominal pain or rigidity, and no paralysis. There was no vomiting and the urine was normal. The wound areas were thoroughly cleansed and covered with sterile gauze, held in position by adhesive plaster and a binder. Codeine was given every four hours, and likewise saline solution per rectum, as her condition demanded it. Physical examination on the following day revealed all the signs of a hemopneumothorax on the left side, the flatness extending up to the angle of the scapula. She continued restless and coughed the rest of the day and the following night. Her temperature on July 17, 1906, was 101.2° F., pulse 120, and respiration 40. The bullet

*Read before the Society of Alumni of Lebanon Hospital, April 2, 1907.

from the chest wound was removed under cocaine anesthesia, and the patient was carefully watched to observe the first appearance of abdominal or spinal-cord symptoms. Cough and hemoptysis continued up to July 22, 1906. On this day, the sixth after the injury, the temperature and pulse were normal, respiration only slightly accelerated and the physical signs very much less marked. She was out of bed on July 30, 1906, and left the hospital cured on August 5, 1906. The accompanying radiograph shows the bullet about ¾ of an inch below the level of the scar, about ¼ of an inch to the right of the median line and between the spinous process and inferior articular processes of the third lumbar vertebra.

Case II.—Miss Lilian M., aged seventeen years, was admitted to the Lebanon Hospital on January 22, 1906. Fifteen minutes before admission she received a wound from a .32-caliber revolver which was aimed at the front of her chest, and was fired at close range. There was a small round wound above the third rib in the right mammary line. The bullet was found under the skin on the posterior chest wall, having perforated the chest in a straight line perpendicular to the anterior wall. The patient was in severe shock and had a very troublesome cough with hemoptysis. Pain was not complained of except in the back corresponding to the location of the bullet. The face was pale and had an anxious expression, and the lips were slightly cyanosed. The skin was cool and covered with cold perspiration. The pulse was feeble and rapid, and respiration was accelerated, short, and labored. Bleeding from the wound was very slight. The wound was thoroughly cleansed, the bullet removed, a dry dressing applied and held in place with strips of adhesive plaster and a tight bandage. She was put to bed with the head raised, morphine was given hypodermically and saline solution per rectum and subcutaneously. Reaction from the shock was prompt, the quality of the pulse improved, and the general appearance was better. The dyspnea and cough while still present, were more tolerable. On the following day physical examination revealed all the signs of hemopneumothorax of the right half of the chest. While all the symptoms improved rapidly, the pleural exudate remained stationary, and while it did not cause marked disturbances, it was deemed best after about three weeks to aspirate so as to relieve the lung of pressure and hasten absorption. This time there was a slight rise in the temperature, but aspiration revealed only dark fluid blood. Aspiration was repeated three times. Finally, about the middle of March, the temperature ran a higher course, there was a corresponding increase in the pulse rate, increasing emaciation occurred, and on exploratory puncture an empyema was found. On March 23, 1906, resection of portion of the seventh rib was performed. Drainage of the pleura was followed by rapid recovery, and the patient was discharged cured on April 18, 1906. She informed me recently that since leaving the hospital, she had gained 30 pounds in weight and is in excellent health. Whether the infection of the hemothorax dated from the time of the injury or was the result of the last aspiration, is not certain, but I am inclined to favor the latter possibility, although it was done under aseptic conditions.

Perforating gunshot wounds of the pleura and lung in civil practice are the result of attempts at suicide or homicide. Most of these injuries are caused by small-caliber weapons, being aimed directly at the chest, at close range. Bullets which penetrate below the sixth intercostal space usually perforate the diaphragm and cause injury of the abdominal viscera, such as the liver, spleen, stomach, and intestine. Such injuries as well as those in which the heart and large vessels are involved, will not be considered in this communication. The bullet usually penetrates the anterior chest wall and travels directly backward; it may enter in an oblique direction or pass from side to side. Occasionally it may run in a longitudinal direction or the wound of entrance may be in the neck or shoulder. The bullet generally traverses the lung and penetrates the opposite wall of the chest, but rarely passes out of the body, and is found underneath the skin. It might traverse both lungs, but may remain in the lung, or lodge in one of the vertebræ or ribs. If it perforates one of the ribs, spicules of bone will be driven into the lung, adding to the gravity of the injury. The wound of entrance is round and smooth, with slight inversion of the edges, and the skin surrounding it is discolored black, if the weapon is fired at close range. The wound of exit, if present, is like a slit or tear with everted edges, or may be large and irregular, if fragments of bone are driven through or the bullet is deformed. The bullet track is small and smooth and frequently hard to find. It generally remains sterile.

Perforation of the pleura permits the entrance of air and the development of a pneumothorax. Air may enter through the external wound or from the injured lung. The extent of pneumothorax will depend upon the size of the wound, which is usually small in the injuries under consideration. If a large bronchus is opened a very extensive pneumothorax will develop. If pleuritic adhesions are present, pneumothorax as well as hemothorax will be absent. The air from a pneumothorax is rapidly absorbed without any reaction, providing the lung is not extensively injured. Air from the lung may enter the cellular tissues and emphysema may develop which is usually circumscribed, but may become general. In gunshot wounds it is not so marked as in stab wounds.

Most gunshot wounds of the pleura and lung are associated with bleeding which may come from the lung, the internal mammary, or intercostal arteries. The escape of blood into the pleura causes a hemothorax which may be very slight, but may become so extensive as to threaten life from anemia and asphyxia. The accumulation of air and blood compresses the lung and acts as a hemostatic, if the bleeding is from the smaller vessels of the lung. The bronchi fill up with clots, but the blood in the pleura may remain fluid for a long time on account of the similarity between the pleural surface and the lining membrane of the blood-vessels. It is usually quickly absorbed and but rarely becomes infected, if not meddled with. In gunshot wounds prolapse of the lung is very rare. It usually involves the edge of the lung and, if not replaced promptly, may become necrotic.

Symptoms and Diagnosis.—Shock varies in its intensity, but is not always in proportion to the extent of the injury. Many patients fall, while others continue to walk for some distance. At times the patient falls unconscious, and where the heart and large vessels are injured, death soon occurs. The patient is usually pale, has an anxious facial expression, and the lips are livid. The body is covered with cold perspiration; the extremities are cool and the voice is feeble. The pulse is small, irregular, and may be imperceptible. Respiration is shallow, short and frequent, and dyspnea is rarely wanting. There is a very harassing cough, accompanied by hemoptysis which may be slight or profuse and may

last only a few minutes or continue for several days. It is one of the most constant symptoms of lung injury, but it may be absent. Pain varies in its intensity and location, and may be referred to the abdomen. There is more or less bleeding and blood may escape from the wound in large quantities, especially if the wound does not quickly close. When bleeding is very profuse, it is usually from the injured lung or from an injured intercostal artery. The location of the wound may throw some light upon the source of the blood, particularly if the internal mammary artery is injured. Dyspnea, at times, is very alarming. It is due to an extensive hemothorax or hemopneumothorax, and only rarely to a pneumothorax alone, which latter is readily recognized by a tympanitic area of varying extent. The pneumothorax as well as hemothorax may be double, and if not promptly relieved, may prove fatal; on the right side it is more dangerous than on the left. Dyspnea may increase or may develop some time after the injury, as the result of increased intrathoracic pressure caused by continued or renewed bleeding. The physical signs of hemothorax and hemopneumothorax are well known and need no repetition.

There may be one or more wounds of entrance; if there is no wound of exit, the bullet will frequently be felt underneath the skin of the opposite chest wall. Its location is often determined by the pain which it causes, but if not found soon after the injury it may be discovered later, on account of the ecchymosis which develops around it. Emphysema is usually present around the wound, but is not so extensive as with stab wounds. With small-caliber wounds there may be very few symptoms, nevertheless the diagnosis is not difficult, as a rule, and should be made without the use of the probe or fingers. Hemoptysis, hemothorax, hemopneumothorax, and emphysema are the most constant signs, but the lung may be penetrated without the presence of any one of them.

Clinical Course and Prognosis.—Perforating gunshot wounds of the pleura and lung, caused by small-caliber projectiles, are comparatively benign injuries. As Rodman[1] says: "They either die at once from shock and hemorrhage or very generally get well." Oliver,[6] in discussing Rodman's paper, made the following statements: "Gunshot wounds of the chest are, when properly treated, followed by a very slight mortality. The general impression gathered from writings on this subject is that these injuries are of a very serious and often fatal nature. This impression is, according to my observation and experience, entirely erroneous. If patients do not die within the first twelve hours from shock or hemorrhage, the vast majority will recover without serious illness, provided rest is given to the injured parts." This is in accord with the experience of military surgeons and Küttner,[7] from his large experience during the Boer war, speaks with authority when he says: "Gunshot wounds of the lung caused by small-caliber projectiles, in civil as well as in military practice, belong to the most favorable injuries, providing that the injured receive prompt and proper treatment." Hemorrhage from large vessels of the hilus are quickly fatal.

Of the 15 patients from Kocher's clinic (Halter[4]) only 1 died; the others recovered in a very short time; 13 of these presented pneumo- or hemothorax and 3 became infected. Of 86 patients reported by Borszéky[3] 11 died; 3 of these were moribund when received, 5 died of hemorrhage, and 3 from sepsis. Of the 75 who recovered, only 4 had complications, such as pneumonia, pyothorax, and gangrene of the skin. There was but one death in the 38 Strassburg cases. In the Berlin Charité (Fleischhut[5]) only 8 died of 40 patients; 28 recovered rapidly, and the others had to be operated upon for complications.

Hemothorax, if very extensive, may cause death, if not relieved by proper treatment. It may persist for some time, but if due to continuous, renewed, or late bleeding, may cause death as the result of anemia or asphyxia. In the class of injuries under consideration, the bullet rarely lodges in the lung, and therefore has no prognostic significance. Should a projectile lodge in the lung, it may become the source of later trouble. The most dangerous foreign bodies are pieces of clothing, but they are rarely encountered. The patients who recover from the immediate effects of the injury are apt to die later from sepsis, but with small caliber projectiles this is comparatively rare, and, if present, can readily be dealt with. It is usually due to meddlesome surgery (Rodman). Pneumonia, abscess or gangrene of the lung, and pyemia, are mentioned as possible causes of death.

Treatment.—Conservative treatment is the best prophylactic against sepsis and is the *sine qua non* of success. Only the exceptional cases require active interference, and to quote Rodman again:[1] "The treatment of shot wounds of the thorax should, as a rule, be a masterly inactivity. The less done the better." Senn writes:[8] "From what has been said, it is clear that the best treatment in penetrating wounds of the chest consists in hermetically sealing the wound of entrance and exit, if the latter exists, under strict aseptic precautions, immobilization of the chest by bandaging and rest, and in watching for and treating subsequent complications as they arise."

Care of the wound of entrance and exit, and the treatment of the primary symptoms, will demand immediate attention. Transportation should be avoided, but if unavoidable it should be done quickly and with the utmost care. Examination with a probe or finger has been the cause of many mishaps; it is useless and should be scrupulously avoided. If bleeding is not profuse, the external wound and surrounding area should be thoroughly cleansed, under the strictest aseptic precautions, and protected with a sterile gauze dressing, held in position by strips of adhesive plaster. The patient should then be turned on his side, to locate the wound of exit; this, when present, should be dealt with similarly to the wound of entrance. Should the bullet be felt under the skin, it may be removed at once or at some later time; but search for it, unless it is within easy reach, is to be avoided. The chest should be immobilized with a tight bandage, adhesive plaster, or plaster-of-paris. The patient should be placed on his back, with the head raised, and absolute rest, both physical and mental, provided for. A hypodermic injection of morphine will relieve the distressing cough and allay fear and anxiety. If the patient is very much prostrated, saline enemata or hypodermoclysis will prove of great benefit. Oxygen may be of value in alleviating dyspnea. Ordinarily, nothing more is necessary. The patient reacts from the shock, the dyspnea and cough subside, and recovery takes place without any complications. This may occur even where the primary symptoms are very alarming, and it is best not to be in too great haste to interfere. As it is very difficult in the beginning to judge of the gravity of the injury, constant and careful observation is very important.

Immediate surgical interference may be de-

manded by very profuse external or internal bleeding and the resulting anemia and asphyxia. In gunshot wounds external bleeding is rarely marked, but if present, it may be continuous or intermittent. It may be caused by injury of an intercostal artery, which may necessitate exploration of the wound, followed by ligature or tamponing. The bleeding point may be ligated by dividing and separating the periosteum from the lower and inner surface of the rib and passing a ligature on a curved needle around the artery, as suggested by Lejars. At times, resection of the overlying rib may be necessary. Injury of the internal mammary artery will demand double ligation, above and below the wound. This will require a horizontal incision between the costal cartilages, about a finger's breadth from the sternal margin. If the hemorrhage is from the large vessels of the lung the patient will die before active measures can be adopted. Where hemorrhage is very alarming, but not rapidly fatal, thoracotomy may be necessary. This operation is advocated mainly by French and Italian surgeons, and is a very desperate step, but will at times save patients who would otherwise die. There are several cases on record where this operation was done with success. Garré[9] advocates thoracotomy and primary suture of the lung in abundant hemorrhage into the pleura in long-persisting or repeated hemorrhage, and in pneumothorax if not relieved by puncture. If the wound is near the hilus, only tamponing is feasible. He finds that a very large wound is necessary—large enough to admit the introduction of the hand. For suture material he prefers silk and advocates drainage. Thoracotomy may necessitate resection of several ribs or a large flap, containing all the structures of the chest wall, may have to be reflected. The blood must be evacuated, the wound found, and the bleeding checked by suture, ligature, or tampon, all of which is very difficult. Dawbarn[10] advocates cording of the limbs close to the trunk, three limbs at a time, thereby accumulating blood in them until, from partial anemia elsewhere, faintness follows; whereon, as a result of weak heart action, there is opportunity for clotting. Puncture and aspiration will relieve intrathoracic pressure, but may cause renewed bleeding. If done at all, it should not be done too early, and only a small quantity should be removed at a time.

Hernia of the lung, if present and recent, should be replaced at once. When of longer duration, it may be ligated, resected, and cauterized, or left to slough off if gangrenous. Emphysema rarely requires any treatment; if very extreme it may necessitate multiple incisions. If the pneumothorax causes alarming symptoms, puncture and aspiration will afford prompt relief. After the primary symptoms have subsided there may be a sudden or gradual change, which may demand surgical interference. If the exudate increases it may require aspiration, or even thoracotomy. The mere presence of a rise in the temperature with a hemothorax is no indication for operative interference. Should an empyema develop, thoracotomy with or without resection of the rib, will be necessary.

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THE MODERN THERAPY OF CYSTITIS.*

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A few prefatory words as to our conception of cystitis to-day will materially aid in the understanding of the therapeutic means at our disposal to combat this illness.

Cystitis—inflammation of the bladder—is due to bacterial invasion of the bladder wall. Most frequently the organisms are conveyed from without, in consequence of the introduction of nonsterilized instruments, and a further disregard of the principles of asepsis and antisepsis so devoutly followed when instruments are employed in other surgical manipulations. Bacteria may invade the bladder from the adjoining viscera (rectum, vagina) which they normally inhabit. Either of the aforesaid modes of infection of the bladder is favored by any such pathological conditions of the bladder and urethra which bring about retention, thereby affording the bacteria a chance to multiply in the retained urine. If now a traumatism of the bladder (catheterism) be added we have a third potent factor responsible for the cystitis. Infection of the bladder by extension from the diseased kidney and ureter mostly concern us in tuberculosis, and this descending infection is the rule, save where there is direct extension from the tuberculous vesicles and prostate.

Rarely is bacterial invasion of the bladder conveyed by the blood stream. The most commonly encountered organism is *Bacillus coli communis*. Staphylococci and streptococci may initiate and predominate in the acute forms of cystitis, but they are soon outgrown by the colon bacillus. Other organisms are occasionally found, such as *Proteus vulgaris* and *Bacillus pyocyaneus*. Earlier investigators laid much stress on the distinctions of cystitides with alkaline or acid urines. It is now admitted that the alkaline decomposition of the urine is not the peculiarity of any one organism.

Cystitis, while it is a pathological entity, is not so clinically. It is always a concomitant of some other pathological condition. Our therapeutic efforts, while on the one hand specifically directed against the infecting organism of cystitis, on the other hand must aim to remove the obstructing cause of cystitis, *e.g.* stricture, calculus, new growth, prostatic enlargement. To this extent only can we systematize our therapy.

The onset of the greater number of cystitides dates back to the first introduction of the catheter (infected?) or some other urethral instrument. With all the unpreparedness peculiar to haste, the dire consequences of infection must needs follow. A consideration of the measures preventive of infection are, therefore, first in order.

Prophylaxis.—Urinary retention from its manifold causes, when it has to be relieved by catheterization, should never be hastily done. It is, in no sense, so great an emergency procedure as to warrant any

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violation of antisepsis and asepsis. Aseptic catheterization is thus performed. The glans penis is cleansed with soap and water, followed by a washing with bichloride of mercury, 1-2000. The anterior urethra is rendered as clean as possible by a few irrigations with boiled water or 3 per cent. boric acid, which may be performed with a small glass urethral syringe previously sterilized in boiling water.

The surgeon's hands are to be as carefully prepared as for any operation before taking hold of the sterilized catheter. A refinement to safeguard against infection is the recommendation to grasp the catheter with a sterilized anatomical forceps, and therewith guide the sterilized catheter along the urethra into the bladder. Thus all manual contact is avoided. The lubricant for the catheter and instruments should be some sterile medium—nowadays purchasable as a jelly, made of Irish moss impregnated with essential oils, or some antiseptic. In the absence of this, olive oil, sterilized by boiling, will answer. Instead of lubricating the catheter, the urethral canal should be distended with the lubricant. It is not possible here to enter upon the methods of sterilizing the varieties of catheters, but the soft rubber catheter, which should always be the first instrument to be drawn upon in catheterizing, can readily be sterilized in boiling water. When retention exists or is expected, or when catheterization may be anticipated, it is expedient to administer a urinary antiseptic in advance, to prevent bacterial growth in the urine and invasion of the bladder by the organisms. Finally, after the bladder is emptied, a 4 per cent. solution of boric acid or, better, 1/1,000 solution of nitrate of silver should be introduced and an ounce left in to be voided by the patient.

These precautions obtain with equal force in the event of any other instrumental examination. The surgeon avails himself of innumerable safeguards before aspirating a knee-joint, and yet it is only at this late day that he is becoming keenly alive to the necessity of as much vigilance in catheterizing a distended bladder.

Acute Cystitis.—When once the bladder is infected—with its train of symptoms, frequent and painful micturition of a turbid urine, with vesical tenesmus—it should be the first duty to enjoin rest in bed, and, though cloudy the urine may be, no attempt to irrigate the bladder is in place, for the distention of the bladder will provoke more pain and spasm. The bladder, too, needs rest. This may be obtained by the use of suppositories of opium or codeine and hyoscyamus at frequent intervals. Hot, moist applications to the suprapubic region and hot sitz-baths, when these are available, greatly allay the vesical spasms. Hand in hand with these measures, urotropin in 0.5 doses should be administered from the start, to retard the growth of the organisms that have infected the bladder. It is no longer our practice to rely on the doubtful sedative action of copious draughts of decoctions of triticum repens, or uva ursi, or buchu.

The use of liberal quantities of water is an advantage insofar as it dilutes an irritating infected urine; its disadvantage consists in the frequent urinations that it provokes. An infected urine, whether alkaline or acid, will provoke a pain in equal degree; it is therefore of lesser importance to prescribe alkalies to diminish the acidity, or to order benzoic acid to increase the acidity, than to reduce the degree of infection by urinary antiseptics. When the acuity of symptoms has diminished, local treatment of the infected region may be commenced. This does not imply irrigation by catheter with fluids of any volume, but rather an instillation of a few drops of a solution of nitrate of silver, ½ to 5 per cent., into the neck of the bladder. Such instillations are to be made with a Guyon catheter, of small caliber. To its outer, funnel-shaped end is attached a small hypodermic syringe, containing the silver nitrate; the solution is to be slowly delivered. The immediate effect is very painful, but opiates allay this. Within 24 to 48 hours improvement will follow, and after the second or third day another injection may be given, increasing the strength of the silver. As the bladder becomes more tolerant we may resort to larger washings of the bladder with boric acid, 4 per cent., and silver nitrate, 1-4,000 to 1-1,000. The acute urethrocystitis (*Cystitis colli vesicæ*) of gonorrhea is the type of acute cystitis most commonly encountered, and the treatment of which we herein refer to. The clinical picture is decided enough to preclude any cystoscopic examination.

The summary of the treatment of acute cystitis resolves itself into: Rest in bed; rest of the bladder, with opiates; abstinence of all instrumentation; urotropin by mouth; later on, topical applications, and, finally, free irrigation of the bladder.

Chronic Cystitis.—The acute cystitis will persist as a chronic cystitis in the presence of any obstruction to the urinary outflow, such as strictures, calculi, prostatic hypertrophy, and new growths.

The stricture should be dilated to relieve stagnation of the urine, and with the gradual restoration of the canal to its normal caliber the urine will become clearer and the vesical symptoms abate. If a catheter of fair caliber can be introduced, the bladder should be cleansed with copious washings of a warm 4 per cent. boric acid solution, temperature 108° F., followed by an irrigation of warm silver nitrate, 1-4,000 to 1-1,000. Inasmuch as very tight strictures should not be dilated oftener than every third day, the irrigations, under these circumstances, should likewise be thus limited; otherwise, daily irrigations are in place, and, if an attack of retention complicate the stricture, which proves to be impermeable to instruments, a suprapubic puncture with a fine aspirating needle should be performed once or twice, in the hope of entering the bladder by the natural route later on.

The indication for perineal section to drain an infected bladder is imperative only if sepsis exist, or if the stricture does not yield to dilatation. The perineal drain, however, need not be allowed to remain *in situ* more than 48 to 96 hours. At the expiration of that time it may be removed, and daily or bi-daily irrigations of boric acid and silver in sequence, 100 c.c. to 150 c.c., according to the bladder capacity, are to be performed by way of the perineum and the urethra later on. The irrigations should be warm, and the volume injected adapted to the capacity of the bladder.

In the cystitis peculiar to vesical calculi, we have to contend with a bladder spastic in its efforts to rid itself of its stone, and contracted by virtue of the long-standing inflammation of its infected walls. Any attempts to cure the cystitis by irrigation will fail until the stone is removed, preferably by crushing, if its size and consistency warrant it or by suprapubic section. Aspiration of the crushed fragments is more effective if the bladder is distensible and will accommodate fluids. To this end our efforts should be directed to allay the acute bladder symptoms by rest in bed for some days before the operation, and by gentle irrigations with boric acid and silver to combat the infection. With the removal of the stone, the bladder capacity may be enlarged by daily

forcible distentions with warm boric acid solutions (4 per cent.).

The cystitis associated with prostatic hypertrophy originates with the catheterization for the withdrawal of residual urine or retention. Prophylactic measures, already referred to, will avert it, and when patients nowadays resort to catheter life, a schooling of the patient in the most painstaking asepsis is necessary.

Atonic bladders, harboring large quantities of infected residual urine, tend to keep up the cystitis. Rather than resort to frequent and difficult introduction of the catheter, an indwelling catheter will do away with residual urine, and by avoiding distention of the bladder may restore its tone.

An indwelling catheter may be of the soft rubber variety or an elbowed woven instrument. The eye of the catheter should just protrude beyond the internal urethral orifice. If more of the catheter lies within the bladder it will, like any other foreign body, provoke spasms, and, the bladder becoming intolerant, it is likely to be rejected. To prevent the catheter from being displaced into the bladder or expelled, it should be fastened with adhesive plaster to the penis. Special types of catheter with shoulders (Pezzer and Malecot) prevent the expulsion, but do not provide against further entrance of the instrument into the bladder. The outer end of the catheter may be corked and the urine drawn at stated intervals, or the urine may be continuously syphoned into a vessel alongside of the bed. Irrigations may be performed through the catheter. In the presence of an obstructing prostate, the chance of curing a cystitis is *nil*. The favorable influence of repeated catheterization or permanent catheterization is its effect in reducing back pressure upon the kidneys. This is of much value preliminary to contemplated prostatectomy. A disadvantage of the catheter *à demeure*, difficult to avoid, is the infection of the urethral canal, which, in turn, causes epididymitis. In cases of acute retention, the catheter *à demeure* may be instrumental in restoring tone, but, in chronic retention, it is a temporary expedient. Where prostatectomy is certain to follow, the back-pressure of the kidneys may better be relieved by a preliminary suprapubic opening of the bladder, with drainage and irrigation of the viscus for a week or more preliminary to the removal of the prostate. The infected bladder may be subsequently treated effectively with irrigations of boric acid and silver nitrate.

Aside from the removal of the obstructive cause in the types of cystitis, just gone over, there are some undetermined forms of cystitis that are chronic. The cystoscopic examination may show a diverticulum, favorable to operation, or a communication with a pus cavity outside of the bladder, or parasites or central nerve lesions (spinal). And even after these forms are excluded, the chronic cystitis may be rebellious to all irrigations. These varieties soon become accustomed to the irrigating medium, and for this reason the fluids must often be changed, and with lapse of time return to the original one. We may try oxycyanide of mercury 1-3,000, permanganate of potassium 1-400, acetate of alumina 1-500. For the foul-smelling bladders of inoperable carcinoma, ½ of creolin or lysol, 1-5,000, is effective.

Bacterial examination of the bladder urine is of service from time to time, to show the reduction in the number of bacteria. If, after careful and most persistent irrigations, a chronic cystitis does not yield, a suprapubic opening into the bladder is indicated for the purpose of curetting and cleansing the bladder wall, and freely draining its cavity.

It has become an axiom that whenever a cystitis is rebellious and does not yield to silver nitrate irrigations, and, furthermore, does not tolerate these, we must become mindful lest we have to deal with tuberculous cystitis. If bacteriologically proven to be tuberculous, and the cystoscope can be introduced under general anesthesia, if necessary, when the bladder capacity is not below 60 c.c., the source of the tuberculosis may be traced in the overwhelming instances, to one kidney in the beginning of the disease. At this stage a nephrectomy of the diseased kidney, with removal of the ureter in some cases, will promptly be followed by a subsidence of all bladder ailments. Occasionally, the bladder is extensively invaded by the tuberculosis, or the renal lesion is bilateral, or adjacent sexual organs, more commonly in the male than female, spread the disease to the bladder. Under these adverse circumstances, one's ingenuity will be taxed to the utmost to alleviate the progressive aggravation of the vesical symptoms, which have so aptly been named "cystite-douloureuse" (Guyon).

Before the bladder is much contracted large irrigations may be used, but never to the point of distending the bladder to its full capacity. Of these, bichloride of mercury, 1-10,000 (Guyon), or boric acid, 3 per cent., followed by 3 per cent. phenol., at a temperature of 108° F., once or twice a week (Rovsing), have not, however, been successful in my hands. Silver nitrate, if at all used, should only be instilled in small quantities. When the tuberculous bladder has begun to contract, all irrigations are intolerable, and instillations alone may be borne; and even these are possible only if preceded by instillations of cocaine. Directly aimed at the tuberculous nature of the infection are injections of iodoform suspended in mucilage.

It has been suggested by Bazy to bathe the bladder permanently with iodoform by injecting a suspension of iodoform in olive oil or liquid vaselin into the bladder partly filled with boric acid solution. The oily mixture floats on the solution; the patient is then directed to void his bladder contents until the iodoform appears; he is then to cease, so that the iodoform bathes the bladder. This procedure is repeated at each subsequent micturition. Thus, the iodoform oil is retained.

Guaiacol, to the extent of 5 per cent., may be added to the mixture, and is valuable for its anesthetic effect. One-half an ounce to an ounce of the mixture may be tolerated, but sensitive, contracted bladders resent even this. In some cases, following the advice of Pasteau, instillation with a catheter and small syringe of a 25 per cent. or a 50 per cent. solution of guaiacol in olive oil will allay the irritability for hours. Of very recent date is the suggestion of Frank, to inject a suspension of calomel into the bladder, and administer *per os* iodide of potassium. The latter, being eliminated by the urine, converts calomel into iodide of mercury in so diluted a form as to be unirritating.

Where there are repeated hemorrhages to indicate the existence of an ulcerating surface, or if cystoscopy can possibly establish such a condition, the topical treatment of the ulcer is possible. In females, topical applications of silver nitrate, always under narcosis, have been effective.

As a last resort, the bladder may be opened to curette the ulcerations, remove fungating tuberculous masses and calcareous deposits. Rarely will the fistulous opening heal either because of the infection of the channel or from the urine laden with tubercle bacilli, and because of the contracted state of the bladder. In view of this fact, it has been

advocated to open the bladder in the female, in the vagina, and thus spare the patients the loathsome discomfort of an incessant flow of urine over the abdomen.

The limitations of surgery have been reached by this operation, and even with the relief afforded by the suprapubic fistula, the pains may be so excruciating that I see it recorded by Fenwick that pitting of the spinal cord low down was resorted to. Of internal remedies, urotopin is absolutely useless in tuberculous cystitis. Guaiacol carbonate, or guaiacol, in 5-grain doses and larger, long continued, coupled with hygienic and dietetic treatment, is of much service. Inoculations with bacterial vaccines has, in the hands of its originator, Wright, effected cures in tuberculous cystitis, and antedating this authority, Fenwick refers to benefit resulting from use of tuberculin in doses of 1/1,000 m.g., and recently excellent results are also reported by De Keersmacker. The best preventive of tuberculous cystitis is an early nephrectomy of the primary tuberculous kidney. Advanced tuberculous cystitis is a "noli me tangere."

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TUBERCULOSIS OF THE MIDDLE EAR.

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Now that the causation of disease is becoming better known, we find that the subtile bacillus of tuberculosis is at the bottom of many conditions that were formerly thought to be nontuberculous. In the ear, for instance, a tuberculous infection was regarded as a very rare occurrence, and the disease one that invariably proved fatal. A better understanding of this affection, however, and the careful investigation of clinical data bearing upon the subject, show that it is of not infrequent occurrence, and that timely treatment is not only efficacious in most instances but frequently curative as well.

In former years tuberculosis of the middle ear was usually mistaken for a chronic suppuration of the ear, and as such it was treated, with very poor success. At the present time, however, we are, in most instances, able to differentiate between the two diseases, and consequently we obtain far better results than formerly, since upon the early recognition of the disease depends the issue of the case.

It is particularly in marasmic children—those with swollen glands, joint lesions, and chronic eruptions—that early treatment is of the greatest importance, in order to forestall the ravages of the disease, and to preserve the usefulness of the ear and the life of the patient.

It is estimated that in fully 65 per cent. of the vast army of children that have a running ear the trouble is of a tuberculous nature. Formerly these children were regarded as scrofulous, but as scrofula is no longer considered a separate disease, but simply a manifestation of tuberculosis in the child, the running ear in these children proves to be nothing more than a cold abscess.

It is surprising to see how extensive the destruction of bone can be without any visible external evidence. Very often the ossicles, the bony walls of the middle ear, and even portions of the internal ear, are destroyed before the parents are even aware that their child is suffering from a dangerous malady, and it often happens that the tuberculous focus in the ear is the starting point of a tuberculous meningitis, that is so common among young children, or perhaps of a general septic intoxication that reacts upon the system and causes a rapid decline in health.

In the clinics we often see children with neglected tuberculous lesions of the ear, where the destruction of bone has been very great, and where Nature has provided a fistulous opening behind the ear for the escape of the broken-down material. In this way the abscess cavity becomes circumscribed and the infection is prevented from entering the circulation and becoming general. When these children are operated upon the tuberculous nature of their affection soon becomes apparent. The wound takes on a sluggish and unhealthy appearance. There is a constant tendency to the formation of edematous granulations and fistulæ, and the wound refuses to heal until supportive and antituberculous treatment is given.

In children, a tuberculous ear trouble may manifest itself at any time, even when there is no noticeable involvement elsewhere, and the child is in apparent good health. In other words, in children there appears to be no direct connection between a process in the ear and one in the lungs. Among adults, however, tuberculosis of the ear usually accompanies or else follows a pulmonary lesion of the same nature, the ear trouble generally appearing during the later stages of the lung affection, and at a time when the system is enfeebled and the resisting power of the organism is diminished.

The manner in which the ear becomes infected in tuberculosis has given rise to much discussion, and various opinions have been advanced in regard to the path by which the tubercle bacillus effects an entrance into the middle ear. There are four ways in which this chamber can be approached: Through the eustachian tube; through the lymph channel; through the blood current, and through the external ear. Most observers are agreed that in nearly every instance the channel of infection is the eustachian tube and the infecting medium is the sputum.

In health, the middle ear is protected against disease by a number of safeguards, which prevent infectious matter from gaining entrance to it. Experimentation shows that the healthy middle ear is an aseptic chamber, and has the power of expelling such foreign material as may find its way into it. It appears that the epithelial lining of the tube and middle ear has a positive germifugal action, and by means of the outward movement of its cilia and mucous secretion it promptly expels into the nose any deleterious matter that may find its way into the middle ear. It has been proved that when the epithelial lining of the tubes and middle ear is intact, infection of the ear by way of the nose is impossible. As a further protection, the eustachian tube is closed, like the urethra, in the state of rest, and its nasal orifice is snugly sealed by a cushion of fat, which gives it the appearance of the end of a trumpet. By these means the main avenue of entrance to the ear is doubly guarded, and the multitude of pathogenic organisms that are constant inhabitants of the postnasal space are effectually excluded.

In a wasting disease like pulmonary tuberculosis, the demand for heat-producing material exceeds the natural supply of the animal economy, and consequently the surplus energy in the form of fat that is stored away in the cellular tissues of the body, is drawn upon to satisfy the increasing wants of the system. The pad of fat at the orifice of the eustachian tube is among the first to become absorbed, and at the same time the tube itself shares in the general phthisical atrophy, and it, too, be-

comes diseased. Under these circumstances it is easy to understand how an expiratory blast, such as occurs in coughing and blowing the nose, can force infected sputum into the middle ear, where the sluggish inflammatory action of the general tuberculous process has already weakened the resisting power of that organ and has prepared the way for the actual infection.

As said before, it is impossible to infect a healthy ear, but an ear that has already become enfeebled through some debilitating process, such as the tuberculous, furnishes a fertile field for pathogenic organisms, on account of its rich supply of lymphatics. As soon as the tubercle bacilli succeed in gaining a definite foothold in the middle ear, certain pathological changes take place, and these changes are constantly present in all tuberculous lesions, no matter where they are located. The first change consists in the deposit of a mass of cells, forming the well-known giant cell or miliary tubercle, which constitutes the first distinctive change in all tubercular processes. As the destruction goes on, these tubercles in turn become infiltrated and softened, and eventually they break down into an ulcerating mass, the resulting débris acting as a foreign body and seeking an exit from the ear. As long as the drum head remains intact and keeps the middle ear shut off from external influences the destruction proceeds slowly, but as soon as it becomes eroded and perforated, the middle ear becomes infected by pus cocci from without, and rapid disintegration ensues. The promontory of the middle ear is the point of predilection in tuberculosis of the ear, and then the disease extends to the ossicles, and spares neither the bony walls of the ear nor the adjacent bony parts. Fortunately for the hearing, the most indispensable of the ossicles, the stapes, resists destruction to the last, thanks to its excellent blood supply, which comes from the internal ear. If the destruction becomes active the labyrinth and the mastoid cells are gradually invaded, and a general septic intoxication is likely to follow unless the disease can be checked. This perhaps explains the insidious onset of facial paralysis and labyrinthine symptoms that occur in the course of certain seemingly mild infections of the middle ear. Excepting in children, intracranial complications are rare in this affection, owing to the facility with which the septic matter can usually escape from the ear.

At the same time that destruction is going on in the ear, the reparative phenomenon that accompanies all disintegrating changes is also in evidence. This is shown by the mass of granulations that are caused to be thrown out, in order to combat the infection and to protect the diseased area. The granulations that cover a tuberculous lesion, however, are pale and flabby, and are so unlike healthy ones that they fail to accomplish the purpose for which they were intended, and retard rather than facilitate the healing process. It is owing to the low vitality of the middle ear in tuberculosis that aural polyps and large granulations are seldom encountered, and it is for this reason that the retrogressive changes usually predominate over the reparative unless the diseased parts are stimulated.

It often happens that the nutrition of the system and the vitality of the ear can be improved to such an extent that the granulations take on a healthy action and permit the diseased area to heal. When this takes place the diseased part becomes covered with a firm layer of connective tissue which eventually cicatrizes. Frequently, while reparation is going on in one part of the ear, destruction is going on in another, so that the destructive process is being constantly offset by the restorative. In this way a tuberculous ear trouble may last for years without changing perceptibly. In the multiple perforations in the drumhead of a tuberculous ear we have distinct evidences of the attempts of the reparative process to heal the breach and close the middle ear, and with assistance the attempts are often successful.

Nearly all observers are agreed that tuberculosis of the middle ear never occurs as a primary infection, and that the channel of infection is never through a hole in the drumhead. This may appear paradoxical when we consider the wide distribution of the tubercle bacillus and the many chances of infection, but when we bear in mind two important factors mentioned by Koch concerning the bacillus, namely, that it is an extremely slow growing organism and is one that requires for its wellbeing both a suitable soil and a quiet resting place, the matter seems clear. These requirements are hardly to be obtained in such an exposed place as the middle ear, where the mucous flow and the probability of a puscoccal infection from without would cause them to be eliminated before they had a chance to establish an infection.

It occasionally happens that a tuberculous affection of the ear occurs quite independently of a pulmonary lesion, and at a time when the health appears to be good. When this takes place we are led to assume that the ear became infected at an earlier period and at a time when the lungs were diseased. It is known that tubercle bacilli have remained encapsulated in a bronchial gland for years without losing their vitality, and there is every reason to believe that the same thing can take place in the ear. That the tubercle bacillus is almost indestructible is shown by the fact that under proper conditions this organism can retain its vitality for upwards of twenty years.

It is very seldom that a case of tuberculosis of the middle ear comes under observation in the early stage of the disease, or before the ear has begun to discharge. This is mainly because the disease at first presents no more alarming symptoms than impaired hearing and a sense of fulness in the ear, symptoms that are usually disregarded. Occasionally we see an ear in which there is a beginning tuberculous lesion, where the drumhead presents a soggy, lusterless appearance that is in harmony with the general tuberculous habit. Through it we can often see the yellow outlines of the tubercles that stud its inner surface and that of the middle ear. As soon as these tubercles break down the resulting débris causes an erosion of the drumhead, and in this way it escapes from the ear. This discharge is at first thin and watery and contains tubercle bacilli in abundance; presently, however, the middle ear becomes infected by pyogenic organisms from without, and then the discharge becomes thick and purulent, and in every respect resembles that of a chronic purulent otitis. This is the time when most patients first come for treatment, and unless all of the characteristic features of the disease are considered, we are apt to be misled as to its real nature.

In adults, tuberculous disease of the ear presents certain clinical features which are distinctive of this affection and are present in no other. When a person in failing health, or with the history of a previous pulmonary trouble, complains of persistent deafness and a discharge from the ear that began without ache or pain, we can at once suspect tuberculosis, particularly if the patient has a cachectic appearance and the mastoid or the cervical glands

are enlarged. Almost invariably, when an ear that is nontuberculous is about to discharge, the pain is most intense, the temperature is elevated, and there are other signs of an active inflammation.

In tuberculosis the appearance of the drumhead is particularly characteristic. It is of a dull, cheesy color, and usually contains numerous perforations, and these have everted and thickened edges, which give to the drumhead the suggestion of a tuberculous lesion. In certain cases the entire drumhead melts away through a process of liquefaction necrosis, and the bare bone can be felt and sometimes seen beneath the ulcerated surface of the middle ear. These bony lesions of tuberculosis are noted for their insensitiveness to pain when touched with the probe, and even when they are scraped, and also for their anemic and noninflammatory appearance.

A positive diagnosis of tuberculosis of the middle ear can be made only by finding the tubercle bacilli in the aural discharge, or better still in the granulation tissue of the middle ear. As before stated, it is difficult to find the tubercle bacilli in a well-established aural discharge for the reason that a pyogenic infection usually becomes engrafted upon a tuberculous, and the organisms of the former process multiply with such rapidity that they soon predominate over the tuberculous to such an extent that the finding of the tubercle bacilli becomes a matter of uncertainty and difficulty. The tubercle bacilli are more apt to be found in the residual discharge of the middle ear than in that which escapes from the ear. Whenever the germs cannot be demonstrated in the discharge or in the tissues of a suspected tuberculous ear, the débris should be injected into the peritoneal cavity of a guinea-pig, and if tubercle bacilli are present the animal soon develops tuberculous peritonitis.

The treatment of tuberculous affections of the middle ear is that of the disease in general, and is both prophylactic and active. Our first aim should be to check the progress of the disease and to acquaint the patient with the infectious nature of the aural discharge, that it may be destroyed before it can infect others. Of course the discharge is not nearly as infectious as the sputum, but nevertheless it should be treated in the same way.

In most instances the aural affection is but a part of the general tuberculous involvement and calls for the observance of the laws of hygiene and of the application of such general surgical principles as occasion demands. In many instances the patient is not seen until the tuberculous process is far advanced and the health is rapidly declining. In such a case little can be done save to attempt to stem the ravages of the disease and build up the general health. Seen in the early stage, and before the destruction is well under way, a great deal can be accomplished by removing as much as possible of the diseased tissue and encouraging the sluggish granulations to a healthy reaction. We must bear in mind that we are dealing with a cold abscess, and we should adopt the same rules that apply to the treatment of tuberculous abscesses in general. Free drainage is essential, and to secure it it may be necessary to convert the small perforations into one large opening. By this procedure the diseased area can be stimulated and often made to heal by the application of a 5 per cent. solution of lactic acid or a 10 per cent. solution of chromic acid. In stubborn cases the curette should be used to remove the softened mass of tuberculous tissue, and then the part should be dusted with iodoform. Irrigations should be employed as sparingly as possible, a solution of lysol 1-200 being the best. Of course, it is understood that the nose and throat must be kept clean with alkaline sprays, in order to prevent reinfection through that channel, and the ear should be inflated occasionally in order to keep the tubes and the middle ear clear.

If there are symptoms of mastoid involvement the cells should be laid open and the diseased bone should be thoroughly removed. It is particularly in children that this radical procedure is of the greatest benefit in bringing about a cure and at the same time saving the hearing.

In connection with local treatment it is understood that the general health should be improved as much as possible and the patient given the benefit of such measures as are known to counteract the general tuberculous process. In the event that these fail to arrest the progress of the disease it is advisable to send the sufferer to the mountains, the dry air of which often has a favorable influence upon tuberculosis of the ear in particular.

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THE DIFFERENTIAL DIAGNOSIS BETWEEN CHOREA MINOR AND TIC.*

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The time was, even in the recent past, when the term "chorea" was applied to several conditions which to-day may be readily differentiated from each other. It is one of the triumphs of modern neurologists to have successfully differentiated chorea minor from other conditions resembling it. The condition formerly called "habit chorea," "habit spasm," "myospasia impulsiva," or "Gilles de la Tourette's disease," but more recently classed under the euphonious (?) name "tic," has in certain particulars, on superficial examination, a striking resemblance to chorea minor. Gilles de la Tourette, Brissaud, S. Weir Mitchell, Oppenheim, Gowers, Patrick, and Meige and Feindel, especially the last named authors, have so clearly described tic conditions that their differentiation from chorea minor should no longer be a difficult matter; yet this differentiation is not made as often as it should be made. Tic is a common and widespread disorder, almost, if not quite, as common as chorea minor, and since it was until recent years always called chorea, it is not to be wondered at that it is still frequently so diagnosed. But chorea minor is rarely called tic. In such a case no serious harm can ensue, because chorea minor, which is an acute, infectious, and self-limited disease, tends to spontaneous recovery, whereas the nature of tic is such that it tends to perpetuate itself; therefore the erroneous diagnosis, chorea minor, in a case of tic, may mean the promotion of invalidism. A correct diagnosis in chorea minor is not, but in tic is, absolutely essential to the patient's welfare. This fact alone was sufficient incentive for me to choose as a subject for this occasion the title of this paper. An additional incentive for bringing this subject to your attention is that I am constantly meeting in both clinic and consultation practice cases of tic of recent and long standing which have been erroneously diagnosed as chorea minor. I have recently had the gratifying experience of guiding to complete recovery a patient who had been a victim of tic for eleven years, and whose case had been repeatedly diagnosed and treated as chorea minor. The differential diagnosis between chorea minor and tic is not difficult—indeed it is a

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very easy problem—and requires for its solution no special training. It is one that any physician can readily make if he will only take time for observation. Some one has said, "More mistakes are made in diagnosis—many more—by not *looking* than by not *knowing*," and this saying finds justification in the differentiation between chorea minor and tic, since with no information other than that obtainable by "looking" the differentiation should be readily made.

That this subject may be succinctly placed before you for discussion, I have set down in parallel columns the salient points of contrast and resemblance which may guide one in the differentiation between chorea minor and tic.

CHOREA MINOR.	TIC.
1. General nutrition suffers early in chorea—the patient growing pale and anemic, and he shows early loss of weight.	1. Tic has no effect on general nutrition and this is usually good. Weight is not affected.
2. Expression, when face is quiet, is vacant, sullen and often stupid.	2. Expression is, as a rule, quick and vivacious.
3. Disposition is, as a rule, morose and depressed, but it is often characterized by great irritability.	3. Disposition is usually lively and is frequently childlike in tic.
4. Attention not necessarily but usually is somewhat diminished in chorea.	4. Attention is constantly diminished in tic.
5. A heart murmur is rarely absent throughout the course of the disease, and, unless previously present, is due to the choreic process.	5. A heart murmur, unless previously present, is never found in tic and it is never due to the tic process.
6. The respiratory function is often disturbed in chorea, the respiration becoming so unequal and irregular that a normal respiratory excursion rarely occurs and the expiratory phase is often *explosive*.	6. The respiratory function rarely shows disturbance in tic and never similar to that in chorea.
7. If the muscles of articulation are involved in chorea, speech is often indistinct, difficult, and momentarily impossible. Coprolalia and Echolalia are never present in chorea.	7. The muscles of articulation are never similarly involved in tic, and coprolalia and echolalia are often present.
8. Choreic movements are never confined to one part of the body throughout the course of the disease, though they usually *begin* in arm, face, or leg, and then rapidly extend to other parts; they may be one-sided in the beginning, but they usually become general.	8. Tic movements are usually confined to a single part of the body and they rarely become general.
9. Choreic movements are never confined to synergioly associated muscle groups; they are indefinite, vary in intensity, and frequently occur in individual muscles.	9. Tic movements are invariably confined to synergicly associated muscle groups; they are definite and occur repeatedly with varying intensity in the same muscle groups, but never in individual muscles.
10. Voluntary movements with the affected parts show a constant though variable degree of incoordination.	10. Voluntary movements in tic are never incoordinated.
11. Choreic movements are involuntary and these movements sow more or less incoordination.	11. Tic movements, as a rule, are not consciously but subconsciously voluntary, and they are never incoordinated.
12. Choreic movements are not lessened, but are usually made worse by any voluntary effort to control them	12. Tic movements are lessened and may be entirely controlled for a variable period of time by voluntary effort—the oftener the effort, the greater the control.
13. A choreic involuntary and incoordinate movement is a *purposeless* movement and was never *imitative*.	13. A tic movement in the beginning *was* either a *purposeful* or an *imitative* movement.
14. Any voluntary movement exaggerates the choreic movements.	14. Any voluntary movement usually lessens the tic movements.
15. Choreic movements are increased in emotional states.	15. Tic movements are usually lessened in emotional states.
16. Choreic movements are always exaggerated when the patient is in the presence of others and less when he is alone.	16. Tic movements are usually lessened when the patient is in the presence of others and aggravated when he is alone.
17. Marked associated movements are always present in chorea.	17. Marked associated movements are never present in tic.
18. Choreic movements are always unpleasant to the patient and are never accompanied by feelings of satisfaction.	18. When an inhibited tic movement gives way to the desire to tic, the ensuing tic movement is accompanied by feelings of satisfaction and pleasure to the patient.
19. In chorea minor frequently apparent but rarely actual weakness in certain muscle groups occur.	19. Neither apparent nor actual muscle weakness is ever due to tic.
20. Choreic movements cannot be imitated.	20. Tic movements may be readily imitated.
21. Chorea minor, with or without treatment, tends to complete recovery within from two to six months.	21. Tic, unrecognized and unaided, never tends to recovery, but naturally to perpetuate itself, and it may last a lifetime.
22. Chorea minor is a disease.	22. Tic is a habit.

232 VANOL BUILDING.

Renal Permeability in Hepatic Diseases.—Fiorenza Ignazio says that histological and biochemical researches have demonstrated the complex structure of the liver cells, as well as its complex functions. The culminating point in pathology refers to the changes in the liver cells in disease. There take place a series of complex biochemical changes related to combustion and dehydration, and from their study we can determine whether these cells are sufficient to perform their functions or no. Liver insufficiency would be characterized by failure in the biliary function and in the fat transformation, by alteration of the urogenetic function, and of the glycogenetic function. In order to study the effect on the urogenetic function, the author has experimented by administration of methylene blue in cases of organic disease of the liver, six patients being treated in all. Iodide of potassium and salicylate of soda were also administered. The author finds that it is impossible to establish a definite relation between the functioning of the kidney and of the liver in hepatic affections and their histopathology. The intermittent character of the appearance of the blue indicates that there is a special rhythm of secretion existing between the liver and kidney. The diseased liver acts in a special manner on the secretion of urine, permitting a more rapid elimination, and this is not due to the action of the kidney, but of the liver itself. The substance must pass through the liver first. Intermittent elimination of methylene blue reveals hepatic insufficiency. Hence this fact may be of use in diagnosis and prognosis. —*La Riforma Medica.*

Candy Factories Healthful.—A London physician has lately expressed the opinion that both candy and sealing-wax factories are very healthful places in which to work. The candy girls, he says, are allowed to eat as much sugar as they like, with an excellent effect upon their health. Experience shows that the sugar eater is proof against consumption, and it is impossible for her to become a drunkard. The resin dust in the sealing wax factories makes the air in them very stimulating, similar to that of a pine forest. It is true that the workers in these factories inevitably absorb with the dust particles of vermilion coloring, which is a virulent poison; but, according to the optimistic writer, even this has a good effect upon anemics.

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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ROENTGEN-RAY DIAGNOSIS OF POST-PNEUMONIC CONDITIONS.

CLEAR as the clinical picture of a pneumonia appears in many cases, it is often difficult to interpret the clinical signs when a pneumonia takes an atypical course, it being hard to differentiate between delayed resolution, carnification, abscess, gangrene, and tuberculosis. In the Charité in Berlin, de la Camp has been taking skiagraphs of the lungs of all pneumonia patients for the past few years, and has frequently found them of service in diagnosis, when the physical signs alone were of no value.

In the *Zeitschrift für klinische Medizin*, Vol. 63, 1907, Jürgens has published a series of *x*-ray findings, showing how, with their aid, a differential diagnosis can often be made between the above-mentioned conditions. During the stage of hepatization the affected area of the lung shows a uniform shadow in the *x*-ray picture, which gradually but steadily becomes lighter as resolution sets in, disappearing entirely in two or three weeks after the crisis. In cases in which dullness persists over the lung it is often difficult to distinguish between delayed resolution and the organization of an exudate. This difficulty lies in the fact that both conditions often exist together, and that the connective-tissue formation does not involve the whole pneumonic area, and may contract so quickly that physical examination cannot detect it. Thus, if a long-continued dullness finally disappears, we may be led to believe that the case was one of delayed resolution, while in reality the lung may contain an area of carnification too small to be detected by auscultation and percussion. If the case is one of delayed resolution the shadow will gradually but entirely disappear, even if it takes six to eight weeks. A shadow due to an area of carnification may get smaller, but will never become less intense; in fact, it may even become more intense. The persistence of the shadow does not necessarily mean carnification, as it may be due to other postpneumonic conditions, such as pleurisy with effusion and tuberculosis; here the clinical symptoms are of great aid, but the skiagraph is also useful. When, at the end of a pneumonia a tuberculous process develops, or a latent one becomes active, the physical signs may not be sufficient to differentiate it from delayed resolution or other complications. If they persist after the crisis in pneumonia of an upper lobe, and are due to delayed resolution, successive skiagraphs will show a gradual fading of the shadow, the latter finally disappearing entirely; if due to tuberculosis in the upper lobe the shadow may at first become lighter, but as the tuberculous process progresses it will again become more intense, never having disappeared entirely. Again, if the physical signs after a pneumonia of the base do not disappear after the crisis, and are due to delayed resolution, the shadow will finally disappear; if due to tuberculosis in another part of the lung new shadows will appear in these areas, while the shadow over the base will disappear entirely. When a tuberculosis begins so acutely that it clinically resembles a pneumonia, the *x*-ray picture is of little value at first, but when, instead of the shadow becoming uniformly lighter, light areas appear in spots, the picture is one of cheesy pneumonia.

With respect to such complications as abscess and gangrene, the clinical symptoms usually suffice to make a positive diagnosis, but the skiagraph verifies the diagnosis, and often shows us that the process is in a state of repair before there are any changes in the clinical symptoms. When gangrene complicates pneumonia the shadow of the stage of hepatization, instead of getting uniformly lighter, shows in one place an area which does not become less intense. If fluid is present in the cavity a dark line will represent its upper level in the *x*-ray picture, changing its direction with the change of position of the patient. In the case of gangrene, the clinical symptoms may persist for some time without much change, while the skiagraph will soon show an absence of fluid and that the gangrenous area is getting smaller.

Jürgens by no means claims that a diagnosis can always be made from the *x*-ray picture alone, and the clinical symptoms and history must ever be of considerable value. He emphasizes that the value of the *x*-ray does not lie in the taking of an occasional picture, but in taking successive ones of the same patient. Changes in the upper lobe are most easily interpreted in the picture, and it is this region which is most frequently the seat of delayed resolution and complications.

TREATMENT OF INFANTILE PARALYSIS.

NOTWITHSTANDING the substantial progress made in the science and art of orthopedic surgery during the past twenty years, the treatment of the paralyses following anterior poliomyelitis is still far from satisfactory. In most cases the paralysis diminishes for a time, sometimes for a long time, and, especially in the upper extremities, may entirely disappear; but this disappearance seems to be Nature's work in great measure, if not wholly, and how far it is aided by electricity, massage, and other therapeutic essays of the orthopedist is very uncertain. The effort is usually made to encourage the child to use the paralyzed limb as much as possible in the hope that through exercise the weakened muscles will be strengthened, the circulation in the limb will be maintained, and atrophy will be prevented.

An entirely different method is, however, urged in a recent article by A. B. Judson of this city, who counsels absolute rest so long as the paralysis continues to recede, even though this may take weeks or months. The argument by which he sustains his recommendation—the treatment has never been subjected to the test of actual trial—is as follows:

Disability from infantile paralysis, he says, is seen eight times as often in the lower as in the upper extremities, and yet in the early stage the paralysis is found in all parts of the motor nervous system. The muscles of the recumbent patient are in very moderate use and in a position entirely favorable to spontaneous recession of the paralysis. The arms and hands retain this advantage when the patient is erect, but the impaired muscles in the legs and feet give way at once when they meet the resistance of the weight of the body. They rapidly become elongated and attenuated, and could not well be placed in an attitude less favorable to restoration. When prescribed recumbency, however, Judson says, shall give to all parts the same environment, recession of paralysis will be equally encouraged in the lower and upper limbs, the disproportion of 8 to 1 will disappear, and the sum of deformity from this disease will be materially reduced. As soon as the disease is recognized, therefore, he would limit the patient to the recumbent position and keep him there so long as there was any possibility of further recession of the paralysis.

The objections to this mode of treatment, at least the difficulties of carrying it out, are evident, and are recognized by the author. During the months of treatment, while the paralysis is slowly diminishing, and until there is no hope of further improvement, he says, "the difficult task must be undertaken of keeping a child, well in every other way, off his feet at an age when he should be learning to walk. In some cases eighteen months should be occupied in this way. The common belief that such a patient requires exercise, especially of the affected limbs, will give rise to criticism and objections. A simple argument will not prevail in the family circle, and the physician's word will hardly prevent the little patient from having many a romp. And when the case ends there will be differences of opinion. If some lameness results, it may be said that the patient should have had more exercise, and if there is no disability at all, after the strict observance of recumbency, it may be said that there had been very little the matter with the child." We fear these difficulties will deter physicians from acting upon Dr. Judson's suggestion, and so putting his theories to the test of an actual trial.

THYMUS GLAND TREATMENT OF CANCER.

As a therapeutic agent the thymus gland has been but little used. It has been tried in the treatment of exophthalmic goiter, but probably possesses no specific action in this disease, as it has no distinct effect upon either the heart, the goiter, or the exophthalmos. Of late the gland has been tried on patients afflicted with cancer, and has produced, or at least been followed by, some remarkable results. In the July number of the *Annals of Surgery*, F. Gwyer reports its effect in a number of cases. He administered it only to patients considered beyond operation and beyond hope of cure, using the dried and powdered thymus of the calf in doses of one to four drams three or four times a day. The exact dosage is still experimental, the amount of action and reaction depending upon the amount of diseased tissue and its situation. If the growth be deeply situated and nonulcerating, all the elimination is through the excretory organs, and, disintegration once started, may, it is said, be so great that under treatment an autointoxication of such severity might ensue as to prove fatal. Patients with surface carcinoma, especially if the latter is ulcerating, seem to stand more medication with greater safety. During a course of treatment elimination should always be aided by keeping the bowels loose with salines, and the kidneys and skin active by giving plenty of fluids and frequent baths. In any case the amount of reaction, manifesting itself by weakness, loss of weight, etc., usually prevents the treatment from being carried out much longer than three weeks at a time. As Gwyer's work is but recent, most of his patients have had no more than one course of treatment, so that the full value of the thymus gland as a therapeutic agent in cancer is still unsettled. This much is certain, in the cases reported local improvement took place, the pain was diminished or abolished, and the cancer process was arrested or the size of the growth diminished; often, too, the general condition of the patient was improved.

Of course, Gwyer still advises operation in all operable cases of carcinoma, and does not claim that the thymus gland cures cancer; still the actual results obtained by him certainly warrant the trial of the gland in those patients with a tumor of moderate size, who absolutely refuse operation, and in those with cancers classed at present as inoperable and incurable, who have not been helped by other means.

THE MALARIAL PARASITES.

THE question of whether or not the three typical forms of malarial parasites, the tertian, quartian, and estivoautumnal, are really separate organisms, or whether they represent only variants of a single type, is one that has given rise to much discussion in the past, but concerning which comparatively few contributions have appeared of late. This is probably because most observers have come to the conclusion that it is safe to consider that the three forms above mentioned may be regarded as separate organisms, but there are still those, such as Celli and Plehn, who are loth to accept this view. The latter, for example, in a recent communication (*Deutsche medizinische Wochenschrift*, July 25, 1907), reiterates the opinion that the parasite of the tropics under other climatic conditions, assumes the forms we are accustomed to see in the temperate latitudes. In the course of his stay in Cameroon it was exceedingly rare for him to encounter parasites of types other than the pernicious form, and then only under circumstances, such as prolonged sojourn of the patient in the mountains, that made it seem possible that a metamorphosis of the original parasite had taken place. In support of this contention he cites a case recently observed in Berlin in which an official, just arrived from southwest Africa and suffering from black water fever, had in his blood great numbers of the tropical parasites. The condition proved somewhat refractory to treatment, and at the end of four weeks the clinical picture had changed to that of a tertian fever, and the parasites typical of this form had replaced the tropical organisms. Plehn thinks that it is out of the question that the patient acquired a second infection while under observation, and also considers that there is little foundation for the assertion sometimes made that in cases of this sort there is originally a double

infection, and that on removal to temperate latitudes the estivoautumnal parasites disappear, and the previously more or less latent tertian organisms dominate the picture.

Bacillus Anthracis on Horsehair.

While we can usually connect anthrax in man with some animal or animal product, reports on the direct bacteriological finding of the bacillus in the suspected material are rare. This is partly due to the fact that the infectious material is hard to trace. V. K. Russ reports in the *Wiener klinische Wochenschrift*, No. 22, 1907, a case of this disease in a man who worked with horsehair. At the autopsy the anthrax bacillus was found in the brain. At the place where the hair had been bought there was still some found in the bag from which the man had been supplied. On examining this, the *Bacillus anthracis* was found, grown on agar, and inoculated into animals with positive results. The methods employed in the search for the bacillus are based upon the facts that the spores are very resistant to heat, and are anaërobic. One of the best methods is that of Gruber, who inoculated sterile bouillon with wash water obtained by pouring sterile water over suspected material. The inoculated bouillon is kept anaërobically in Buchner tubes at a temperature of 37° C. for twenty-four hours, and then warmed in a water bath for an hour at a temperature of 60° C. Thus, all bacteria are killed; after the same procedure has been repeated on three successive days the bouillon tubes contain only dead bacteria and anthrax spores which are capable of germinating. Inoculation experiments with these spores after they have been plated on agar yield positive results. This method is far more satisfactory than when the wash water is heated only for an hour at 70° C. and then plated or injected into animals. In the latter case many other kinds of bacteria grow on the agar, and the animals usually die of some other infection than anthrax. The same is true if the wash water is sedimented after heating and the sediment then used for plating and inoculation.

The Function of the External Ear.

The most natural and the universally accepted view in regard to the function of the external ear is that it is intended to aid in the perception of auditory impressions by collecting sound waves and transmitting them through the external auditory meatus to the ear drum. The well-known observation that distant sounds are rendered more distinct if the hollowed hand is placed behind the ear in such a manner as to bend it forward, and that persons whose ears have been cut off suffer a considerable depreciation in the auditory function seems to confirm this assumption in regard to the part played by the external ear. Geigel (*Münchener medizinische Wochenschrift*, July 23, 1907), however, makes a somewhat different contention, and points out that in the experiment with the hand while the sound is considerably amplified if the hand is held close to, but not touching the ear, a quite noticeable increase in the strength of the auditory perception follows if it is brought into contact with the helix. This effect is also evident if the little finger is applied, instead of the thumb, although then the conditions are not very favorable for reflecting air waves into the meatus. Geigel therefore concludes that the function of the external ear is not to collect sound waves and direct them into the auditory canal, but that it transmits these waves direcly through its cartilages to the perceptive apparatus in the internal ear.

Sudden Death in Children During Infectious Diseases.

In many children suffering from infectious diseases the heart action is suddenly arrested and death ensues without any previous warning. Since this occurs, as well in diseases running a very mild course as in those running a severe one, it cannot be attributed to toxemia alone. Ad. Czerny (*Die Heilkunde*, No. 4, 1907) holds that this sudden death is due to anomalies of innervation of the vessels and heart, and to previous overfeeding of the child. He usually saw it in children of families of a nervous temperament or in children who, before they became ill, were considered nervous. A latent tetany can make itself manifest through some infection, and what holds good for this disease also holds good for other anomalies of the nervous system, especially those affecting the innervation of the circulatory apparatus. Czerny also noticed what seems to be of importance, that the children who died suddenly were usually fat. At autopsy they often showed nothing but a *status lymphaticus*, to which the sudden death is attributed by many observers. Czerny, however, holds that this view is wrong, as in his experience, based on the observations of many epidemics of various infectious diseases, these children were usually overfed, and it is the overfeeding which, according to him, causes the sudden death.

News of the Week.

Yellow Fever in Cuba.—New cases of the disease have appeared, both among troops and natives, in a number of places outside of Cienfuegos, the starting point of the present outbreak. The total number of patients so far reported exceeds twenty, and several deaths have occurred.

Plague in San Francisco.—Five cases of bubonic plague with four deaths have been reported to the San Francisco Department of Health during the past week. The patients, with one exception, were inhabitants of the poorer quarter of the city in the neighborhood of Chinatown. A steamer from which an infected sailor was taken is being kept in quarantine. Luckily, Schmitz, the mayor who tried to suppress the report of the former outbreak, is now in jail, so measures can be taken to prevent the spread of the disease. Plague has broken out in South Manchuria, and sixteen deaths have been reported.

Cholera in Russia.—An epidemic supposed to be of cholera has broken out in the Jewish quarter of Brest-Litovsk in Russian Poland. Forty cases and two deaths have been reported.

Investigating Dengue.—Passed Assistant Surgeons Joseph Goldberger and George McCoy, attached to the Hygienic Laboratory of the Public Health and Marine Hospital Service, were, upon the outbreak of dengue at Brownsville, Texas, detailed by the Surgeon-General to make a thorough investigation into the nature of this disease. They have established an efficient working laboratory and begun work, but just at present the investigation is temporarily interrupted, both officers having contracted the disease.

Anthrax in Orange County.—Several dairies in Orange County, N. Y., have recently lost cows through infection with anthrax, and the farmers are fearing a spread of the disease. The State Veterinarian has ordered the isolation of all exposed cattle, and great efforts are being made to prevent dissemination of the infection.

An Afflicted Town.—According to a despatch in the *New York Times* last week, an epidemic of what is thought may be cerebrospinal meningitis, though the symptoms are not typical of this disease, has had seventy-five victims between five and twelve years of age in Ridgway, Pa. There have also been over one hundred cases of typhoid fever in the town within the past two weeks.

Health Conditions in Manila.—According to the press despatches from Washington, the Manila Bureau of Health reports that during the month of June there were fewer deaths in the city than ever before since the American occupation began, and during the past six months there have been no epidemics of contagious disease.

Healthfulness of Sydney, N. S. W.—A despatch to *The Sun* from Sydney announces that the death rate of the city is the lowest of any other city in the world of the same size, being 10.62 per thousand. The population of Sydney at the last census was 524,100.

An Infallible Treatment for Typhoid.—The Mayor of Jersey City has been requested by one of the citizens of that city to make public a cure for typhoid fever that, like all domestic remedies, has never failed to cure in even the most desperate cases. The remedy consists of a tablespoonful of mixed tea, boiled in four cups of water, and taken cold without milk or sugar. The dose is a cupful a day and has both prophylactic and curative virtues.

Ice as a Medicine.—The Sunday regulations recently enacted in an Arkansas town, according to the interpretation insisted on by the Mayor, prohibit the sale of ice on that day, unless on the order of a physician, who is required to write a formal prescription for the commodity.

Cats to Exterminate Plague Rats.—The English Salvation Army is planning a campaign against plague in its colony at Muktipa, India, and as one measure has despatched from London twelve cats of good mousing proclivities in an effort to kill off the rats that are supposed to be the carriers of infection. It remains to be seen whether the Indian rat is not a match for the cat, and also whether the cats themselves, through their fleas, will not prove as great a source of danger as do the rats with their parasitic commensals.

Tests for Drunkenness.—The *London Globe* gives an account of how a licensed victualer of a small town, accused of being drunk on his own premises, produced medical testimony in his defence. The doctor said that immediately after the police visited the house defendant called at his surgery and asked to be tested for intoxication. In his presence the man walked perfectly along a straight line, stood upon one leg for three-quarters of a minute, repeated the word "hippopotamus" quickly and distinctly, and told the time by a watch to a quarter of a minute. The magistrates dismissed the case.

Reporting of Births in Illinois.—In a recent bulletin, the Illinois State Board of Health directs attention to the law, which provides a fine of not less than $1, nor more than $100 for failure to report births. The Secretary of the Board suggests that concerted action on the part of the State's attorneys whereby all violators of the law will be prosecuted, would render indifference to this particular law a very expensive matter to many physicians.

Attempted Evasion of the Illinois Medical Law.—A man was sentenced on August 9 to one year's imprisonment, the limit provided by the law, for misrepresentation regarding the examinations of the Illinois State Board of Health. He was also tried on the charge of practising medicine without a State license, was found guilty, and fined $100 and costs.

Gift to the Little Falls (N. Y.) Hospital.—By the will of Mrs. Nellie Bramer Smith, the Little Falls Hospital received a bequest of $8,000, to endow a bed in perpetuity in the female ward. Mrs. Smith was president of the hospital for several years.

The Sixth International Dermatological Congress will be held at the Academy of Medicine, New York, on September 9-14, 1907, under the presidency of Dr. James C. White of Boston. The treasurer of the Congress is Dr. George T. Jackson of New York, and the secretary-general, Dr. John A. Fordyce, 80 West Fortieth street, New York.

The Second International Congress of Physiotherapy will be held in Rome, October 13 to 16. The Italian Minister of Public Works has granted special traveling facilities to all members attending the Congress. The reduced fares apply to all lines, both on the mainland and on the islands. The Organizing Committee is authorized to issue to each member or associate, duly enrolled, a book of railway coupons. Each coupon entitles the holder to a ticket at from 40 per cent. to 60 per cent. reduction on the ordinary fare. As the book contains twenty tickets, available for any journey in any part of Italy, it enables members to make an extended tour in the country at greatly reduced cost. The coupons are valid for forty-five days—from October 1 to November 15, 1907. Ladies duly registered as associate members of the Congress and exhibitors may take advantage of the reduced fares. Applications for membership should be accompanied by the subscription of 20 francs for members, or 15 francs for associates, and should be sent to the general secretary, Professor Carlo Colombo, Via Plinio, Rome. The American secretary is Dr. Benham Snow of New York City. The president of the Congress is Dr. Guido Baccelli of Rome. The American president is Dr. Francis Bishop of Washington, and the treasurer of the American committee is Dr. Albert C. Geyser of New York.

British Columbia Medical Association.—At the eighth annual meeting of this organization held in Victoria on August 3, officers were elected as follows: *President*, Dr. J. M. Pearson of Vancouver; *Vice-President*, Dr. Corsan of Fernie; *Secretary*, Dr. R. Elden Walker of New Westminster; *Treasurer*, Dr. J. D. Helmcken of Victoria.

The Southern Medical Association.—The next meeting of this association will be held at Birmingham, Ala., September 24, 25, and 26, under the presidency of Dr. Henry Hagar Martin of Savannah, Ga. This Association is the Southern and Gulf Branch of the American Medical Association, comprising the States of Alabama, Georgia, Tennessee, Mississippi, Louisiana, Florida, and Kentucky. The secretary of the Association is Dr. Raymond Wallace, Chattanooga, Tenn.

The Fifth Censorial District Medical Society, which includes the counties of Adams, Cumberland, Franklin, Fulton, and York, Pa., held its second annual meeting on August 13. The following officers were elected: *President*, Major James Evelyn Pilcher of Carlisle; *Vice-President*, Dr. Rea of York; *Secretary*, Dr. Coffman of Scotland.

The Wyoming State Medical Society will hold its annual meeting at Lander on September 3, under the presidency of Dr. A. C. Godfrey.

Texas Medical Board.—Governor Campbell of Texas has appointed the following members of the State Medical Board: Drs. James D. Osburn of

Cleburne, Ed. Becton of Greenville, W. B. Collins of Lovelady, G. B. Foscue of Waco, J. J. Dial of Sulphur Springs, J. D. Mitchell of Fort Worth, M. E. Daniels of Honey Grove, O. R. Bragwell of Mineral Wells, W. S. Collins of El Paso, J. C. Crow of Dallas, and J. P. Rice of Fredericksburg.

Dr. Melvin R. Burnham has resigned the superintendency of the State Hospital for Tuberculosis at Ray Brook, and will practise in New York City at 320 Central Park West.

Obituary Notes.—Dr. Miles H. Nash, formerly of this city, died in Ridgefield Park, N. J., on August 13, at the age of seventy-four years. He was born in Norfolk, Va., and after receiving his medical degree from Jefferson Medical College in 1855 began practice with his father in Tallahassee, Fla. He served through the Civil War as surgeon, and at the close of the war came to this city. For eight years he was assistant to Dr. J. Marion Syms, and for twenty-six years he was connected with the Demilt Dispensary. A few months ago failing health compelled his retirement from active work.

Dr. Calvin Hostetler of Marcus, Ia., died on August 4, at the age of thirty-nine years. He was born at Marshalltown, Ia., and was graduated from the Sioux City College of Medicine in 1898, since which time he had practised in Marcus.

Dr. Ezra W. Abbott of Contoocook, N. H., died on August 12, at the age of eighty-six years. He was born in Contoocook and was a veteran of the Civil War. He was the first physician to reach President Lincoln after his assassination, and was in attendance upon him for the first twenty-four hours. He practised in Concord for many years, retiring from active work a few years ago.

Dr. Alexander McLean of Salt Lake City died in Pueblo on August 3, at the age of fifty-two years. He was born in Belleville, Ont., and came of a distinguished Scotch family. He was graduated from the medical department of the University of Michigan in 1877, and, after practising for a time in Leadville, Col., he moved to Salt Lake in 1889. Owing to an injury to the spine he was obliged to withdraw from practice about three years ago.

Dr. Louis A. Harris of Newburgh, N. Y., died on August 17, at the age of forty-nine years. He was a native of Annandale, N. Y., and was graduated from St. Stephen's College and the Albany Medical College.

Dr. P. R. Prendergast of Brooklyn died on August 16 at Cork, Ireland, as the result of injuries received about two months ago by falling down the companion way of the steamer on which he was sailing for Europe. He was landed at Cork and placed in a hospital, where he remained until his death. He was born in Clonmel, Ireland, fifty-seven years ago, and came to this country in early life. He was graduated from Jefferson Medical College in 1873, and, after practising in Philadelphia for three years, settled in Brooklyn.

Dr. Sorden McClure died at Philadelphia on August 8, at the age of thirty years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1899. He was connected with the ophthalmological staffs of Wills Eye Hospital and the Presbyterian Hospital.

Dr. Charles Stewart Wurts of Philadelphia died at Media on August 14, at the age of seventy-eight years. He was graduated from Jefferson Medical College in the class of 1854.

Dr. Samuel Beyea of New Rochelle died on August 18 at Roosevelt Hospital in this city, after an operation for gallstones. He was born in Westchester county forty-five years ago, was graduated from the College of Physicians and Surgeons, New York, in 1892, and served as interne in St. Luke's and the Sloane Maternity Hospitals.

PRIMARY TYPHILITIS WITHOUT APPENDICITIS.

To the Editor of the Medical Record:

Sir:—Referring to Dr. Byron Robinson's letter in the issue of the Medical Record of August 17, I regret that anyone should think for a moment that I claim any priority of belief that primary typhilitis may exist without appendicitis. Despite Dr. Byron Robinson's very instructive letter as to what he has observed and written, I believe that he and I are only reaffirming old truths which are forgotten, or ignored, by very many practitioners, alas, to-day, and especially by our surgical colleagues. But light is returning, let us hope and believe, and with it will also come the day when, as I think, operations will rarely be performed except for cases of perforation or localized abscess. Those of us who are conservative in this matter must bide our time and wait patiently until our misguided but beloved brethren come within our fold. When they do we shall pardon them for errors of *trop de zèle*.

Beverley Robinson, M.D.

Westport, N. Y.

OUR LONDON LETTER.

(From Our Special Correspondent.)

BRITISH ASSOCIATION—TUBERCULOSIS COMMISSION—SALE OF DISEASED FOOD—SCHOOL HYGIENE CONGRESS—HOSPITAL FUNDS, ETC.

London, August 2, 1907.

This is the week of the British Medical Association, which is holding its annual outing at Exeter, and has accepted an invitation to Sheffield for next year. As you have special reporters attending for you, I need not offer here any summary of its doings. This week also is the meeting of the Greater British Association for the Advancement of Science. This meeting is at Leicester, and the president is Sir David Gill, whose magnificent record as Astronomer Royal at the Cape is well known to all who are interested in that science. His address was equal to the occasion, contained an account of some of the minute measurements and calculations which are so important and to which he has given years of patient work. He said the stars were the crucibles of the Creator, and spoke of the discovery that a great part of space is occupied by two majestic streams of stars traveling in opposite directions and the amazing truth that the stars of both streams are alike in design, alike in chemical constitution, and alike in process of development. Then he pointed out that however vast these streams, comprising hundreds of millions of stars, the system to which they belong may be but one of millions more pervading the infinite, concluding with the old question: "Canst thou by searching find one God; canst thou find out the Almighty unto perfection?"

Lord Kelvin at once rose and moved a vote of thanks, and declared his intense delight at having been on a magic tour through the universe, personally conducted by the President, and carried, not on aeroplanes which would not fly, but on the strong, sure wings of the scientific imagination.

The second interim report of the Tuberculosis Commission, being part of the appendix to Vol. I, deals with the Pathogenic Effects of Bovine Viruses, and is written by Dr. A. Stanley Griffith. In the introduction he tells that inoculation experiments with bovine bacilli were made (a) to supply a basis of comparison with bacilli of human origin; (2) to determine the range of variation in virulence of different strains of bovine tubercle; (3) to test the susceptibility of various animals to bovine tubercle. Thirty different viruses of natural tuberculosis from the ox were employed. Fifteen different species of animals were experimented on. Clinical histories of many are reported illustrated by temperature charts. Post-mortem appearances are also recorded. The inoculation experiments with bovines show that milk can set up tuberculosis in guinea-pigs at the end of the first week and afterwards until the death of the cow. General tuberculosis in goats is set up by subcutaneous injections, and these animals seem from some experiments to be more susceptible to such injections than the calf. Other experiments show that the milk of a tuberculous cow may contain bacilli although the udder is not diseased, if the number inculating in the blood is large. The various species of

monkeys proved highly susceptible to the bovine bacillus. Feeding experiments were carried out on 318 animals of 15 distinct species. The most susceptible form a group including monkeys, rabbits, guinea-pigs, and some others. In these the infection is almost always fatal, the smallest dose setting up general progressive tuberculosis. In a second group the same result follows, but depends on the dose of the agent and the age of the animal; this group includes the pig, goat, calf, cat, and dog. These species show varying degrees of susceptibility, the young pig being most susceptible and the adult dog most resistant. The rat and the fowl appear to be insusceptible to tuberculosis by feeding. Comparing the effects of feeding by a single dose and by repeated doses Dr. Griffith seems to think that the single dose may set up the most extensive disease.

The results of this investigation are not calculated to allay the anxiety produced by the sale of diseased milk and meat. A "Medical Officer of Health" has communicated to the press during the last few months facts as to this sale which ought to be dealt with by sanitary authorities without delay. Of course some denials of his statements were forthcoming and even suggestions of exaggeration. But now the Medical Officer of Health has thrown off the veil of anonymity and repeats his charges. He is no other than Dr. A. Mearns Fraser, the distinguished Medical Officer of Health for Portsmouth, and in the August number of the *Nineteenth Century and After* he relates some of his experiences. By attending certain cattle markets between Portsmouth and London he obtained direct proof that milch cows in the last stage of tuberculosis were sold in open market, at nominal prices, for human consumption. His position enabled him to prevent the disposal of this meat in Portsmouth, but beyond the limits of that borough his authority did not extend, and there is no doubt it was sent to other populous places, including London. To put an end to this scandal it is necessary to force the central government to put pressure on the local authorities. The Board of Agriculture has considerable powers of dealing with cowsheds and milkshops; the supervision of meat and milk is vested in the Local Government Board. These two boards should work together. They have power to make notification of tuberculosis in animals compulsory, to require infected animals to be destroyed, and the cowsheds disinfected. This power has been exercised as to anthrax and other diseases, and Dr. Fraser has no doubt that if it had been extended to this case the trade in tuberculous meat and milk would not have attained its present scandalous proportions. Whether the legislature will put a stop to it depends on whether the public will insist that the remedy shall be provided without delay.

While partisan politicians are engaging in contradictions and recriminations the public weal is endangered. The public must therefore take a hand and force them to deal with this abominable scandal.

The International Congress on School Hygiene is after all to receive official recognition. I wrote you word a fortnight ago how the Board of Education had until then ignored it. It is now announced that the Lord President of the Council will, at the request of the King, open the Congress on Monday next. So the Board "saves its face." Although it "adheres to its decision not to issue official invitations to foreign governments it has arranged with the Foreign Office to take such steps as are likely to remove any misunderstanding," etc., etc.

The will of Sir Wm. Broadbent has been proved, the value of his estate being declared as £81,315 net. The will of Dr. Julius Dreschfeld was proved for £68,014 net.

The King Edward Hospital Fund has received a second payment of £10,000 on account of the residuary estate bequeathed by Lieutenant-General G. A. Baynes to the fund.

The Sunday Fund had a meeting yesterday. The committee recommended the distribution of £68,134 to the institutions benefiting. The executors of the late Mr. George Herring are ready to pay over £30 on account of his legacy. A second payment of £3,000 on account of the legacy of Mr. H. Lloyd was reported. Something like a warning to hospitals was decided on. It was proposed that any institution receiving a grant should obtain the approval of the council before entering into a contract which would increase the cost of maintenance. This was opposed by Mr. Sydney Holland as contrary to the policy of not interfering with the internal management of hospitals. Eventually it was resolved that hospitals benefiting should be invited to consult the council before increasing the cost.

OUR VIENNA LETTER.

(From Our Special Correspondent.)

ANOMALY OF THE AORTA—PERFORATION OF THE SIGMOID—A SERUM REACTION IN NEPHRITIS—GELATIN IN CARCINOMA—OZONE IN WOUND TREATMENT—A FUNCTION OF THE PANCREAS.

VIENNA, June 28, 1907.

ANDREAS MAKAI has reported two cases of the formation of cord-like structures in the ascending aorta. One instance of this interesting abnormality was discovered at the autopsy on a man of sixty years dying of ulcerative endocarditis and secondary pyemia. The inflammatory process involved principally the aortic semilunar valves, and just above their insertion the vessel was bridged by a flat band 33 mm. in length, 4-6 mm. wide, and .5-1 mm. thick. The upper border of this band was rounded, but its lower portion was eroded through the extension of the ulcerative process. A similar case was observed at the autopsy on a man of sixty-five years, dying of apoplexy. Although there was only a moderate degree of arteriosclerosis, the left ventricle was much hypertrophied. The endocardium and valves were entirely normal; the cord, which resembled the one just described in situation and course, was 27 mm. in length, and 3-4 mm. in width. Its lower border was fused on both sides with the upper edge of the anterior semilunar valve. The relation between the cord and the valve was such that it appeared very unlikely that it could have been formed as the result of an embryonal or postembryonal pathological process. The pronounced hypertrophy of the left heart, which could have resulted only from the cord formation, was an interesting concomitant in the second case. The advanced age of both patients is also noteworthy, since this is not often observed in connection with congenital heart lesions.

Professor Schnitzler has successfully operated on a perforation of the sigmoid flexure, produced by a bougie introduced in order to relieve chronic constipation. The patient was in the habit of inserting a thick, hard-rubber bougie into his rectum several times a week. One day, as he was carrying out this procedure as usual, in the erect posture, he experienced a sudden pain in the lower part of the abdomen. No hemorrhage followed the withdrawal of the instrument. When Schnitzler saw the patient, about four and a half hours later, there was no pain nor vomiting, but slight rigidity was present on the left side. Rectal examination did not reveal any palpable injury, and was not followed by hemorrhage. The pulse was 80 and the temperature 38.1°. The elevation of the temperature and slight rigidity caused Schnitzler to suspect a perforation of the lower part of the sigmoid flexure, in spite of the absence of other symptoms, and he accordingly performed a laparotomy. On opening the abdomen a suppurative peritonitis of the lower portion of the abdomen was revealed and a perforation 3 cm. in length was found on the anterior wall of the sigmoid flexure, a palm's breadth above the peritoneal reflexion. Recovery was uncomplicated. While such injuries are not infrequent in the course of the treatment of rectal strictures, the present instance, occurring in a healthy intestine and without the exercise of much force, is interesting. The most important feature in such cases is the prompt resort to laparotomy, even in the presence of very slight symptoms.

Heinrich Schur and Josef Wiesel have studied a reaction in the blood serum of nephritics. Wiesel has shown that in pronounced nephritis, accompanied by hypertrophy of the left ventricle and elevated blood pressure, marked hypertrophy of the chromaffine system is regularly observed. This suggested that the high blood pressure might be associated with this hypertrophy of the chromaffine system. If this assumption were well founded, the secretion of the chromaffine cells—that is, the tension-producing substance—should be demonstrable in the serum of nephritics. Schur and Wiesel were able to prove this by means of the extremely sensitive test devised by Ehrmann. The method is very simple. The enucleated eye of a frog is immersed in the serum under examination, and the condition of the pupil is observed during several hours. While the serum of healthy persons and of those suffering from other diseases was without effect on the iris, all of the specimens obtained from patients with chronic nephritis caused pronounced, and often extreme, dilatation of the pupil, even when diluted twenty times.

Franz Hauer of Buda Pest has succeeded in causing marked improvement in cases of cancer by means of a new form of treatment, and in some instances, in which there could be no doubt as to the diagnosis, has even brought about a cure. Most of the cases were observed in hospitals and clinics in Buda Pest. The treatment consisted in injections of gelatin. These usually caused elevations of temperature at first, but this soon disappeared and general im-

provement followed. The ulcerated areas became clean, the pain grew less or disappeared, and the body weight increased. In one case the new growth disappeared completely, and in seven others almost complete disappearance was obtained, only a small mass persisting. In five of the forty cases treated no improvement was noted.

Alois von Gleich has tried a new method of wound treatment with ozone. Starting with the idea of using the active principle of peroxide of hydrogen, he was led to try the effect of liberating nascent ozone in the immediate neighborhood of the wound. This he did by treating commercial oxygen with the induction current and allowing the resulting gas to escape over the wound. Such a method is now easy to carry out, thanks to the perfection of modern electrical apparatus, and Gleich hopes in this way to extend the usefulness of a well-known and powerful antiseptic.

Loewi described before the Medical Association a new function of the pancreas and its relation to diabetes mellitus. In the normal eye the size of the pupil does not change when adrenalin is applied, but if the cervical ganglion has been removed twenty-four hours previously mydriasis results. Ten out of eighteen diabetics exhibited marked mydriasis, while of twenty-eight patients suffering from various other affections only two responded in this way. One was a case of occlusion of the pancreatic duct, and the other one of exophthalmic goiter.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 8, 1907.

Glottic Spasm of Nasal Origin in Adults.—Frank A. Conlon gives a short résumé of sixteen cases of spasm of the glottis of nasal origin, including one of his own. This is a spasm affecting all the adductor muscles of the larynx except the arytenoideus. Of the cases collected 57 per cent. were females and 43 per cent. males. In males the average age was forty-three years, in females thirty-two years. In seven of these cases the attacks occurred only at night, and in two others occurred most frequently at night, but in the remaining seven cases the attacks came on at no special time. In six of the cases no direct connection could be found with the sexual life or apparatus; menopause, two; disease of the sexual organs, one; masturbation, one; occurring directly after marriage, two. The results obtained showed the cause of this reflex in eleven cases to be congested or hypertrophied turbinates, in two cases polypi, in two cases atrophic rhinitis, and in one case chronic nasal catarrh. He believes the impulse arises in the termination of the sensory nerve, from a congestion or irritation of the surrounding tissue.

New York Medical Journal, August 10, 1907.

Angioneurotic Edema—Starling Loving describes five cases of angioneurotic edema and in all, though the histories of the patients prior to the appearance of the eruption varied, the symptoms immediately preceding and attending the development were in one important particular practically the same; in each there was abdominal distress, with more or less distention, due in the first partly to serous effusion, but mainly, in that case and in all the others, to accumulation of gas, followed in a few hours by the eruption which, though it appeared in different parts, presented in each essentially the same features. None of the patients had suffered previously from a similar attack, no evidence of heredity could be traced in any, and so far none has had a return. The skin was but slightly reddened and there was but little itching.

Addison's Disease in Children, with the Report of a Case.—D. Felberbaum and E. A. Fruchthandler report such a case occurring in a child twelve years old. From the entire picture and termination the case was undoubtedly one of Addison's disease, complicated by vagabondism. There were unusual findings in the stools, each microscopical field showing a great number of oval egg-like bodies, measuring about four times the size of a red blood corpuscle. The cytoplasm appeared as a thin but distinct rim around a large oval nucleus, giving the impression of encysted protozoa. Various well-known pathologists examined and studied the feces, but were not able to determine the nature of these bodies. In the case reported there was also eosinophilia, and a termination by severe convulsions and coma lasting eight hours. In a survey of the literature they succeeded in collecting twenty-five cases, including their own, and in conclusion called attention to some of the more important facts which are characteristic of the disease, as follows: 1. Extreme rarity of the disease in children under thirteen years of age. 2. It is as frequent in boys as it is in girls. 3. Mildness of gastro-enteric symptoms. 4. Peculiar condition of the hair. 5. Death usually under convulsions.

Mercuric Values in the Treatment of Syphilis.—William F. Bernart records experiments he has made with eighty-four ulcerative cases, dividing them into four classes of twenty-one patients each; in these he makes estimates of the mercuric values of the various treatments. The intravenous method is taken as a standard. In the intramuscular class the ratio between the time and the amount of medicine used when compared with the intravenous class was about the same, the time having been less than one-third greater, while the amount of medicine used was a trifle over one-fourth greater. There remains the deduction that the intravenous method is one-third faster than the intramuscular and that it requires one-fourth less medicine. The inunctions were a trifle over twice as slow as the intravenous injections. Any calculation as to the relative amounts of mercury used in these two methods would be mere guess work. The method by mouth is over four times more slow than the intravenous medication. The statistics and deductions given are an early step towards the final ascertainment of an accurate knowledge of the amount of mercury required for the absolute cure of lues.

Journal of the American Medical Association, August 17, 1907.

The Relation of the Hospital to Medical Education and Research.—W. H. Welch remarks on the advances made in medical education in this country during the last two decades, and says that it is above all in the laboratory teaching that the most striking progress has been made. The instruction in medicine and surgery, while it also has advanced, has hardly kept pace, and the clinic lags behind the laboratory more than it should. He believes that it is the duty of our medical schools to furnish students with clinical teaching comparable to that given in the laboratory. The difficulties now come from the hospitals. There are few medical colleges that have their own hospitals, and the others must look to the outside public hospitals for aid. Welch shows how groundless are the objections made to the use of public hospitals for medical instruction, and how the plea for such utilization is in the interest of the public and the patient. The hospitals also, as he has pointed out elsewhere, should serve for the higher clinical training that is attained only after a still longer apprenticeship. In conclusion, he pleads also for the encouragement of research in our hospitals, but it is to the special clinical laboratories that we shall have to look for the more penetrating insight into the causes and nature of many diseases.

Phototherapy.—J. F. Schamberg gives an account of the present status of phototherapy, including the latest views and results of studies on the bactericidal action of light, its penetration, and the histological changes effected. While the rays toward the violet end of the spectrum possess the highest bactericidal efficiency, this is shared to some extent also by the more penetrating rays near the other end. The discovery made in 1900 that the lower forms of life can be rendered more sensitive to the action of light by the use of chemicals is mentioned as having influenced the more recent studies by directing observers to attempts to increase the chemical activity of the more penetrating rays. As regards histological changes, it is generally agreed that light causes marked dilatation of the superficial and deep cutaneous blood-vessels, with exudation of leucocytes, increase of connective tissue cells, and a swelling of the collagen. There is an epidermal hyperplasia and abnormal cornification. The treatment of lupus vulgaris is the present dominant field of phototherapy, but it has its true value also in other conditions—lupus erythematosus, acne, alopecia areata, flat vascular nevi, certain forms of eczema, leg ulcers, etc. In lupus erythematosus and alopecia areata it has been of special service. The different forms of lamps are noticed, especially the mercury vapor lamp, with the use of which Schamberg gives his own experience. He thinks it is most effective in alopecia areata, leg ulcers, and certain forms of eczema. The light is rich in chemical rays, but lacks deep penetration. It gives a broad volume of light, applicable over large areas, and the grade of light erythema desired can be produced and even predetermined by the distance and duration of the exposure. He concludes that such phototherapeutic measures are not to be regarded as panaceas, but as aids to other approved agents in the treatment of certain cutaneous diseases.

Bier's Treatment.—Willy Meyer eulogizes Bier's method of stasis hyperemia in the treatment of infectious surgical disorders, referring to Bier's work and also giving the results of his own experience. He has found the method of the greatest value in the treatment of tuberculous joint affections, especially in the early stages, and in the lower joints of the extremities. While it is possible to apply the method to the shoulder by means of special apparatus devised by Bier, it is unfortunate that no one has

yet succeeded in producing venous stasis of the hip. The method unquestionably requires much study and experience to adapt it to the needs of individual cases, and this is even more true in the management of acute surgical infections other than tuberculosis. He gives a long list of such conditions in which he has used this method successfully, including its application as a prophylactic measure against threatening meningitis. He says that its prophylactic use deserves to be especially emphasized. The hyperemic treatment of incipient pulmonary tuberculosis is also mentioned as of importance. Bier's method is a new and most powerful weapon against disease, enabling us to treat many chronic and acute surgical affections more conservatively and with less discomfort to the patient, and with far better functional results than are obtained by any other method thus far discovered in medical and surgical therapeutics.

Medical Education in the Army.—Colonel P. F. Harvey remarks that the impression still largely exists, even among well-educated people, that in case of war there would be an ample supply of skilled physicians and surgeons at once available for service. Those holding this opinion are unaware of the essential requirements of the military surgeon, who, in addition to his purely professional duties, must be acquainted with the complex subjects of military medical administration, including the customs of the service, the hygiene of posts and camps; the service of the front and rear during and after a battle; the establishment of field hospitals and dressing and ambulance stations; the school of the soldier; the hospital corps drill; methods of removing wounded; inspection and muster; and the preparation of the multiple reports, requisitions, etc. The all-around, competent medical officer has to have special training and is not at once improvised from the recent graduate or even from the experienced civil practitioner. Like most other governments, the United States has an Army Medical School, located in Washington, in which those entering the medical corps of the army receive their special instruction, being taken first as contract surgeons, and after graduation filling existing vacancies in the medical department. Medical officers of the militia are also eligible for admission and Harvey thinks that their attendance should be encouraged. The instruction covers all subjects that the medical officer is required to know in the ordinary course of his duties, and its practical outcome has been to increase greatly the efficiency of the medical corps. He also gives a brief résumé of the general educational system adopted in the United States Army, which may, in time of peace, be regarded as a vast educational institution. Military hygiene is one of the subjects studied at West Point in the infantry and cavalry schools, and in the garrison schools, and the promotional examinations of officers up to captain in the infantry and cavalry and of lieutenant in the artillery include this subject.

The Lancet, August 3, 1907.

Mobile Kidney, with a Description of an Operation for Anterior Nephropexy.—E. Stanmore Bishop says that the cases in which practical men are interested fall into the category of "mobile" or "wandering" kidney, are not surrounded by peritoneum, and their excursions take place entirely behind the paricta peritoneum in the loosened subperitoneal connective tissue. Regarding this variety there are only four points on which writers appear to be agreed, viz., that such a condition actually exists, that it is most frequent in women, that it is most frequently seen on the right side, and that it is very frequently associated with neurasthenia. After quite an exhaustive review of the literature, he describes his operation as follows: An obliquely transverse incision is made through the muscles of the abdominal wall outside the rectus muscle. This gives free access to the renal fossa on the right side. The liver being lifted, the stomach drawn inwards, and the hepatic flexure of the colon depressed by broad retractors or large flat sponges, the parietal peritoneum is divided transversely over the lower fourth of the kidney. The two peritoneal edges being held apart, a curved incision, concave upwards and outwards, is made in the proper capsule, and the lower segment of this loosened from the anterior renal surface down to its inner and lower extremity. This capsule remains attached to the posterior surface of the organ. Its flap is turned downwards and inwards, leaving the raw surface of the kidney exposed for a corresponding distance. Two or three sutures attach this loosened edge of the capsule to the fascia beneath. The peritoneum is sewn up by catgut. The anterior surface of the lower leaflet of the true capsule is now in contact with the posterior abdominal wall, and the posterior surface of the peritoneum is lying upon it and upon the bared lower anterior renal tissue. A long straight needle, armed with iodized or chromicized catgut, No. 3, is pushed directly backwards immediately below the ureteral insertion until its point emerges behind; another needle carries the opposite end of the same thread, and is pushed through one centimeter below the first. When both needles are drawn through the thread is tied over the muscular layer behind the peritoneum, capsule, and posterior tissues are united on the inner side of the lower pole of the kidney. Another pair of needles is placed in a similar manner so as to carry a loop of catgut below the inner lower angle. Two or three more carry loops below the kidney. All these pass through peritoneum, capsule, subperitoneal connective tissue and muscles. When drawn tight and tied the kidney will be supported by a row of sutures which do not penetrate its substance, but which effectually fix it. The closure of the abdominal wall in tier fashion completes the operation.

Iodine as an Antidote in Carbolic Acid Poisoning.—John Maberly reports three cases. The first two recorded demonstrate the value of iodine for the ill effects of carbolic acid on the mouth and throat, when administered soon after the poison has been swallowed and before any symptoms which can be distinctly traced to its effects on the stomach and intestines have had time to develop. The third case had all the toxic effects of the poison fully developed, as well as distinct signs, in the tympanitic abdomen and the dark and slimy stools, of the poison having reached the stomach and intestines and set up changes there. The administration of iodine can be safely credited with the happy result obtained.

Notes of a Case of Addison's Disease in a Negress.—R. Scheult records such a case because of its rarity in the dark-skinned races.

The British Medical Journal, August 3, 1907.

Acute Enteric Intussusception with Apparent Reduction by Irrigation: Abdominal Section and Fatal Result.—This interesting case is reported by William Templeton. A boy three years old had an acute enteric intussusception. There was slight general swelling of the abdomen and tympanites, with a quite definite elongated swelling, not at all sausage-shaped, about two inches long and one inch broad, lying obliquely downward and inward in the left iliac region, dull on percussion. Rectal examination showed nothing abnormal. A pint of warm water was gradually injected into the bowel, which was followed by a disappearance of the tumor. On the day following the abdomen was found to be again distended and tympanitic, and the tumor was again present as before; it was hard and dull on percussion, but not tender. A large enema of warm water was injected and the tumor again disappeared completely. Three hours later it reappeared. While the child was being prepared for abdominal section, and while he was under chloroform, an enema was again injected, with a complete disappearance of the tumor. In a few moments it reappeared. At operation an invagination of the bowel was found, about two inches or so in length. This was easily reduced. The child recovered well from the operation, and passed a large, distinctly fecal motion; but thirty-six hours after the operation he became collapsed and died. This case is interesting in relation to the question whether cases of acute intussusception should be operated upon as soon as a definite diagnosis is established, or whether irrigation or inflation of the bowel should first be tried. In the enteric variety, which forms about 30 per cent. of all cases, irrigation cannot possibly be of any use, and may, as in this case, cause delay in resorting to abdominal section.

Iodine and Typhoid Fever.—David Walsh states that he gives iodine and carbolic acid in all cases of typhoid fever that come under his care, with uniformly good results, a rapid general improvement, and with an absence of complications. His directions are to put one minim of pure carbolic acid and two minims of tincture of iodine into a tumbler of water, and let the patient drink as much of this both day and night as he wishes. It would be interesting to have the efficacy of this treatment investigated in a prolonged series of cases at some large metropolitan hospital or by a collective committee.

Berliner klinische Wochenschrift, July 29, 1907.

Concentration of the Immune Bodies in Diphtheria Antitoxin.—Brieger and Krause describe the following method, by means of which they were able to concentrate diphtheria antitoxin to a very great degree: The serum was diluted with an equal bulk of distilled water and precipitated with neutral ammonium sulphate. The precipitate was dissolved in 10 per cent. watery glycerin solution and again precipitated with an excess of sodium chloride. This precipitate was separated and tested for protective power. It was found to contain

no antibodies, whereas the solution still possessed its original strength. Carbon dioxide was passed through the fluid and the resulting precipitate was filtered off and tested again with a negative result. The filtrate was found to be of great potency, and on determining its nitrogen is was discovered that through the several precipitations 75 per cent. of the total nitrogen had been removed, without any impairment of the immune bodies. By the addition of diluted formic acid a further precipitate could be obtained which did not appear to be directly related to the immune bodies. Attempts at concentration by dialysis were not altogether successful.

Gangrene of the Scrotum.—Kettner, in discussing this condition, describes the case of a man of thirty-five years who acquired an erysipelatous infection of the scrotum as the result of abrasions produced by the friction of a new pair of trousers. In consequence of this three-quarters of the skin of the scrotum and some of that covering the penis became necrotic and sloughed away. The tissues cast off included, in addition to the skin, the dartos, most of the septum, and the loose connective tissue lying between the dartos and the testicle. In the treatment of such defects it is necessary to provide the denuded organs with a more substantial covering than that afforded by spontaneous epidermisation, and for this purpose pedicled flaps taken from the thighs or inguinal regions are the most suitable. Unless provision is made in this way for a thick covering, the patients suffer from hyperesthesia of the organs to a degree that may be altogether incapacitating.

Münchener medizinische Wochenschrift, July 23, 1907.

The Operative Treatment of Carcinoma of the Rectum.—Berndt, in discussing this subject, says that the two chief dangers of the extirpation of the rectum are intestinal gangrene and infection of the abdominal cavity and the wound. Better results than those obtained at present are to be expected only if these two dangers are avoided with certainty. Even the most accurate anatomical knowledge of the normal blood supply of the rectum does not insure against gangrene, for it is impossible in the living patient to ascertain the individual peculiarities of vascular distribution, etc., with sufficient accuracy to guard against serious impairment of the blood supply. It is, therefore, better to operate in two stages and to choose as high a portion of the gut as possible for implantation into the anus. Infection of the abdominal cavity and wound can be avoided with absolute certainty only if the intestine is not severed or opened within either of these. The plan of operation he proposes is as follows: The anus is completely closed by suture and then the rectum is exposed through an incision along the left border of the coccyx and sacrum; the wound is packed with gauze, and the intestine, with its lymphatic glands, is exposed and loosened from its attachments through a laparotomy incision. The portion to be resected is pushed out through the sacral wound and the peritoneum is sutured carefully about the portion drawn down. This terminates the first act of the operation, and the second is performed as soon as intestinal gangrene has begun. It consists in removing the growth, together with the gangrenous portion of the intestine, by means of the cautery. The upper stump is drawn down and is sutured to the anus. If the accumulation of gas or feces renders it necessary to open the intestine before it is time for completing the operation, this may be done without risk of infecting the wound, as the portion of gut to be removed can be drawn out for some distance and its contents be received in a suitable receptacle without soiling of the wound area.

Removing the Appendix in Gynecological Operations.—Pankow is of the opinion that at all laparotomies for gynecological purposes the appendix should be removed. As a result of careful study of 147 appendices that were removed at pelvic operations for a great variety of conditions, distinct evidence of appendicitis was discovered in eighty-two cases. The author estimates that appendicitis is much more frequent in women than has been generally accepted, and that about 60 per cent. of all women are affected during the period of sexual activity. Lesions of the appendix also furnish a potent source of inflammatory conditions of the pelvic organs, and are not rarely the cause of sterility induced through stenosis of the tube. A very large proportion of the pains in the right lower abdominal quadrant, formerly ascribed to ovarian conditions, is the result of a previous acute appendicitis.

Deutsche medizinische Wochenschrift, July 25, 1907.

Automobile Injuries.—Kettner says that coincidently with the development of methods of transportation of increased rapidity a corresponding augmentation of traumatic injuries has taken place. A considerable variety of lesions is already ascribable to the use of the automobile, and presumably the number of casualties of this nature will undergo a steady increase. A characteristic form of injury is the fracture of the forearm, which is not infrequently caused as the result of back-firing in cranking the motor, and this will be caused to disappear only when methods for starting the motor automatically have been evolved. A very unusual injury resulting from the introduction of the automobile omnibus is reported by the author. The patient was a boy of thirteen years, who, in stepping from a street car, was run down by a rapidly advancing motor omnibus. The front wheel of the vehicle, in passing over his left leg, completely stripped from it all of the skin and subcutaneous tissues from the ileum in front and gluteal region behind to the first and second toes, so that the muscles and tendons were all exposed, as in an anatomical dissection. The patient's condition was fairly good, so that the attempt at conservative treatment was deemed justifiable. The skin flap was cleansed and wrapped around the limb again, but on the fifth day it was seen that the huge flap was becoming gangrenous and it had to be removed. During the next eight weeks the patient made satisfactory progress, and some form of skin-flap transplantation was being considered, but a change for the worse occurred and, on account of the boy's general condition, amputation at the hip was performed. A month later he died of bronchopneumonia.

Experimental Syphilis in Rabbits.—Mühlens says that numerous observers have now succeeded in inducing in rabbits parenchymatous keratitis by inoculation with syphilitic material. He himself was able to demonstrate spirochetes in great numbers in the eyes of two animals inoculated six weeks previously with juice from a gland containing the organisms. A monkey (macac) inoculated with scrapings from the rabbit lesion fourteen days later exhibited a typical primary lesion of the eyebrow, and scrapings from this chancre gave rise to a typical keratitis about two months after having been inoculated into a rabbit. Preparations from this lesion again exhibited the spirochetes. This is the first instance, according to the author, in which the chain of transmission of the organism from man to rabbit, to monkey, and again to rabbit has been carried out. Mühlens has also been successful in inoculating the rabbit's cornea with material from the lungs and adrenals of a child dying of congenital syphilis.

French and Italian Journals.

Tuberculous Testicles in Children.—G. Poissonnier says that tuberculosis of the testicle in children may occur at any age, even in the fetus, or the child of a few days old. It is more frequent under two years, and becomes less so up to the time of puberty. It is generally primary in the testicle, secondary in the epididymis, which is the opposite of the localization in the adult. It is usually single. Traumatism and masturbation may be factors in its etiology, but the principal one is heredity. It may be propagated to distant parts of the body, as the lungs, or may occur with intestinal tuberculosis. The symptoms are the same as those of orchitis in the male, the process being acute or chronic. The testicle is swollen, tender, and painful. At one portion the testicle becomes adherent to the skin, an abscess forms and a fistula results. If more chronic the abscess may be walled off by fibrous tissue, and may never open externally. The only complications to be expected are generalization by means of the circulation or the lymphatics. The inguinal, iliac, and lumbar glands are generally involved. The prognosis is good, since cicatrization occurs and a certain amount of testicular tissue is usually left. For this reason treatment should be conservative, castration not being advisable. General hygienic measures such as are applicable to other forms of tuberculosis are important. Puncture of the abscess, with injection of iodine or iodoform, curettage, and drainage are the best surgical measures.—*Gazette des Hôpitaux*, March 16, 1907.

Diagnosis of Lingual Tuberculosis.—Riccardo Dalla Vedova says that the localization of tuberculosis in the tongue is quite rare. He gives the histories and microscopical examination of portions of the growths in two cases, and deduces from these the opinion that the only important diagnostic point is obtained by the examination of a portion of the growth removed from the base of the ulcer. If a portion be removed from the side, we may find epithelial developments that will be quite suggestive of epithelioma. The three conditions that are to be differentiated from tuberculosis are syphilis, epithelioma, and

actinomycosis. When the ulcer is single, and there is no other focus of tuberculosis in other organs the appearances and symptoms may be the same for the three forms of ulcers. The author believes that there are authentic cases observed in which the ulcer of the tongue was primitive, and not a secondary complication of pulmonary, or gastrointestinal tuberculosis, because we have records of complete cure by removal of the growth in the tongue. The ulcer may be located in the mucosa or the parenchyma of the tongue. The tuberculous ulcer is generally placed at the margin or tip of the tongue, resulting in the appearance of a little nodule of a white or yellow color, which becomes caseous, and ulcerates, leaving an oval or round ulcer, with a grayish-yellow base that is not very firm, irregular borders, and slight infiltration of the edges. There is swelling of the neighboring lymphatic glands. The ulcer may be deep, infiltrated, and give considerable neuralgic pain, while it hinders the movements of the tongue in mastication and speech, and the general health is affected. The syphilitic and epitheliomatous ulcers are very similar, and there is no one symptom that may not be the same in different cases of the three forms. A bacteriological examination of the mouth secretions will not be reliable, so that the only diagnostic point of value is the microscopic examination of removed tissue.—*Il Policlinico*, March, 1907.

The Phagocytic Power of the Blood in Infants.—Gaetano Finizio has modified the methods of Leishmann and Douglas for examination of the phagocytic power of the blood. He tested the blood in an infant attacked by purulent pleurisy originating from the staphylococcus aureus, and that of a baby suffering from slight dyspepsia. Pus from another source was also used for purposes of comparison. He found that in both babies the index of phagocytosis was higher to the pus from the pleura than to the compared pus. That of the baby with empyema was always higher than that of the other baby. In both babies the phagocytic index was within the limits given by Wright. The author concludes that the index is lower for a virulent staphylococcus than for a less virulent one. It has been observed that virulent staphylococci are slightly subject to the influence of phagocytosis. The phagocytic index is higher in healthy children than in those that are ill.—*La Pediatria*, March, 1907.

Leukemic Retinitis.—Rochon-Duvigeaud says that although retinal hemorrhages are frequent we are ignorant of their pathology, since we are only able to observe the microscopic changes on the post-mortem table. Ophthalmoscopic observations show only the gross changes and are at best unsatisfactory. The blood examination in such cases has not been carefully studied. Such hemorrhages are common in leukemic patients without giving marked symptoms, or loss of sight. In leukemia the blood is much altered in its cellular contents. There are present a large number of granular leucocytes in myeloid leukemia, a pure splenic form. There are also a large number of mononuclear leucocytes. Such lesions are easily cured by measures that succeed in curing the disease, and the retinal changes undergo retrogression. The cause of these lesions seems to be the obstruction of minute vessels by masses of leucocytes which pass very slowly through the vessels. This occurs especially in the capillaries and the beginnings of the veins where the blood current is slow.—*La Presse Médicale*, April 27, 1907.

Operative Treatment of Phlebitis.—Senechal advocates the operative treatment of phlebitis as the most rational one to be used. These inflammations of the veins are acknowledged to be infectious. Excision of the inflamed area will bring about a cure in from two to three weeks, where medical treatment would mean months of disability. At the same time recurrence, when operation is promptly done, will be prevented. Operation is followed by no accidents or bad results, and is not dangerous to the patient. The author has made many resections for phlebitis and has never had any bad results. The treatment varies with the size and severity of the inflammatory process and its location. The general technique consists in absolute asepsis; incision of the skin, linear if only one vein is affected, lenticular when many are involved, with the removal of the diseased skin; ligature of the efferent veins beyond the thrombosis, ligating in healthy tissue, not less than three centimeters from the clot. The vein is then removed between the ligature and a pair of compression forceps and followed by closure of the skin wound. The author describes minutely the technique to be used in various kinds and locations of thrombosis.—*Gazette des Hôpitaux*, May 10, 1907.

Responsibility of Hysterical Patients.—Crocq tells us that the responsibility of hysterics varies considerably with the especial case observed; in each case we must consider the acts and circumstances, and whether the patient acts in one of his attacks or in a lucid interval. Hysteria results from a condition of hyperimpressionability, with diminished cerebral control and hypersuggestibility. There is a distinct perturbation of the mental state. Hysterics differ in the gravity of the mental state, according to the type of mental trouble. When there is little brain trouble the patient may be regarded as responsible. If there is marked mental loss of equilibrium the patient becomes absolutely irresponsible. Acts committed in an attack are not responsible acts, while between the attacks the patient can comprehend and understand his acts. In some states there is an entire loss of consciousness, insensibility, and disorientation. Hence all such acts must be carefully studied, as there are very great difficulties in determining responsibility.—*La Revue Médico-Sociale*, May 10, 1907.

Ehrlich's Diazoreaction in Eruptive Fevers.—Collet says that the diazoreaction depends on the coloration obtained, a cherry red being the characteristic color in typhoid fever. Normal urine gives a yellow coloration. Certain medicaments, such as guaiacol, creosote, and benzonaphthol produce this reaction when eliminated by the urine. It is also obtained with many aromatic bodies. The presence in typhoid fever may be explained by intestinal resorption of putrid products. Yet it is lacking in gastric diseases, cirrhosis of the liver, hepatic insufficiency, lesions of the pancreas, etc. It is generally absent in nonfebrile diseases. It is present in the following febrile diseases: Tuberculosis, typhoid fever, eruptive fevers, infectious maladies, and acute respiratory difficulties. In measles it is generally positive, but there are cases in which it is lacking. In these cases the tint varies with the amount of fever. The diazoreaction has no relation to the intensity of the eruption, and is present for some days, growing less as the eruption fades. It appears before the rash. In scarlatina it is habitually negative. In diphtheria it is negative. It is absent in serum eruptions. Thus it is not a diagnostic sign alone, but may aid in diagnosis in certain diseases.—*Lyon Médical*, June 30, 1907.

Surgical Treatment of Radical Paralyses of the Brachial Plexus.—Codivilla considers it remarkable that the majority of paralyses of the brachial plexus are not cured, even when the causes are slight and easily relieved. In these cases he believes that the pressure of the transverse processes on the nerve roots is a factor in making the paralysis permanent. In such cases it is advisable to remove the transverse processes so as to throw the two contiguous foramina into one and to give more space to the nerve roots. He does not accept the theory that the effect of lesions of the roots of brachial plexus is greater on the anterior gray horns of the spinal cord than lesions of the trunks of the nerves or peripheral branches, or that the stretching of the roots makes its effects felt immediately on the gray horns of the cord.—*La Riforma Medica*, April 27, 1907.

Medical Treatment of Tuberculous Adenitis.—A. Robin advocates general, local, and hydromineral treatment. The general treatment consists of nourishing food, especially gelatinous compounds, arsenic, and codliver oil. The local treatment consists of friction with an ointment as a placebo to content the relatives, radiotherapeutics as the preferred remedy, and injections of arsenic when this cannot be given. The hydromineral treatment consists of a sojourn at a spring that contains sodium, magnesium, and calcium, with residence in the open air. This is followed by an arsenical cure at other springs, and a life at the seaside for the summer, with a warm climate for the winter. The x-rays cause an isolation of the glands, and a slow diminution in size. The integrity of the skin must never be compromised.—*Le Bulletin Médical*, June 29, 1907.

Neurasthenia and Autointoxication. — Archangele Memella believes that the name neurasthenia is inexact and insufficient to express the conception of this neurosis. By many it is not admitted that neurasthenia can ever be congenital, as has been claimed by some, although an intolerance for the organic poisons can be inherited. Neurasthenia is not a well-defined disease, nor a morbid entity, but a syndrome. In general there is a toxemia, resulting from altered metabolism in neurasthenic cases, and this toxemia is of gastrointestinal origin. Nervous dyspepsia and gastric neurasthenia are the same condition under different names. There is no reason for seeking for an especial pathology. Neurotic symptoms are generally of chemical origin. Some reflex nervous symptoms result from the ingestion of certain food substances. The same may be said of cephalalgia. The neuroses and many psychoses are of autotoxic origin, and especially of gastrointestinal origin.—*Giornale Medico del Regio Esercito*, June, 1907.

Book Reviews.

THE EFFICIENT LIFE. By LUTHER H. GULICK, M.D., Director of Physical Training in the New York City Schools. New York: Doubleday, Page & Co., 1907.

IN this book, which is rather a series of sensible talks on how to make the best of hygienic conditions as we find them than a serious treatise on the care of the health, the author shows how each one can work, with the means at his command and against the odds that confront him, so as to get all out of life that there is to get in the way of physical fitness and thus to accomplish in the best possible way what there is to be done. Dr. Gulick is an apostle of cheerfulness and recognizes the power there is in a happy and contented mind to keep the body well. He is not content merely with a "don't worry" admonition, but shows how the mind can in turn be influenced by the body and how the man with the blues can, if he will but put on the physical mask of cheerfulness, force his mind into correspondence with the joyous acts of the body. There is a great deal more than this in the book and it is all good. The advice given is practical and sensible, and it is given in the form of suggestion, not preachment, therefore will more probably be followed by the reader.

HISTOLOGICAL OBSERVATIONS ON SLEEPING SICKNESS AND OTHER TRYPANOSOME INFECTIONS. By F. W. MOTT, M.D., F.R.S. (From the Pathological Laboratory of the London County Asylums). New York: William Wood & Co., 1907.

THIS volume of forty-five pages and eleven plates contains Dr. Mott's contribution to the Reports of the Sleeping Sickness Commission. There is no doubt that the *Trypanosoma gambiense* is the cause of the disease in question and that the usual mode of infection is a biting fly, the *Glossina palpalis*. The chief changes produced by the *Trypanosoma* are in the central nervous system, and they are so characteristic that they may almost be called specific. These changes are here described; but how they are produced is not yet known.

RACE CULTURE; OR, RACE SUICIDE? A Plea for the Unborn. By ROBERT REID RENTOUL, Doctor of Medicine; Member of the Royal College of Surgeons (Eng.), etc. London: The Walter Scott Publishing Company, Ltd., 1906.

THE present work is an enlarged edition of "Proposed Sterilization of Certain Mental and Physical Degenerates," published about four years ago. In it the author calls attention to the large and steadily increasing number of degenerates of all kinds—alcoholic, suicidal, homicidal, lying, kleptomaniac, sexual, and neurotic—at the same time he proposes certain measures to check the increase in the number of these degenerates, and simultaneously to prevent innocent children from being cursed by some parental blemish. The book is powerfully written by a man capable of thinking for himself and who is not afraid of his own conclusions. That the views expressed in this volume will meet with intense disapproval in some quarters is more than likely; particularly will this be the case among those who are unaccustomed to think, or who blindly believe that "whatever is, is right." The causes of national degeneracy as depicted by the author are true for any country; and the remedial measures which are here advocated for the same will also apply to most countries. The book is instructive and stimulating; it is written in a style both vigorous and lucid, and it deserves the attention of all who are interested in the human race.

CLINICAL PSYCHIATRY. A Textbook for Students and Physicians. Abstracted and Adapted from the Seventh German Edition of Kraepelin's "Lehrbuch der Psychiatrie." By A. ROSS DIEFENDORF, M.D., Lecturer in Psychiatry in Yale University, Member of the American Neurological Association, of the New York Neurological Association, of the New York Psychiatrical Society, and of the American Medico-Psychological Association, etc. New Edition, Revised and Augmented. New York: The Macmillan Company; London: Macmillan & Co., Ltd., 1907.

THE first edition of Dr. Diefendorf's convenient book appeared in 1902, and was reprinted in 1904. It was based on the sixth edition of Kraepelin's "Lehrbuch der Psychiatrie." The present edition is a thorough revision and an amplification by a hundred and forty-two pages. It is based on the seventh edition of the Lehrbuch, and comprises, as before, Professor Kraepelin's classification, phraseology, and terminology, and a translation of some of the context. The author has given much more space than previously to the psychopathic states, and more elaborate treatment of such important subjects as the mental states in hysteria, epilepsy, neurasthenia, and the traumatic neuroses. He has also introduced many important changes in his symptomatology. The chapter on Methods of Examination, as rewritten, merits a word of special praise and will be found of practical clinical value. The experimental methods of the psychiatric laboratory, however, are not described: these may be found in Kraepelin's original works. A chapter on Psychopathic Personalities, comprising born criminals, the unstable, the morbid liar, and swindler, etc., has been added. The treatment of the various psychoses is fairly discussed. Those who have followed the work of Freud, Jung, Bleuler, and others would doubtless have been glad if some reference had been made to it to bring the book quite completely up to date, even if such work is not strictly Kraepelinian. For the benefit of psychiaters of the old *régime*, and for the general practitioner, a glossary of many of the terms and phrases employed would have been of service. The book, however, is, on the whole, probably the most convenient and practical guide we have at present to the recent revolutionary psychiatry.

INTRODUCTION TO INFECTIOUS AND PARASITIC DISEASES, Including Their Cause and Manner of Transmission. By MILLARD LANGFELD, A.B., M.B. (Johns Hopkins), Professor of Bacteriology and Clinical Medicine, John A. Creighton Medical College, Omaha; Visiting Physician, St. Joseph's and Douglas County Hospitals, and Bacteriologist, the Omaha City Board of Health. With an Introduction by LEWELLYS F. BARKER, Professor of Medicine at the Johns Hopkins University. With thirty-three illustrations. Philadelphia: P. Blakiston's Son & Co., 1907.

THIS book is practically an introduction to bacteriology for the lay reader who is interested in the present day problems of health and disease. At the same time it deals clearly and concisely with the important subjects that lie on the border lines of pathology, bacteriology, practice, and hygiene. There are nine chapters, dealing with: Causes of Disease, Bacteriology, Phenomena of Infection, Inflammation, Animal Parasites, Avenues of Exit of Infectious Agents and Parasites from the Body, Portals of Entry of Infectious Agents and Parasites into the Body, Portals of Entry and Avenues of Exit of Microorganisms in the Various Diseases, Disinfectants and Disinfection, Collection and Examination of Secretions and Excretions. Though the book was written primarily for nurses, second and third year medical students will find it a valuable guide and introduction to larger works. The volume is characterized by simplicity and accuracy; and the student who masters it will find that he has gained much useful knowledge, with nothing that he will subsequently have to unlearn.

ORGANIC AND FUNCTIONAL NERVOUS DISEASES. By M. ALLEN STARR, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, College of Physicians and Surgeons, the Medical Department of Columbia University in the City of New York; Consulting Neurologist to the Presbyterian and St. Vincent's Hospitals, St. Mary's Free Hospital for Children, and to the New York Eye and Ear Infirmary, etc. Second Edition, Thoroughly Revised. Illustrated with 282 Engravings in the text and 26 plates in colors and monochrome. New York and Philadelphia: Lea Brothers & Co., 1907.

IN its present edition Professor Starr's authoritative treatise has undergone much amplification not only in the original matter, but more particularly in the addition of an entire new section devoted to the functional nervous diseases, so that now the volume covers the whole field of neurology, both organic and functional. The author's wide experience, both as clinician and teacher, has been utilized to the full in his presentation of the subject matter, so that a notable characteristic of the work is the true originality and freshness that it has acquired through being founded so largely on personal observation and research. The introductory chapter on the structure of the nervous system should prove especially useful to the average reader, for this subject has reached a stage of such complexity and is hedged about by so many conflicting views that only a specialist is capable of weighing the evidence presented by the different investigators, and a critical and lucid explanation of the present status of our knowledge is a highly desirable acquisition. Another noteworthy portion of the work is that containing the chapters on cerebral abscesses and tumors, which gains particular practical value through the careful discussions of the indications for surgical intervention and the methods of localization in such cases, a field in which the author's preeminence is undoubted. The new section on the functional diseases comprises the spasmodic neuroses, epilepsy, paralysis agitans and tremor, tetany, neurasthenia and the occupation neuroses, hysteria, and migraine.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Held at Exeter, July 27 to August 2, 1907.

PRESIDENT, RICHARD ANDREWS REEVE, B.A., M.D., LL.D., TORONTO.

PRESIDENT-ELECT, HENRY DAVY, M.D., F.R.C.P., EXETER.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 288.*)

SECTION OF SURGERY.

Wednesday, July 31—First Day.

GEORGE A. WRIGHT, F.R.C.S., MANCHESTER, IN THE CHAIR.

The Relative Value of Inhalation and Injection Methods of Inducing Anesthesia.—Mr. H. P. DEAN opened this discussion. His chief point in favor of spinal anesthesia was the avoidance of shock, and of the deleterious effects of chloroform and ether upon the respiratory and other organs. The inhalation method involved an affection of the highest centers primarily, and certainly did not obviate shock, or even materially diminish it. By lumbar injection the passage of vicious stimuli was prevented and all undesirable secondary effects could be avoided. Apart from shock, there was no absolute indication for the spinal method; it was hardly more than a matter of sentiment. He was guided, as to the removal of cerebrospinal fluid, by the tension discovered; when this was high he permitted the escape of a syringeful, when it was low he injected a syringeful of normal saline before the anesthetic drug. When acute inflammatory conditions of the peritoneal organs had to be dealt with, he considered the spinal the method of election.

In the discussion which followed it was noticeable that the surgeons, without exception, were favorable to the spinal method, whilst the anesthetists, though not altogether inimical to its restricted use, were, nevertheless, of the opinion that, in the hands of competent administrators, the dangers and disadvantages of chloroform and ether could be reduced to so insignificant a minimum as to restrict the legitimate field of lumbar injection very severely.

Mr. LEEDHAM GREEN recommended spinal injection as a routine procedure for all operations below the level of the umbilicus. For those in the upper abdomen it was not so satisfactory, unless combined with the hypodermic administration of morphine or scopolamine and morphine. Adrenalin he considered a dangerous addition. As direct indications he considered respiratory disease, chronic alcoholism, nephritis, and probably diabetes; contraindications were childhood, the neurotic temperament, and severe septic conditions, especially of the skin.

Dr. RODMAN of Philadelphia endorsed these views, but thought there should be some special indication for the selection of the lumbar method. He had not himself observed any ill effects from the use of the method, but admitted the existence of dangers.

Mr. C. RYALL said that though there was some difference of opinion as to the selection of the drug, there seemed to be pretty general agreement as to the technique and the management of the patient.

Indications for Prostatectomy.—Mr. PARDOE read a paper on this subject. In the first place he insisted that the operation for malignant disease was not enucleation, but a free excision. Unhappily, the diagnosis was rarely made early enough for a cure to be possible. Setting aside all chronic inflammatory conditions, it was important to discriminate between the various forms of senile enlargement and to this end digital examination of the organ should be systematic and thorough. The shape, size, outline, consistency, mobility, and the persistence, or not, of the interlobar sulcus must all be noted. In carcinoma the mobility was lost, the outline was irregular, the surface was "lumpy," the gland was stony hard except in the late stages, the enlargement was slow, generally of moderate degree, but might be very great; the interlobar sulcus was lost. In adenoma, on the other hand, the gland, though lobulated, was smooth, it was soft and elastic, might be small or enormous, and the sulcus persisted; fibroma was small and hard, regular and rounded; mobility persisted. As regarded treatment, the suprapubic route was undoubtedly the operation for all adenomata, but for fibromata the perineal route might be selected and removal piecemeal employed, or a mèdian prostatectomy might be performed. Whilst the operation of expediency, with cure as its objective, could be performed only before the onset of cystitis or the effects of back pressure upon the kidneys, the operation of urgency should not be refused even to patients seriously infected, although in them it was advisable to drain the bladder suprapubically for a week or ten days before the actual enucleation.

Mr. P. I. FREYER described his latest series of 107 cases of prostatectomy for adenoma, including one in which the organ weighed 11¼ ounces. He remarked upon the frequency of cancer of the organ, and stated that hemorrhage was a very rare symptom of the condition. His criteria for diagnosis did not differ in any essential particular from those indicated by Pardoe, but he suggested that the existence of small nodules in a seemingly adenomatous gland should always arouse suspicion of malignancy. The mortality from all causes in his 432 cases amounted to 7 per cent.

Thursday, August 1—Second Day.

Indications for Cholecystectomy.—Mr. J. BLAND-SUTTON, in opening this discussion, pointed out that neither physiology nor comparative anatomy could furnish evidence of any indispensable function for the gall-bladder, while pathology and clinical experience alike indicated the serious menace of the disease conditions to which it was so prone. The best way of treating these conditions was to excise the gall-bladder with as little compunction as surgeons felt in removing the vermiform appendix. Cholecystectomy was indicated for (1) injury, (2) calculous cholecystitis, (3) acute noncalculous cholecystitis, (4) perforating ulcers, (5) mucocele, (6) empyema, (7) fistula, (8) malignant disease. Submitting that cholecystectomy should be adopted as a routine procedure, Mr. Bland-Sutton expressed his belief that the results attained fully justified his position, only claiming that in compiling statistics similar divisions should be used, as was the custom in dealing with the appendix, viz., the acute, perforative, and gangrenous cases should be considered separately from those of simple cholelithiasis, and that the malignant cases should be classed by themselves.

Mr. MAYLARD objected to the comparison between the gall-bladder and the appendix, thinking that the element of intermittency of flow of bile, to which the storage function of the gall bladder contributed, was one not to be regarded lightly; moreover, the continuous drainage secured by cholecystotomy was of undoubted advantage. As regarded the operation, safe and simple as it might be, there was more danger of a weak cicatrix where it was necessary to resort to packing the bottom of a deep wound.

Mr. CHARTERS SYMONDS, reviewing his operative experience for the last five or six years, said that his tendency had been towards the more frequent removal of the gall-bladder; at the same time a choice of operation was often a matter of great importance; in cases of simple cholelithiasis he saw no obection to cholecystotomy, since it was generally possible to anticipate from the condition of the parts those cases in which such sequelæ as fistula or suppuration were likely to occur; he would reserve excision for these. It was not sufficient to consider only the pathological state of the gall-bladder itself in deciding which procedure to adopt; the general condition of the patient, and particularly the question of jaundice, must rank as an essential factor.

Mr. STANMORE BISHOP, while agreeing that most of the

indications given by Mr. Bland-Sutton were correct, demurred emphatically to routine removal of the organ merely because it was the seat of gallstones which had produced biliary colic. The underlying catarrhal condition of the whole biliary mucosa was much more efficiently treated by drainage. In view of the possible supervention of stricture of the biliary channels, too, it was desirable to preserve the gall-bladder, which afforded the readiest means of providing an alternative route for the passage of the bile.

Mr. J. D. Malcolm thought that a judgment should be made upon the condition of the main ducts and the probability of further trouble arising in them, for which it might be of great importance to have the gall-bladder left as a means of access. In cases of disorganization of the gall-bladder by prolonged or intense inflammation, it was generally wiser to remove it, even if, for greater safety and rapidity of operating during the acute stage, the procedure were carried out in two stages.

Mr. Ward Cousins said there should be no hesitation in removing the organ when structurally diseased, provided the common duct was clear; nevertheless, when it was possible to cure the condition found by any method short of removal, he considered it advisable to preserve the gall-bladder.

Mr. Sinclair White, speaking from an operative experience of 158 cases of cholecystotomy during the last eight years, considered that excision was both unnecessary and more dangerous than simple drainage, especially in cases where acute sepsis was present.

Mr. Newbolt agreed with the last speaker, and expressed the opinion that the routine adoption of excision would result in an increase of operative mortality.

Dr. J. H. Cameron of Montreal reminded the speakers that Mr. Bland-Sutton's position was exactly that assumed twenty-five years ago by Mr. Lawson Tait, and he predicted that the passage of another quarter of a century would find a verdict passed upon the latter similar to that which the opinion of most surgeons had found against the former's advocacy of routine excision. The numerous cases associated with cholangitis and pancreatitis could be treated satisfactorily only by retention of the gall-bladder.

Dr. Rodman of Philadelphia expressed his general agreement with Mr. Bland-Sutton, except in the case of simple cholelithiasis and mucocele. The importance of demonstrating the patency of the common duct before excision could not be insisted upon too strenuously, and undoubtedly accompanying subacute and chronic pancreatitis called for cholecystostomy rather than for excision. The objections which might be urged against simple drainage were, in his opinion, much exaggerated and were the faults, not of the operation, but of errors in technique.

Intestinal Obstruction.—Mr. William Taylor read this paper. Notwithstanding the diminution in the operative mortality of abdominal operations in general, it was a lamentable fact that in the case of acute obstruction the percentage of fatal results remained at a figure that was a disgrace to surgery. For the most part this was due to the loss of valuable time at the commencement of the affection, occasioned by futile attempts at cure by drugs or by incompetent diagnosis. Among 35 recent cases there were 9 of intussusception (one in an adult), and all those operated on within twenty-four hours of onset recovered. Twelve of the 35 were due to cancer of some part of the colon, 2 to Richter's hernia, 3 to strangulation by a Meckel's diverticulum, and 5 by bands, 1 at the margins of an opening in the great omentum, and 3 were due to acute "angulation." The author recommended the use of local anesthesia for those cases which were first seen when distention was extreme and accompanied by other signs of acute toxemia. In cases of less severity he considered that it was of the greatest importance to empty the gut of its contents; to this end he had made use of an opening high up in the jejunum, from which he washed through the whole contents with a stream of saline solution to another opening a foot or so above the obstruction; on the whole, however, he advocated Moynihan's method of passing a glass tube upward along the lumen of the gut and then threading coil after coil upon it and emptying them as they were reached. He placed the present mortality at about 40 per cent., but thought it might be greatly reduced by early diagnosis and early operation.

Lesions in the Sigmoid Flexure as a Cause of Chronic Colitis.—Mr. Lockhart Mummery, in this paper, said the lesions found in the sigmoid portion of the colon were of importance to the diagnostician because they could be viewed directly with the sigmoidoscope, an instrument the use of which was attended by no danger whatever. The inflammatory lesions found might be described as simple, granular, hypertrophic, vascular, and ulcerative. In a series of 36 cases of chronic colitis, such lesions were present in 24, and of these 7 were definitely ulcerated. Seven cases were found to be due to new growth, and it was noteworthy that the symptoms in these cases did not differ materially from those of inflammatory origin. Bleeding might not occur when there was a growth, and on the other hand it often occurred when there was none. Another cause of great importance was adhesions binding down or constricting the sigmoid colon. A very great mistake was made in treating these cases on milk diet; they needed feeding up, and could take a full diet well; plenty of fat should be added. Local treatment should be by irrigation in the semiprone position; appendicostomy might be advisable in a few instances.

Dr. Garrett Anderson described a successful case of removal of a sarcoma of the lower end of the ileum; a small round-celled tumor involving the submucous and muscular coats of the gut throughout the entire circumference for five inches. A few mesenteric glands were affected.

Cervical Cysts.—Mr. G. H. Edington read this communication. Besides cases of dermoid, sebaceous, and hydatid cysts, three instances of branchial fistula were described, in which the definite relations of the tracks to the posterior belly of the digastric, and to the great cornu of the hyoid, and their termination behind the upper part of the tonsil, made it certain that they originated in the second visceral cleft. Complete extirpation was the treatment recommended.

Curvilinear Abdominal Incisions.—Mr. Maylard, in this paper, said that to reach the pelvic organs no incision gave such good access as one which traversed both recti, in a curve from one side to the other. The justification for this and transverse or oblique incisions in other parts of the anterolateral region was to be found in the anatomy of the parts, for not only was the blood supply to the edges of the wound better than was the case in the linea alba, and the lymphatic drainage more perfect, but the tension was certainly no greater when the muscular fibers were split in their course; even in the case of the rectus, a transverse wound did not tend to gape because the fibers of the sheath ran in the direction of the wound, and only one interlinear space was affected. Such wounds took a little longer to suture and therefore should not be employed in those acute conditions which imperatively demanded speed.

A New Operation for Mobile Kidney.—Mr. Stanmore Bishop described this operation. Longyear and Newman, he said, had shown that the attachment of the ligamentum suspensorium renis was, at the lower end, to the posterior muscle-band of the colon, and that it was subject to a downward pull on the right side. The operation, which was performed by the transperitoneal

route, consisted in turning down a flap of renal capsule and fixing the kidney by means of sutures traversing this flap and the whole posterior abdominal wall. One great advantage was that the exact degree of descent of the organ could be estimated from the direction of the renal vessels, and rectified with perfect precision.

The Saccular Theory of Hernia.—Mr. R. W. Murray read a paper based upon the results of 200 consecutive necropsies made upon persons in whom there was no history or evidence of hernia. Potential sacs were found in 47 of the bodies; 30 males of average age of 47½ years presented 1 umbilical, 11 inguinal, and 34 femoral sacs; 17 females showed 2 umbilical, 2 inguinal, and 18 femoral sacs; that is, 68 peritoneal diverticula were present in 47 individuals who had not suffered from hernia in life. The bearing of the evidence thus adduced as to the predominant influences of an existing sac in the production of rupture, upon treatment, would be to emphasize the importance of obliterating the sac.

A New Operation for Hemorrhoids.—Mr. A. H. Vernon described this operation. The bowel was occluded with a metal plug which was traversed at the lower end by two channels at right angles; through these two harelip pins, entered about an inch from the mucous margin, were passed, and beneath them was wound a length of rubber tubing. In this way the piles were made to protrude considerably, and could be removed in their entirety without any bleeding. The procedure was cleanly, rapid, and sure.

Mr. Ward Cousins related the history of a case of large composite odontoma.

SECTION OF OBSTETRICS AND GYNECOLOGY.

Wednesday, July 31—First Day.

Ernest Hastings Tweedy, F.R.C.P.Ire., Dublin, in the Chair.

The Justification for Artificial Dilatation of the Cervix to Hasten Delivery at Full Time, and the Most Appropriate Method for Procuring this Dilatation.—Dr. Robert Jardine opened a discussion on this subject. He said that the procedure was justified by use and wont; also because by the performance of the operation in certain cases the mother's life could be saved; in other cases it was necessary in the interest of the child. Among the methods of performance of the operation he mentioned: (1) Those which were somewhat approximated to the natural process—first, by the use of hydrostatic bags of the type of Barnes's or Champetier de Ribes's; secondly, the vaginal tampon, which stimulated uterine action; (2) More rapid methods by stretching the canal—first, the manual method; secondly, the bimanual method; thirdly, the use of screw dilators of the type of Bossi's; (3) Cutting methods—first, multiple incisions when the cervix was taken up; secondly, vaginal cesarean section, when the cervix was not taken up. Considering these latter separately, he said that manual dilatation was the oldest method and the one most usually adopted. First one finger was inserted, then two, then all the fingers and the thumb; this method was very effectual with a soft and yielding cervix; a hot douche during the operation assisted the process, and when the cervix was sufficiently low down both hands might be used. This was a most useful method, but the hand must be aseptic. The advantage of it was that the cervix could be examined during the process and any tearing could be detected at once. Bossi's dilator, unlike the fingers, gave no information of tearing. With it the dilatation should be done slowly, half a turn being made at a time, and the proceeding should take at least half an hour. It was not so much used now as a few years ago. In the hands of a rash man, it was an instrument of destruction. Incisions should not be resorted to unless the cervix was taken up, but it was not essential to have an engagement of the presenting part. Two to three, or sometimes six or seven, incisions were required. Lateral incisions, if enlarged by tearing, might lay open the uterine arteries, and therefore he would avoid making them exactly at the side. The child should be immediately extracted by forceps and the incisions stitched if any bleeding occurred. Vaginal incisions might also be required. The placenta should be quickly expressed or extracted manually. The risks were injuries to maternal parts, especially the bladder, hemorrhage, and sepsis. One should be ready to tampon if necessary. In deciding which operation to resort to, if one was not expert he should avoid vaginal cesarean section. If the cervix was soft manual dilatation should be chosen. In cases of placenta prævia he advised vaginal plugging and the use of Champetier de Ribes's bag. Screw dilatation was not good in these cases, as the cervix was soft and easily torn. The speaker did not approve vaginal or cesarean section in cases of rigidity of the cervix.

Professor Strassmann of Berlin said that in Germany the rubber bags were considered best for practitioners, as they involved no danger of injuring the womb. He had known of four or five cases in which the uterus was torn up into the body, with a fatal result, by the use of Bossi's dilator. He plugged the cervix with iodoform gauze, and when speed was necessary he used deep incisions; this was particularly the case in eclampsia. Vaginal cesarean section was not applicable in a private house, but was the best procedure in a hospital. He used the rubber bags with a one-pound weight attached.

Dr. Galabin of London said that manual dilatation had many advantages. He had met with cases in which slow dilatation of the os was due to undue adhesion of membranes around it, and he treated these by passing in a finger and detaching the accessible portion of the membranes. He thought the Champetier bag better than the Barnes bag. In early stages of dilatation Bossi's instrument was useful, and in later stages Champetier's bag. Vaginal cesarean section was limited to skilled operators, and was particularly called for in primiparas where the cervical canal was not yet taken up.

Dr. Munro Kerr of Glasgow said that if accouchement forcé was done in the interest of child delivery it must be rapid, and we could only consider forcible dilatation or incision. If it were to be done in the interest of the mother, slower methods were preferable. Vaginal cesarean section was the most dangerous of all the methods, and he had injured the bladder in performing it.

Dr. Edge of Wolverhampton said Bossi's dilator caused dangerous tearing. He had known a case in which the uterine artery was torn across; no hemorrhage occurred while the cervix was drawn down, but began as soon as it was released.

Dr. Inglis Parsons of London preferred abdominal to vaginal cesarean section.

Dr. S. Cameron of Glasgow had used the Bossi dilator in twelve cases of eclampsia, but thought it was bad in cases of accidental hemorrhage.

Dr. R. J. Johnston of Belfast drew attention to the large number of cases in which laceration occurred in natural delivery.

Dr. Purslow of Birmingham advised the use of rubber operating gloves in performing manual dilatation.

Dr. Semple of Toronto, Canada, said that practice in Canada was in favor of exercising patience before proceeding to violent methods, and he thought that incisions of the cervix were not often necessary in ordinary practice. He agreed with a previous speaker who had said that adhesion of the membranes was sometimes a cause of rigidity.

Dr. Thomas Wilson of Birmingham said he still used laminaria tents to effect dilatation of the cervix. He had found vaginal cesarean section to give satisfactory results in appropriate cases.

Dr. SWAYNE of Bristol used the Bossi bags or preliminary dilatation, but thought that serious lacerations might be caused in the later stages. He would not use the Bossi in cases of pathological rigidity of the cervix.

Professor DIXON of Cambridge had made investigations on extract of the placenta, and had obtained a substance which, when administered to animals, caused uterine contractions and dilatation of the cervix. He thought that further investigation might succeed in producing a substance which could be used clinically for this purpose.

THE PRESIDENT, Mr. E. H. TWEEDY, said that the discussion had called out the opinion that dilatation of the cervix at full term was sometimes called for. A woman should not be allowed to die with a child in her uterus. The speaker was, however, reluctant to dilate the cervix for any form of hemorrhage.

Dr. JARDINE, in closing, said that he quite agreed with those who held that dilatation was not an operation which should be lightly undertaken. In making dilatation with the Bossi bag one should always feel the cervix with the finger.

Chorion Epithelioma.—Dr. SWAYNE of Bristol read this paper and reported two cases which had been under his own care, and discussed the question of operating in the face of physical signs pointing to metastases in the lungs, stating that these should not be regarded as an absolute contraindication, as several cases had been published in which such physical signs had disappeared after removal of the primary growth by hysterectomy.

In the discussion on this paper, Professor STRASSMANN of Berlin suggested that cases of hydatid mole should be examined at intervals afterwards in the same way as cases of cancer which had been submitted to operation were examined for signs of recurrence. Two cases of chorion epithelioma in male testicle had been reported.

Dr. THOMAS WILSON said the condition was by no means a rare one, and there had been five cases at the General Hospital, Birmingham. Evidence of metastatic growth in lungs was not an absolute contraindication to operation.

Dr. MUNRO KERR of Glasgow had found chorion epithelioma followed hydatid mole in a very small percentage of cases, but thought subsequent examination very necessary.

Dr. EDGE said he would remove vaginal wall, as that was a frequent seat of secondary growths.

Dr. F. J. MCCANN thought the prognosis of operation was worse than in other malignant growths.

Dr. SMALLWOOD SAVAGE of Birmingham narrated a case.

THE PRESIDENT said that it was important to diagnose hydatid mole at an early stage, before cysts were expelled.

Thursday, August 1—Second Day.

Measures to be Recommended to Secure the Earlier Recognition of Uterine Cancer.—Professor H. R. SPENCER of London said that more women died of cancer of the uterus than from that of any other organ of the body. This was shown by statistics of the Registrar General. The highest mortality occurred between the ages of forty-five and fifty-five, and the deaths amounted to 4,000 annually. In the early stages it was curable in a large proportion of cases, and the most desirable object was to get the cases early. One difficulty in doing this was the pessimism of some distinguished gynecologists. Thus Baldy of Philadelphia said "the results were terrible;" Pozzi said "definitive cures were not yet proved," and several others spoke in a similar strain. This did much harm. It was difficult to explain these unfortunate results, which were refuted by those obtained by other authorities, some of whom showed one-third of the cases cured, when the disease was limited to the uterus. His own records showed 24 per cent. of cases well five years after vaginal hysterectomy. Several cases had been published in which there was no recurrence at the end of twenty years. Cancer of the body was not so liable to recur as cancer of the cervix. The percentage of operability was variously stated by different authorities, whose figures varied from 6 to 92 per cent. In his opinion 25 per cent. were operable; the percentage of operability was increased by Wertheim's operation to 45. He would limit Wertheim's operation to advanced cases, as in the earlier cases he had obtained better results from vaginal hysterectomy. The reasons why so small a proportion of cases came early were (1) patients' ignorance, (2) doctor's neglect to examine, (3) patients' objection to examination. The patients regarded all hemorrhage at or after the menopause as normal, whereas in the great majority of cases hemorrhage after the climacteric was due to cancer. The general practitioner was sometimes at fault; he should advise an examination in all cases of suspicious hemorrhage, and an action at law might lie against a medical man who neglected to do so. In Germany the public press was used to advise women on this point, but he did not think that would be advisable in this country; however, the attention of nurses and midwives should be drawn to the early symptoms. He appealed to all medical men to examine by finger, speculum, and by removing a piece for microscopical examination in doubtful cases. Friability of the tissue was an important symptom. A small piece should be cut out, including healthy tissue, when a microscopical examination was to be made. In cases in which cancer of the body was suspected the diagnosis should be completed by dilating with laminaria tents, followed by a Hegar bag, and the cavity should be explored with the finger, tissue being also removed with the curette for microscopical examination. The microscopical report should be compared with the clinical symptoms. He regarded the use of the speculum as most important, and urged that all students should be taught to use this.

Mrs. SCHARLIEB of London said that if we could make students and practitioners and nurses understand the importance of examination, many lives would be saved. Operation on cases which were too advanced had a most favorable effect in deterring suitable cases from seeking surgical aid.

Dr. GALABIN of London said cancer of the cervix occurred earlier than almost any other variety of cancer. In cancer of the fundus the diagnosis was difficult, and microscopic appearances might be misleading. Pain was an important early symptom in cancer of the fundus, but not in that of cervix. If a negative result followed microscopical examination it should be repeated. A watery discharge after the menopause was an important symptom. He had known twenty years' freedom after supravaginal amputation of cervix. He thought that local infection at the time of operation was an occasional cause of recurrence.

Professor STRASSMANN of Berlin said that in Germany 30 per cent. to 40 per cent. of cases were found to be operable and 10 per cent. to 15 per cent. were cured. He would ask every patient hte date of the appearance of symptoms. In Germany 50 per cent. were found to have been treated without examination by medical men. In Berlin leaflets were issued to doctors describing the symptoms, especially bleeding on coitus, and asking them to make an examination in all suspicious cases, and send a piece for microscopical report to a specialist. A leaflet to midwives who attend 90 per cent. of the childbirths was also issued, pointing out, among other things, that early cancer caused no pain. In his opinion early recognition was much more valuable than extensive operation.

Mr. BOWERMAN JESSETT of London said that in cases of excessive hemorrhage, when the cervix was normal and the sound caused bleeding, we should suspect cancer.

Dr. W. H. H. TATE of London pointed out the importance of making a vaginal examination in cases of abdominal fibroids, as cancer might coexist.

Dr. F. J. MCCANN of London advised the appointment of a committee to consider the question, but was entirely opposed to the sending of circulars broadcast.

Dr. INGLIS PARSONS of London had found that the pro-

portion of operability at his own hospital was 10 per cent. In his experience the disease spread more rapidly in young women.

Dr. CHARLES RYALL of London spoke of the circular which was given out at the Cancer Hospital. The conclusion of this was as follows: "Cancer is a very prevalent disease; it may occur at any age, but is most frequent between the ages of thirty and sixty; in spite of its serious nature successful results can be obtained if patients will only seek early treatment; once the disease appears it is absolutely necessary that it should be treated without loss of time; any delay may be followed by the gravest consequences, as the disease tends to spread and become too far advanced for any hope of cure; cancer may appear without any pain or impairment of health, and may even reach the incurable stage without causing much discomfort; cancer of the womb is generally associated with some discharge or bleeding; the discharge varies in character, and may be thick, watery, blood-stained or offensive; the bleeding may be small in quantity or excessive, and may occur at or between the monthly periods; any bleeding, no matter how small, which occurs at an unusual time requires investigation; unfortunately, women afflicted with serious symptoms frequently think that the latter are due to the 'change of life,' and therefore they consider them of little importance, and delay seeking early treatment; this delay is one of the causes of so many cases being incurable; if you have any suspicious symptoms seek immediate medical advice; the disease must be treated as early as possible; do not delay, as the consequences may be serious; when in doubt consult your own doctor."

Dr. THOMAS WILSON of Birmingham had found that half of his cases had not been examined by a medical man. In his lectures to midwives and nurses, he had always laid stress on the early symptoms of cancer, and he had found the ratio of operability increase from 14 per cent. to 30 per cent., partly, he thought, as a consequence of this.

Dr. MUNRO KERR of Glasgow said one great difficulty was that women who knew that something serious was the matter would not consult a medical man because they were afraid of finding out the truth.

Dr. CUTHBERT LOCKYER of London thought the greatest difficulty was the ignorance of the public.

Dr. R. J. JOHNSTONE of Belfast pointed out that in some cases cancer was found to be considerably advanced when the first symptom appeared.

Dr. EDGE of Birmingham said that it was very important in some cases to examine under anesthesia.

Dr. S. CAMERON of Glasgow advocated palliative operations when complete removal was impossible.

Dr. GILCHRIST of Lausanne said that recent investigations had shown that metabolism was altered, especially in the form of elimination of urea, long before cancer appeared, and that this fact might some day be made use of in diagnosis.

A resolution was proposed by Dr. Thomas Wilson, and seconded by Professor Spencer, that "the Council of the Association be requested to appoint a committee to consider the question of issuing instructions on the early diagnosis of uterine cancer."

Professor SPENCER, in closing, said he would not advise palliative operations. He thought that the differences in results might be explained by different methods of operating, local infection being more possible in some methods.

Friday, August 2—Third Day.

The Operative Treatment of Cervix Carcinoma.—Dr. CUTHBERT LOCKYER of London read this paper. He thought that the vaginal operation was inefficient mainly owing to the danger of implantation of the cancer cells during operation, and he had now given it up in favor of the abdominal operation. Out of fourteen cases in which the vaginal operation had been performed, only four could be traced as free from disease. Wertheim's operation was the only scientific method at the present time, as it enabled the cancer to be removed without any exposure of the surface of the growth. When the glands were involved, Wertheim said that he had known no case in which there had been more than three years' freedom. Since using Wertheim's operation he had operated on 75 per cent. of the cases seen, whereas, previously, when using the vaginal method, he had only operated on 18 per cent. He did not use a gauze drain as advocated by Wertheim.

Mrs. STANLEY BOYD of London asked where recurrence took place. She had seen recurrence in the glands. Cystitis was common after these operations, and she believed that it was caused by using a gauze plug.

Mr. J. MALCOLM of London considered the Wertheim a more scientific operation than the vaginal, especially because cancerous tissue was not exposed in the wound.

Professor SPENCER of London thought that for squamous carcinoma of the portio vaginalis vaginal hysterectomy was to be preferred.

Dr. THOMAS WILSON said that statistics were unreliable because no attempt was made to differentiate between the different forms of cancer, and he would distinguish three forms, viz., cancer of the portio vaginalis, of the cervical canal, and of the body of uterus.

The PRESIDENT had done abdominal operations in all cases of uterine cancer during the last eighteen months.

Dr. LOCKYER, in closing, insisted that the great point in favor of Wertheim's operation was not that glands could be removed, but that the growth could be completely isolated during removal.

Indications for, and Methods of, Operating on Uterine Fibroids.—Professor STRASSMANN of Berlin read this paper. The indications for operation were: (1) Pressure on the bladder; (2) severe pain; (3) alteration in the heart; (4) complications of carcinoma with myoma; (5) complication of disease of appendages; (6) twisting of the pedicle; (7) necrosis and other changes in tumor. As regarded (4) there was no doubt that a carcinoma would develop in a fibroid uterus, and he thought that cancer of the body preferred a fibroid uterus, and that pressure of the fibroid on the opposite endometrium was a factor in the causation. The symptoms of cancer of the body were: Bleeding, beef-tea-colored discharge, pain which was worse in afternoon. When these symptoms occurred a diagnostic curetting was called for, and if cancer was diagnosed extirpation should be carried out. It was well known that cancer of the cervical stump may follow supravaginal hysterectomy. Carcinoma of the ovary might complicate a fibroid. No fibroid began to grow after the climacteric; therefore a tumor, forming then, was probably ovarian. The complication of a fibroid with a pyosalpinx was very dangerous and operation difficult. The twisting of the stalk in a case of fibroid was more quickly followed by necrosis than the same accident in ovarian tumors. The standpoint he took was that true indications for operation must be present, and that he would not operate merely because a woman had a fibroid. Vaginal operation was to be preferred when possible, using lateral incisions in perineum if outlet was narrow. For enucleation he preferred anterior colpotomy, making a lateral tongue-shaped flap in anterior vaginal wall; then separating bladder and opening anterior pouch of peritoneum with scissors. When the uterus was to be saved he enucleated fibroids and drained through Douglas's pouch. He had enucleated many small tumors from women who had suffered from dysmenorrhea, complete relief of this symptom following. He had removed a fibroid weighing 7 pounds by the vaginal route, and had only once after commencing operation been compelled to abandon vaginal route and open abdomen. For patients near forty years of age he preferred total extirpation to enucleation, and he would not perform enucleation during pregnancy.

Technique of Abdominal Hysterectomy.—Dr. FRED. EDGE, in this paper, said that the operator should begin by

cleaning the vagina and cervix, with the patient in the lithotomy position, and after cleansing should put an antiseptic plug in uterine cavity. The advantages of the preliminary examination under anesthesia were that one could verify the diagnosis, and could detect fibroid nodules or cancer in the cervix; infection could be avoided by changing gloves before proceeding to the abdominal incision.

Fibroid and Fibromyomatous Tumors in Unusual Sites.—Dr. S. CAMERON of Glasgow read this paper. He first dealt with ovarian fibroids. In nine cases he had found free ascitic fluid in four, and torsion of pedicle in three. He had met with fibroid tumor in the bladder, in the Fallopian tube, and in the vagina.

Dr. HERBERT SPENCER deprecated vaginal operations for large tumors on account of the difficulty of controlling hemorrhage.

Dr. W. H. H. TATE of London had found complications of the appendages occur in cases in which the fibroid was more or less impacted in the pelvis, and thought that impaction of the fibroid in the pelvis was an indication for operation, even though the present symptoms were not severe.

Dr. THOMAS WILSON had found changes in the appendages in 40 per cent. to 50 per cent. of cases of fibroids.

Dr. SMALLWOOD SAVAGE had seen a case in which a fibroid tumor of rectum was associated with uterine fibroids.

Mr. J. D. MALCOLM preferred abdominal panhysterectomy in cases of large fibroids, and thought that the advantages of leaving one ovary, now so strongly advocated, had not been proved.

THE PRESIDENT preferred the abdominal route for large tumors.

Professor STRASSMANN, in closing, agreed that impaction in the pelvis of the fibroid was a cause of tubal disease.

A Series of One Hundred Consecutive Abdominal Sections in Hospital Practice.—Dr. INGLIS PARSONS of London read this paper. There had been one death. He kept silk in carbolic acid after boiling and sutured the abdominal wall in three layers, using silkworm gut for the aponeurosis and silk for the others. He did not use drainage tubes.

Complete Rupture of the Uterus with Escape of the Fetus into the Peritoneal Cavity; Panhysterectomy; Recovery.—Dr. MUNROE KERR read this paper. He had met in all with fourteen cases of ruptured uterus; he had operated on twelve, three by plugging; all recovered; nine by hysterectomy; three recovered. He thought that where there had been much preceding manipulation plugging gave the most satisfactory results.

AMERICAN CLIMATOLOGICAL ASSOCIATION.

Twenty-fourth Annual Meeting, Held at Washington, D. C., May 7, 8, and 9, 1907, in Conjunction with the Congress of American Physicians and Surgeons.

(Special Report to the MEDICAL RECORD.)

THE PRESIDENT, DR. THOMAS DARLINGTON OF NEW YORK, IN THE CHAIR.

(*Concluded from page 291.*)

Thursday, May 9—Third Day.

Sanitary Conditions at Panama, Illustrated by Stereopticon Views.—Dr. J. EDWARD STUBBERT of New York gave a comparison of the healthfulness of the Nicaraguan and Panama routes, a synopsis of the sanitary conditions that existed during the French régime, percentage of death rates, a description of the different classes of laborers employed on the canal, their method of maintenance, housing, etc. Reference was made to the work done by Colonel Gorgas in Cuba. The success attained by Dr. Stubbert in Nicaragua and by Colonel Gorgas in Cuba was regarded as the foundation of the sanitary work just satisfactorily completed at Panama. A description was given of the new towns settled by the Commission along the route of the canal, of the sewage and paving done at Colon, and of the new hotels built by the Canal Company. He also touched upon the water supply now in existence, and gave a summary of the work completed, showing that yellow fever was exterminated and malarial fever under control. The paper was illustrated by sixty-six stereopticon views.

Use of Lantern Slides in Teaching Meteorology and Climatology.—Dr. GUY HINSDALE of Hot Springs, Va., showed a selection of about 55 slides from a collection of 300 or 350, made by the University of Chicago to illustrate matters connected with meteorology and climatology. It was suggested that they were invaluable in giving courses of lectures, and that by making a selection of slides there was saved the necessity of drawing all the charts, diagrams, and maps needed for instruction, and the expense was small.

Heart Clot in Pneumonia.—Dr. BEVERLEY ROBINSON of New York City considered this subject as still an undetermined question, saying that formerly its frequency was admitted both by pathologists and clinicians, and that at present pathologists consider it a very rare occurrence. Authorities on both sides were cited. Experimental pathology would seem to prove the presence of ante-mortem clots oftentimes, though they gave rise to no distinctive signs or symptoms before death. At autopsy intracardiac or other changes might render the immediate cause of death doubtful. With previously healthy heart and kidneys the patient would usually survive, if the blood were kept in a condition approximating normal. This was said to be possible by the frequent and judicious use of saline beverages. Views regarding the efficacy of ammonia internally in preventing and curing heart clot were given. The author's views upon this point were stated and the conclusions drawn that heart clots as an immediate cause of death in pneumonia are not infrequent, and that clinical experience justifies the use of ammonia to prevent and possibly cure heart clot.

Role of Vasomotor Action in the Processes of Repair.—Dr. J. MADISON TAYLOR of Philadelphia read this paper, saying that the explanation of disease and repair on a basis of plus or minus of blood had attracted workers in the field of clinical pathology from the beginning of medical thought. Difficulties were said to have existed in interpreting facts and reconciling apparent contradictions; chiefly because of conspicuous omissions in the knowledge of fundamental principles, and also because of the overestimated significance of some facts and laws, and failure to realize the potency of others. Thereapeutic resources had proven inadequate on similar grounds. It was believed by the author that much of this obscurity would cease by achieving a practical familiarity with the rôle of the vasomotor mechanisms and applying them to the interpretation of clinical relationships to the process of repair. Physiologically this was demonstrated by the teachings of Sajous in his explanations of tissue respiration, from the standpoint of the adrenal system, which constitutes the key to circulatory regulation and oxygenation. A clear conception of the rôle of these great regulative mechanisms was said to elucidate a knowledge of the action of all drugs and remedies. Hygienic regulation, empirical and inadequate, could be made more efficient by using manual treatment, scientifically, in the light of experience from workers in this line, which has been plainly indicated and on record, but too much neglected since the beginning of the Nineteenth Century.

Substernal Remittent Cardiac Squeal.—Dr. ROLAND G. CURTIN of Philadelphia presented this paper. The sound indicated by the title was described as to location and character, and the conclusion drawn that it was evanescent—one observer might hear it and another might not—thus

giving rise to disagreement; that it was not an indication of serious disease; that no treatment of it was required, and that the fact of its disassociation with any active symptoms made it of value to insurance and military examiners.

Death from Angina Pectoris.—Dr. Curtin also presented a study of fifty-nine cases of death from angina pectoris. The point of greatest interest was the fact that fourteen of this number were physicians, which tended to prove the appropriateness of the name "doctors' disease" for the condition. Statistics showed a greater number of men having angina pectoris than women, which fact was attributed to the greater mental stress undergone by men than women.

Some Manifestations of Arterial Tension.—Dr. Charles E. Quimby of New York City read this paper, the essential point of which was the mutual dependent relations of the systemic functions, *i. e.* the physiology of disease. It was claimed that there were no pathic processes; that all the activities of diseases were objectively good, and that results only might be rightly called pathic. He believed this to be an inevitable conclusion from the study of disease along biological and evolutionary lines, and that it formed the only possible basis for a logical system of medicine and rational therapeutics. Among the many strictly physiological processes recklessly branded as "pathic," none had suffered more undeserved or deeper opprobrium than "arterial tension." The purpose of the author was to deal solely with the arterial tension of vasomotor contraction, and certain apparently unrelated disease manifestations with which it was invariably associated. Cases in point were cited, and the paper was summarized as follows: (1) All physical processes are objectively good and become pathic only by their degree of failure. (2) When such failures or perversions of function reach the dignity of disease their cause is to be sought along the lines of normal physiological action, not on the basis of so-called pathology. (3) Very many such functional diseases are found to be associated with high tension, and such tension is always a precedent not a coordinate development. (4) Such tension, although the immediate cause of the functional disturbance, is never primary, and, therefore, never an ultimate cause of anything; but does point to an ultimate cause in some condition that can develop high tension without other functional disturbance. (5) High tension is always the sign of systemic activity in self-defence, and is never to receive other than emergency treatment, for its association with apparently utterly unrelated diseases shows their common dependence upon the cause of the tension itself.

The Importance of the Early Detection of Aneurysm of the Aorta.—Dr. Horace D. Arnold of Boston presented this paper, saying that the profession at present was satisfied to recognize thoracic aneurysm in an advanced stage, because that was the picture portrayed in text-books. He believed it as important to recognize aneurysm early as to recognize tuberculosis early. The early signs were given and a report of cases made, with special reference to the signs or symptoms which led to recognition of the disease.

Carcinoma of the Mediastinum Simulating Aneurysm.—Dr. Jay Perkins of Providence, R. I., read this paper, reporting the case of a miner, aged 33, who for several years had worked hard in the Klondike. He suddenly developed marked enlargement of the neck followed by dilatation of the superficial veins of the whole body, accompanied by double murmur at aorta, and later great enlargement of area of cardiac dullness, including dullness over whole of sternum, lower right chest (and before death whole right chest), and some enlargement of glands above right clavicle and in right axilla. *x* rays showing pulsating mass to left of spine at arch of aorta. At autopsy there were shown a small carcinomatous growth pressing on the superior vena cava, a large carcinomatous growth under upper part of sternum, and tuberculous infiltration of right lung. The heart and aorta were normal.

Dilatation of the Heart.—Dr. Thomas A. Claytor of Washington, D. C., discussed this subject in its relation to etiology and treatment. Loss of muscular tone was regarded as an important etiological factor. Symptoms and physical signs were considered. In treatment two cardinal principles were emphasized: (1) Lessening the amount of work; (2) increasing the power of the heart to do the work. Attention was called to the value of small doses of opium in quieting the nervous system and supporting the heart.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. Thomas D. Coleman, Augusta, Ga.; *First Vice-President,* Dr. Judson Daland, Philadelphia; *Second Vice-President,* Dr. C. Fox Gardiner, Colorado Springs; *Secretary,* Dr. Guy Hinsdale, Hot Springs, Va.; *Member of Council,* Dr. Thomas Darlington, New York.

Boston was selected as the place of the next annual meeting the time of meeting to be left with the Council.

THE WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held May 13, 1907.

Dr. Leon Louria in the Chair.

A Case of Cerebral Rheumatism.—Dr. Jacob Londoner of Brooklyn read this paper. His patient was a native male, forty-nine years old, with a previous history that was negative, except for an attack of acute articular rheumatism at the age of sixteen. There was no venereal history. When he returned home from a trip to Scranton during the recent typhoid epidemic in the latter city he was taken sick, he had severe pain at the back of the neck, was constipated, and had a sense of oppression in the abdomen. Two days later he awoke and had pain in the left ankle and toes. Toward evening his left knee, elbow, and shoulder also became painful. The next day all the affected joints were swollen and tender. On the following day the corresponding joints on the right side were similarly affected, while the inflammation on the left side began to subside. The patient now had headache, stiffness of neck muscles, and tenderness upon motion of head. He soon became delirious and entered the hospital on the thirteenth day of his illness. On admission physical examination showed that he was well nourished, but pale, tongue was coated with edges and tip red, and there was an ulceration on the left side of the uvula. There was a moderate rigidity and tenderness of the neck muscles. The eyes were normal, although the retinal vessels were somewhat large; no paralysis of any face muscles; reflexes normal; no ankle clonus and no Babinsky; Kernig's symptom absent. The right knee and wrist were tender and swollen, and the right ankle was tender. The other joints were stiff. The heart and pulse were normal. The rest of the body examination was negative. The patient was delirious and talked all the time. He had hallucination and delusions and objective and subjective vertigo. Repeated daily examinations for Widal and paratyphoid were negative. Lumbar puncture was negative. Blood analysis showed a slight anemia and a leucocytosis of 15,000. Urine examinations were all negative. The temperature was not characteristic; it did not give the picture of typhoid; it ranged between 99° and 102°. During the first two weeks it ran up to 103.5 on four different occasions. The diagnosis of cerebral rheumatism was made. This disease was known to medical authorities for many years. Pribram, who gave it special study, drew the following conclusions: 1. Diffuse cerebral symptoms, without cerebral lesions, occurred in acute articular rheumatism in two forms, (a) an acute form most common at the height of the fever, or during hyperpyrexia, and

(b) the chronic form, with either a melancholic or a maniacal picture. 2. The acute cerebral symptoms might have any of the following as forerunners: A peculiar change in disposition of the patient, a disturbance of mental equilibrium, a marked insensibility of affected joints, or a high fever without cause. With or without these forerunners there usually followed a condition of sudden excitement, delirium, hallucinations, and, in many cases, coma and death. 3. Many cases ran a high temperature. In some the temperature was low. It was probable that the causes of this form of the disease were the high fever and the rheumatic toxin working hand in hand. 4. There was a resemblance between cerebral rheumatism and some of the acute infectious diseases, as hemorrhagic variola or scarlatina with high fever. Salicylic acid poisoning gave the same symptoms. 5. Alcoholics in articular rheumatism frequently got into this delirious state. In these cases additional causes were deprivation of alcohol and inanition. Cerebral rheumatism was also resembled by alcoholics in other acute febrile conditions. 6. Hysterical or epileptic persons in acute articular rheumatism often got into a state resembling cerebral rheumatism. It was difficult in these cases to make a diagnosis, which time usually cleared up. Generally it was found to be an attack of hysteria or epilepsy. The prognosis in these cases was fairly good. 7. During convalescence from an attack of acute articular rheumatism of long duration the patient might get into a melancholic or a maniacal condition. This was not a true cerebral rheumatism. It was a condition due entirely to inanition. The prognosis in these cases was good. 8. Cerebral rheumatism was not to be confounded with cases of rheumatic endocarditis where emboli or apoplexies occur or cases of true meningitis complicating acute articular rheumatism. The duration of this disease varied. It might end in a few hours or days in death, or it might last several weeks. Cerebral rheumatism occurred in two to four per cent. of all cases of articular rheumatism. It occurred more frequently in men than in women, and mostly between the ages of twenty and forty. Predisposing factors were a neurotic heredity, hysteria, and epilepsy, alcoholism in parents, uremia, and lead poisoning. As regards prognosis fifty per cent. of all cases died. Hyperpyrexia rendered prognosis bad. Treatment was symptomatic and expectant. In cases with hyperpyrexia, hydrotherapy was the best measure and saved many lives. Salicylic acid had no effect and might make symptoms worse.

Some New Methods of Treatment after Laparotomies, with Presentation of Cases.—Dr. RUSSELL S. FOWLER of Brooklyn read this paper.

The Modern Therapy of Cystitis.—Dr. MARTIN W. WARE of Manhattan read this paper. (See page 310.)

PHILADELPHIA PEDIATRIC SOCIETY.

At a stated meeting held May 14 Dr. ELEANOR C. JONES reported "The Case of an Infant with Several Congenital Deformities." There was present a condition of spina bifida, with a cavity in the spinal cord and loss of power in the lower extremities. Drs. C. F. JUDSON and R. O. CLOCK exhibited "A Case of Pericarditis" in a boy about seven years old, who had presented to-an-fro friction murmurs with great dilatation of the heart, in the sequence of symptoms of acute rheumatism. Dr. Judson exhibited also "A Case of Congenital Syphilis" in a child about nine months old, presenting thickening and deformity of the tibiæ and spindle-shaped enlargement of metacarpal bones of the hands. Improvement manifested itself under antisyphilitic treatment. Drs. NATHANIEL GILDERSLEEVE and HOWARD CHILDS CARPENTER exhibited "A Boy with Multiple Abscesses and Superficial Gangrene of the Toes Treated by Bacterial Inoculations." The patient was about ten years old, and had been underfed and otherwise neglected at home. The opsonic index was found subnormal, and marked improvement ensued on injection of vaccines obtained from an emulsion of dead streptococci. Dr. ROY BLOSSER exhibited "A Case of Lymphatic Leukemia in a Child Seven Years Old." The patient was a girl in whom enlargement of the glands in the neck appeared in the sequence of an attack of diphtheria. The hemoglobin percentage was 15, the number of erythrocytes upward of 800,000, the number of leucocytes 76,000, with 87 per cent. of small lymphocytes. Some improvement ensued on treatment with arsenic and iron. Dr. J. H. MCKEE exhibited "Two Brothers with Chronic Parenchymatous Nephritis, Upon One of Whom Edebohl's Operation Was Performed in 1904." The mother had died of nephritis, and in both of the patients the disease of the kidney followed upon an attack apparently of scarlet fever. In one both kidneys were decapsulated and marked improvement took place, although serious symptoms have again manifested themselves. Dr. J. P. CROZER GRIFFITH reported "A Case of Thymic Death," and he exhibited the enlarged heart and hypertrophied thymus glands from the patient. The child was one of nine, seven of whom had died previously, several under circumstances and presenting symptoms suggestive of lymphatism. The little patient in question was some three months old, and gradually developed cyanosis, with a fatal issue. Post-mortem examination revealed an enlarged thymus gland capable of causing pressure on the trachea and a considerably enlarged heart. Dr. HERBERT B. CARPENTER reported "Two Cases of Retropharyngeal Abscess." One occurred in a child eight years old and the other in a child about nine months old. In each instance the accumulation of pus was evacuated by incision, and prompt recovery ensued. Dr. R. O. CLOCK reported "A Case of Estivoautumnal Fever" occurring in a child two years old. The child had chills and fever, and typical parasites were obtained from the blood.

Books Received.

The MEDICAL RECORD *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

DEUTSCHES BADERBUCH. 4to, 535 pages, muslin. Verlag von J. J. Weber, Leipzig, 1907.

A MANUAL OF TREATMENT OF THE DISEASES OF CHILDREN. By W. F. RADUE, M.D. 16mo, 165 pages, muslin. The Clinic Publishing Co., Chicago.

DIE EXPERIMENTELLE DIAGNOSTIK, SERUMTHERAPIE UND PROPHYLAXE. Von Stabsarzt Prof. Dr. E. MARX. 8vo, 399 pages, paper. Verlag von August Hirschwald, Berlin, 1907.

KITTY DIXON. By C. A. BRYCE, M.D. 16mo, 102 pages, muslin. The Southern Clinic, Richmond, Va.

SEMI-ANNUAL REPORT OF SCHIMMEL & CO. 12mo, 158 pages, paper. April, 1907.

MATERIA MEDICA, THERAPEUTICS, PHARMACOLOGY, AND PHARMACOGNOSY. By WILLIAM SCHLEIF, Ph.G., M.D. Third edition, revised and enlarged. 8vo, 470 pages, muslin. Lea Brothers & Co., New York.

DIE VERWUNDUNGEN DURCH DIE MODERNEN KRIEGSFEUERWAFFEN. Von Stabsarzt Dr. GRAF and Dr. HILDEBRANDT. 8vo, 570 pages, illustrated, muslin. Verlag von August Hirschwald, Berlin, 1907.

DISEASES OF INFANCY AND CHILDHOOD. By LOUIS FISCHER, M.D. 8vo, 979 pages, illustrated, muslin. F. A. Davis Co., Philadelphia.

A TEXT BOOK OF PRACTICAL THERAPEUTICS. By HOBART AMORY HARE, M.D., B.Sc. 8vo, 939 pages, illustrated, muslin. Lea Brothers & Co., New York.

COOK COUNTY HOSPITAL REPORTS, 1906. 8vo, 304 pages, illustrated, muslin. The Henry O. Shepard Co., printers, Chicago.

REPORT OF THE COMMISSIONER OF EDUCATION FOR THE YEAR ENDING JUNE 30, 1905. Vol. 2. 8vo, 1400 pages, muslin. Government Printing Office, Washington.

PRACTICAL FEVER NURSING. By EDWARD C. REGISTER, M.D. 8vo, 352 pages, illustrated, muslin. W. B. Saunders Co., Philadelphia.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 17, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	354	147
Diphtheria	201	21
Measles	175	11
Scarlet Fever	97	5
Smallpox	..	..
Varicella	8	..
Typhoid Fever	68	13
Whooping Cough	18	18
Cerebrospinal Meningitis	5	9
Malarial Fever	.....	.....
Totals	926	224

Dr. Max Schueller.—The following facts of Dr. Schueller's medical life are from an appreciation by Dr. Bierbach in the *Illustrirte Zeitung*: On June 19 Max Schueller, M.D., Professor at the Frederick-William University in Berlin, died in that city. It is a tragic coincidence that he should have fallen a victim to the very disease to the investigation of which he had assiduously and almost exclusively devoted the last decade of his life, the tragedy being enhanced by the fact that he fully recognized the nature of his complaint and followed its development with the interest of the investigator. He entertained no doubt whatever but that he had infected himself during his research work with the cancer parasites he had discovered. He was born January 3, 1843, at Molsdorf. He studied in Jena and Leipzic and was graduated in medicine in 1869. He then visited the Vienna clinics and served as assistant physician to the City Hospital in Hanover. In the Franco-German war he acted as military surgeon and commander of the so-called Hanoverian Sanitary Detachment. After the war he practised as physician to the courts, and in 1875 adopted the academical career by becoming Hüter's assistant in Greifswald, where, in 1876, he was privileged to read academical lectures; in 1880 he was appointed adjunct professor, and two years later he visited America. In 1883 he returned and was enrolled upon the academical staff of the Berlin University as professor of surgery, a position he has held to his death. Schueller early developed those qualifications which were to map out the characteristic direction of his scientific work. First there was the pronounced surgical talent; his skill in diagnosis based upon his intimate knowledge of anatomy; the rapid delineation of the mode of operation; the steady hand; the presence of mind in sudden complications during operation. Again, there was the indomitable thirst for knowledge as to the causative pathological factors. His first important work in this connection dealt with experiments and histological researches on the origin and causes of scrofulous infections of the joints (1880); it was the nucleuus of his great success in the treatment of tuberculosis of the bones and joints. He discovered, after many laborious attempts in the laboratory, the causative factor of chronic articular rheumatism, and, independent of Koch, the tubercle bacillus. After that, however, he devoted himself to the investigation of cancer. He started from the idea that an animal or vegetable parasite must be the cause of cancerous tumors which had so far eluded demonstration for no other reason than that the microscopic and experimental examinations were made with cold cancer tumors. By avoiding this drawback he succeeded in demonstrating quite peculiar, roundish structures. These, he thought, should be classified as animal parasites, after having followed them up closely and studied their biological relations, and these he regarded as the causative factors of cancer. His theory of the parasitical nature of cancer, however, met with no general recognition among investigators, and this told heavily on him, increasing, as it did, the disappointments of his life. He awaited death composedly, and the only thing he regretted was that the enemy with whom he had battled so vigorously should not leave him time to publish his collected works on cancer parasites, the manuscript of which was already completed.

Report of a Case of Psoriasis Treated by Roentgenotherapy.—S. J. Wright describes this case. The patient was forty years old, weighing nearly two hundred pounds. The skin was fair and the eyes blue. Both personal and family histories were excellent. He had had psoriasis for twenty years, covering the trunk, limbs to feet and hands, and involving the scalp in several places. There was no sign of the disease on the hands, face, or neck above the collar. The top of the head was bald, and was becoming more so. All treatment had been in vain. The writer began radiation in October, 1904. By January, 1905, the patient was a well man, having lost eighteen pounds of flesh. There was entire freedom from itching and discomfort. In two months the hair all returned. In May a few spots again appeared, and several more treatments were given. The patient's corpulence has returned and the scalp proves refractory. The writer has had excellent success in several other cases of psoriasis of less degree and duration. Excepting in cases of advanced, active, pulmonary tuberculosis, he has never had any symptoms of toxemia in his patients. He uses tea-lead to protect the mammary and reproductive glands from the effects of the *x*-ray, and he urges the use of sunshine as an adjuvant.—*Archives of Physiological Therapy.*

Constipation and Mental Troubles.—Perpère states that there is no person afflicted with mental trouble who is not a sufferer from constipation, at least in the early and curable stage of his malady, as well as from stomach, liver, or intestinal disturbances. Even in the normal man constipation brings about torpor of the ideas, inaptitude for work, and a bad temper. It is most important in the production of neurasthenia. In many psychopathic states it aggravates the condition. This is true in epilepsy, hysteria, alcoholism, melancholia, and even in organic mental diseases it is the rule. The general paretic is constipated. In hypochondria the irritation of a full intestine causes feelings which are ascribed to other organs and causes. The abnormal sensations are improperly interpreted. Autointoxication follows constipation, with its train of bad effects. The first treatment for patients suffering from mental disease must be the relief of constipation and the maintaining of the bowels in a normal condition.—*Le Progres Medical.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ended August 16, 1907:

SMALLPOX—UNITED STATES

		Cases.	Deaths.
California	July 20–27	1	..
Indiana, Elkhart	July 27–Aug. 3	1	..
Indianapolis	July 26–Aug. 4	2	..
Louisiana, Shreveport	July 27–Aug. 3	3	..
Missouri, St. Joseph	July 27–Aug. 3	1	..
New Jersey, Newark	July 27–Aug. 3	3	..
New York, New York	July 20–27	1	1
Wisconsin, Milwaukee	July 27–Aug. 3	2	..

SMALLPOX—FOREIGN.

Africa, East London	June 29–July 6	1	Imported
Argentina, Rosario	May 1–31	..	19
Austria, Vienna	July 13–20	1	1
Canada, Halifax	July 27–Aug. 3	3	..
China, Manchuria	June 29–July 6	2	..
Ecuador, Guayaquil	July 6–20	..	2
France, Paris	July 13–20	15	2
Greece, Piraeus	July 20–27	1	..
India, Calcutta	June 22–29	2	..
Italy	July 11–18	14	..
Java, Batavia	July 20–27	3	..
Mexico, Aguas Calientes	July 27–Aug. 3	..	2
Portugal, Lisbon	July 13–20	6	..
Russia, Moscow	June 20–July 20	11	4
Riga	July 13–27	4	..
Siberia, Vladivostock	June 4–14	2	..
Turkey, Bagdad	June 22–29	..	Present
Bassorah	June 29–July 6	..	"
Constantinople	July 14–21	..	2

YELLOW FEVER

Cuba, Alacranes	Aug. 9	1	..
Cienfuegos	Aug. 3 14.	14	1
	(9 cases among American troops)		
San Nicolas	Aug. 8	1	

CHOLERA.

India, Calcutta	June 22–29	..	68
Kashmir	June 22–29	840	723
Straits Settlements, Singapore	June 8–15	..	2

PLAGUE—UNITED STATES.

California, San Francisco	Aug. 12–13	3	1

PLAGUE—FOREIGN.

Australia, Brisbane	May 25–June 8	3	1
Inswich	May 23	1	..
Sydney	May 25–June 1	..	1
China, Amoy	June 22–29	1	1
India, Calcutta	June 22–29	..	28
Peru, Callao	June 27	2	1
Chiclayo	June 27	6	3
Mollendo	June 27	4	..
Paita	June 27	3	2
Trujillo	June 27	27	5
Russia, Odessa	July 14	1	(1 from vessel)

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Original Articles.

A CONSIDERATION OF THE CAUSES AND THE CHARACTERISTICS OF THE WEAK FOOT;

WITH REFERENCE TO THE PRINCIPLES THAT SHOULD GOVERN ITS TREATMENT.*

BY ROYAL WHITMAN, M.D.,

NEW YORK.

TWENTY years ago, when I first became interested in the weak foot as representing more particularly the less advanced type of deformity commonly called flat foot, practically nothing was known of it, at least nothing relative to what is now considered as its importance. The flat foot, popularly classed as an inheritance, and of interest because of its appearance, was of course familiar; and the painful flat foot, supposed to be caused by a direct breaking down of the arch from the overweighting of its "key-stone," and therefore usually found among the laboring classes, was mentioned casually in the text-books. It was stated that the degree of deformity might be demonstrated by an imprint of the sole, and its further progress checked by bracing it from beneath, or, as an alternative, the descent of the arch might be favored by removing the heel of the shoe, on the theory that when it was complete discomfort must cease.

Certain shoemakers undoubtedly recognized discomfort, even when unaccompanied by extreme deformity, as caused by local strain, and treated it by stiffening the leather about the arch or by thickening the inner border of the sole of the shoe, a device improved and popularized by Thomas, and, according to Marsh, a dancing master of Bath treated flat foot successfully by the methods of exercise and posture afterwards developed by Ellis in connection with his theory of the importance of the flexor longus hallucis muscle as the direct support of the arch.

The deformity of flat foot had been analyzed and described by several anatomists, admirably, for example, by Humphrey, but the dissections were of specimens of advanced deformity, which were therefore not representative of the ordinary types of weakness in which the changes in structure had not advanced to the irremediable stage, nor did these analyses indicate the treatment by which it might be relieved or prevented.

It may be stated fairly, I think, that the importance of the weak foot, the most common and the most disabling of all the postural deformities, was unsuspected. Only those cases in which pain was associated with deformity were, practically speaking, recognized, while the treatment, whether influenced or not by the various and conflicting theories of causation, was from the curative standpoint faulty in conception and ineffective in practice.*

It is of interest to contrast this with the present time, when gout and rheumatism no longer show an extraordinary predilection for the feet, when braces for flat foot are for sale even in department shops, and when the manufacture of shoes designed to protect the arch has become an important branch of the industry. This general recognition of the numerical importance of the subject by no means implies a corresponding appreciation of its causes or of its proper treatment. The usual medical prescription is the address of a brace maker, and orthopedic surgeons, even, still demonstrate the disability by imprints of the sole, apply plates or pads whose principle is direct support of the traditional arch, and consider relief of discomfort as the final test of treatment.

FIG. 1.—Normal foot protected from strain by slight adduction.

With this, as it were explanatory introduction, I propose, as I may not assume that my work is known to you, to outline the theory

*Read at a meeting of the American Orthopedic Association at Washington, May 8, 1907

*In 1899 97 cases of flat foot were treated in the orthopedic department of the Hospital for Ruptured and Crippled: 2.6 per cent. of the total number of patients. In 1906 1,219 new cases, 18.3 per cent. of the total number, were treated.

on which it has been conducted from the first, a theory which will explain discomfort without deformity and deformity without discomfort, and a treatment based on this theory, which is as applicable to prevention as to advanced distortion. In this treatment the means employed are adapted to, and are subservient to, the end in view, that end being, as far as may be, the restoration of function.

Fig. 2. The foot in the attitude of abduction (rest), showing, as compared to Fig. 1, the change in contour.

From this standpoint, the popular term flat foot is so misleading and inadequate that it has been discarded for one that calls attention primarily to impaired ability rather than to deformity, which is, in most instances, the result of disordered function.

To illustrate, one recognizes two contrasting postures of the foot, that of activity and that of inactivity. The first is exemplified by the attitude of the runner, in which the foot points directly forward so that a line projected from the center of the limb would fall over the second toe. In this attitude the weight is balanced on the center of the foot by muscular effort. The contrasting posture is that in which the individual stands at ease, the foot serving merely as a support, the muscles inactive, and the strain falling upon the ligaments.

In the attitude of activity there is a slight incurvation of the inner border of the foot and the arch is accentuated. In the attitude of inactivity the inner border of the foot bulges, the arch is lowered, and a line projected from the center of the leg will fall inside the great toe. The foot is everted, and the weight is directed toward the inner side of the sole.

Each of these attitudes, normal under proper conditions, becomes abnormal if improperly used. An abnormal persistence of the attitude of activity would be prevented by fatigue, but the abnormal persistence of the attitude of inactivity, when the foot is in active use, has no such safeguard, and as the strain is not relieved by the alternation of posture proper to activity, deformity follows, a deformity that is simply an adaptation to the abnormal function.

It has been stated that in the attitude of rest the foot is abducted or everted in its relation to the limb, but, as when supporting weight it is fixed to the floor, the relation of abduction is caused by the inward rotation of the limb upon the foot. That is, the astragalus supporting the leg sinks downward and inward upon the os calcis. Acquired flat foot, so-called, in all its grades is an abnormal persistence or an exaggeration of this attitude of abduction, the attitude of inctivity or weakness. It seems proper, therefore, to designate it as the weak foot. Such a term, although not absolutely distinctive, has an obvious advantage over flat foot, pronated foot, and the like, in calling attention to disordered function rather than to deformity, which in many instances does not become apparent until a much later stage of the progressive disability.

The theory, then, to which reference has been made may be stated as follows: The deformity of the weak foot is an abnormal persistence or exaggeration of the attitude of abduction or rest. The abduction is primary, the lowering of the arch is the secondary element. The symptoms are not due to the deformity as such, and have no proportionate relation, therefore, to its degree. They are the result of the overstrain and injury to which disordered function has exposed the foot. The changes in the muscles, ligaments, and bones that are found in cases of long standing, are secondary and incidental to the abnormal functional use. They vary, of course, with the original structure of the foot, with the injury to which it has been subjected, and with the duration of the disability.

The causes of the weak foot, therefore, must be those that favor the predisposing and simulating attitude, of which even advanced deformity is simply the exaggeration.

Fig. 3. Typical weak feet in childhood; see Fig. 1.

These predisposing causes may be divided into four classes, which are of course interdependent and often combined.

1. Congenital or acquired abnormality or weakness of structure; the support is deficient.

2. Weakness of muscles; the power is insufficient.

3. Overweight or overstrain; the burden is too great.

4. Improper attitudes that subject the foot to a mechanical disadvantage in the performance of its functions; the adjustment is imperfect.

One speaks of interdependence, since it is evident that weakness of the structure of the foot or injury, or other painful affection, will, by checking activity, indirectly weaken the muscles and induce improper postures, and that weakness of structure and weakness of the muscles are often combined, as for example in rhachitis. Finally, that the overweight or strain which induces the actual symptoms is often not an absolute overweight or strain, but relatively so, because of the mechanical disadvantage to which the foot is subjected by the improper attitudes.

It is unnecessary, even if it were possible, to enumerate all the factors, near and remote, that may predispose to the weak foot, or hasten the progression of deformity; one may begin, however, with

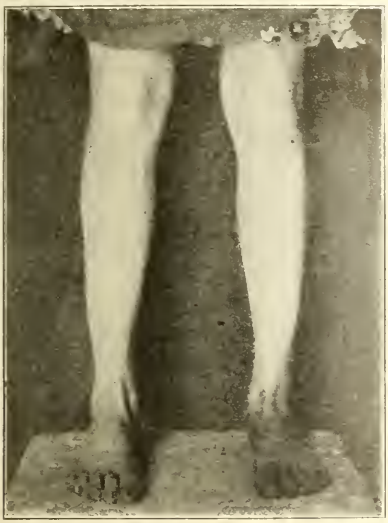

Fig. 4.—Illustrating voluntary correction of the deformity, see Fig. 3.

that which has been placed last in the table, namely, improper attitudes.

The most common of these is outward rotation of the limbs in walking. Outward rotation of the limbs, "toeing out," must not be confounded, as it usually is, with abduction or eversion of the feet which characterizes all grades of deformity.

In the first, the hip joints are concerned; in the second, the mediotarsal and subastragaloid joints. Outward rotation of the limbs is the attitude peculiar to civilized people. It is improper and ungraceful, because the feet are turned aside from the direct line of progression; consequently the strain falls upon the inner border of the foot, and the spring or lift of the calf muscle is lessened or lost. If the foot is held in the line of progression, it must be walked over, and as the front of the foot or fulcrum is longer on its inner side, the first metatarsal joint, than on its outer, the fifth, it follows that the foot is involuntarily adducted in its relation to the leg whenever the body is lifted over it; so that, when looked at from behind, the walker appears to be in-toeing at the termination of each step. Thus the weight is directed away from the inner border of the foot, the ligaments are relieved from strain, and the muscles are exercised by this normal alternation of postures.

Outward rotation of the limbs, by placing the feet at a mechanical disadvantage, by checking alternation of posture, and thus by disuse weakening the muscles, is one of the most important of the predisposing causes of the weak foot. It has probably become the walk of civilization, because the feet are so compressed and deformed by shoes that active use, which increases the pressure on painful parts, is as far as possible avoided.

Although outward rotation of the limb predisposes to abduction of the foot, which indeed is its natural sequence, the two are by no means necessarily combined. This is illustrated by the fact that in childhood in-toeing, "pigeon-toe," is one of the commonest signs of the weak foot, the in-toeing (inward rotation), which lessens the strain by compensating for the deformity (eversion), being Nature's remedy for the weakness. Many "straight" walking adults have weak feet: straight walking, therefore, by no means assures grace or strength, although it is always a safeguard against progressive disability. In this connection attention is again called to the fact that it is the persistent change in relation between the limb and the foot that characterizes the deformity of the weak foot, and that while one, to illustrate abduction, would turn the foot outward on the limb; in the standing posture, the same change in relation is caused by inward rotation of the limb upon the foot.

The soldier standing at attention illustrates outward rotation of the limbs. The same soldier, standing at ease, bearing the weight on one foot, the muscles being relaxed and the strain falling on the ligaments, illustrates abduction of the foot. In the first attitude the legs are rotated outward, and the feet are slightly abducted. In the second there is but little outward rotation of the limb, but the foot is, in its relation to it, markedly abducted; that is, the astragalus carrying the limb with it has turned inward and downward upon the os calcis, and is restrained only by the interosseous and calcaneosnavicular ligaments. In this attitude the burden is displaced inward in its relation both to the power and to the fulcrum. It is evident, therefore, why loss of spring is symptomatic of all grades of weak foot. Habitual outward rotation of the feet combined with slight abduction is characteristic of the predisposing or early stage of weak foot, while marked abduction, without outward, and with even inward rotation of the limbs, characterizes advanced deformity, the apparent degree of out-toeing being the same in each instance.

Out-toeing has been mentioned as a predisposing cause of weakness because of the abnormal persistence of the predisposing attitude and the weakness of the muscles that follows disuse of normal function. Improper shoes have been mentioned also as one of the common causes of weakness, because discomfort induces persistence of the passive attitude in walking, and because the structure of the foot is directly weakened by compression and consequent distortion. These are factors of importance in the causation of disability in persons not otherwise predisposed to it. In the same manner, by favoring disuse of the attitude of activity, local injury or gout or rheumatism, and the like, may be predisposing causes.

Direct weakness of structure may be inherited or, more commonly, it is acquired in early life, rhachitis being the most constant cause of this, as of other

similar deformities. Weakness of muscles as a predisposing cause is illustrated by the discomfort in the feet that is first noted on resuming activity after exhausting disease. Overstrain and overweight explain the relative frequency of the disability among those whose occupations require much standing and among those whose bodily weight is abnormal.

The variety of the predisposing and exciting causes explains why the symptoms of the affection may appear at any age and in any class of individuals. This is illustrated by the accompanying statistics of cases seen recently in hospital and in private practice.

STATISTICS OF 1,072 CONSECUTIVE CASES OF WEAK FOOT TREATED AT THE HOSPITAL FOR RUPTURED AND CRIPPLED

Total Number of Male Cases, 524

To 10 yrs., inclusive.	10 to 20, inclusive.	20 to 30, inclusive.	30 to 40, inclusive.	40 to 50, inclusive.	Over 50 years.
68	120	130	108	66	32

Total Number of Female Cases, 548

To 10 yrs., inclusive.	10 to 20, inclusive.	20 to 30, inclusive.	30 to 40, inclusive.	40 to 50, inclusive.	Over 50 years.
30	135	121	120	79	54.

Total Number of Cases, 1,072

To 10 yrs., inclusive.	10 to 20, inclusive.	20 to 30, inclusive.	30 to 40, inclusive.	40 to 50, inclusive.	Over 50 years.
107	255	251	228	145	86
9 9%	23.7%	23.4%	21.2%	12.5%	7%

STATISTICS OF 400 CASES FROM PRIVATE PRACTICE

Total Number of Male Cases, 189

To 10 yrs., inclusive.	10 to 20, inclusive.	20 to 30, inclusive.	30 to 40, inclusive.	40 to 50, inclusive.	Over 50 years.
41	29	37	47	19	16

Total Number of Female Cases, 211

To 10 yrs., inclusive.	10 to 20, inclusive.	20 to 30, inclusive.	30 to 40, inclusive.	40 to 50, inclusive.	Over 50. years
27	41	42	46	34	21
68	70	79	93	53	37
17%	17.5%	19.7%	23.2%	13.2%	9.2%

The most noticeable distinction between the two classes is the greater proportionate number of children among the private patients. It may be noted that the cases are almost equally divided between the sexes. As to the influence of sex, it would appear that women's feet are more abused by shoes, and that overweight in proportion to muscular strength is more common among them, while the influence of predisposing occupations is more marked in the male patients.

The table of age shows that no period of life is exempt from the disability, the predisposition being present, as it is probably in many instances, from childhood, the exciting cause may appear at any time.

As has been stated, the discomfort and pain characteristic of the disability are due to overfatigue and strain of the muscles; secondarily, to the accommodative changes that follow in all the tissues of the foot. In childhood, a period in which general weakness past or present is usually apparent as a predisposing factor, the principal symptoms are awkwardness and deformity. The patients are easily fatigued, and complain of discomfort in the limbs, which is often mistaken for rheumatism, but persistent local pain is not usually a prominent symptom. In adult life, on the other hand, local pain is often quite out of proportion to the deformity.

The ordinary symptoms of the weak foot, aside from the attitude and impaired function, are sensation of weakness, of tire and strain along the inner border of the foot and beneath the arch. Pain in the heels, due in great part to unrelieved pressure, is often a prominent symptom. The discomfort may be confined to the feet, but it often extends to the calves, knees, and especially in women to the back, symptoms explained by the disordered function which affects the entire body. As a further illustration of this, it may be mentioned that the weak foot in adolescents is usually accompanied by a droop of the spine (posterior curvature), which, in turn predisposes to lateral deviation. It is true that the two forms of postural deformity may be caused by general weakness, but it is probable that in many instances the general posture is a secondary result of the loss of spring elasticity and stimulation of the proper use of the feet.

The development of deformity, with its attendant symptoms, is usually very gradual, and at its beginning is characterized by a persistent attitude—that of abduction—the power of voluntary adduction being lessened by disuse and by the accommodative retraction of the opposed group of muscles. The sensation of fatigue is an indication of overstrain, while pain is symptomatic of injury, a recurrent sprain. Soon muscular spasm in the abductor muscles becomes evident. The patient complains of stiffness in the feet, of discomfort on changing from a position of rest to activity, and of pain even at night. Congestion, swelling, excessive perspiration, and other nutritive disturbances due to disordered function and inactivity, now become evident. At this stage the accommodative changes at first appearing in the muscles, then in the ligaments, now affect the interior of the joints, and the articular surfaces of the bones, changes that eventually make cure, or even restoration of symmetry, impossible.

As has been stated already, it is on specimens of advanced deformity that the dissections have been made that are supposed to represent the typical flat foot, whereas in the great majority of cases that are presented for treatment the changes have not reached the irremediable stage. It will be apparent, therefore, how important an understanding of the true nature of the disability is for its proper treatment, which implies early diagnosis, and for what is of equal importance—its prevention. Children, for example, should be properly shod, and they should be instructed in the proper manner of walking. Those who undertake laborious occupations should be instructed in the manner of protecting the feet from unrelieved strain by alternations of posture from time to time, as well as by actively cultivating the attitude opposed to deformity, and of course that which is important for prevention is also important in curative treatment.

The functional standpoint enables one also to recognize the disability in its early stages, whether it causes pain or not, and to confirm the diagnosis by the observation of the disordered function, the signs being in order of progression: (1) Persistence of the improper attitude. (2) The limitation of the range of voluntary motion in the directions opposed to the persistent attitudes. (3) Limitation of passive movements due to accommodative changes in the muscles and other tissues. (4) The evident deformity of which the important part is the abduction, the secondary element being the lowered arch. Thus, the futility of making imprints of the sole as a means of diagnosis, and their uselessness except as a record of deformity, becomes apparent.

If the foot which has become flat were well formed when the deformity began, the lateral distortion (the exaggerated abduction) representing disorganization of the mechanism must be very great, the period of progression to the position of stability must have been prolonged, and the symptoms, because of the disorganization, must have been severe and disabling. If, on the other hand, the arch were originally low, complete flatness (stability) may be acquired with but little lateral distortion, little disorganization, and with correspondingly less discomfort.

In this, as in other deformities of a similar nature,

the tendencies toward weakness often appear at a very early age. For example, as an effect of rhachitis or other form of weakness or malnutrition in which both muscles and ligaments are weak, the feet usually are flat, and as they become accommodated

Fig. 5.—Extreme adduction of the foot, illustrating the exaggeration of the arch by flexion of the fore foot over the head of the astragalus; see Fig. 6.

to, and have developed in this position from such an early period, the discomfort that attends the breaking-down process in later years is absent. Thus, one accounts for a large proportion of the painless forms of flat foot which are familiar to all.

It is of interest to note, as an illustration of the various factors that influence distortion, that although knock-knees and weak feet are often combined in childhood, yet as the child develops, if knock-knees persist, the feet in compensation for and in the effort to check the deformity become usually persistently adducted, a slight degree of talipes varus. The opposite deformity is often noted in the bow legs of older subjects, in which the feet become everted in like compensation.

In concluding this descriptive sketch of the disability, the statement may be made that all weak feet, in the sense in which the term is used here, are abducted feet. All flat feet are abducted feet, but all abducted feet are not flat feet.

One recognizes, then, as far as attitude is concerned, several classes, which are, in order of the most noticeable deformity: (1) The abducted foot; the arch is well formed. (2) The abducted and flat foot; the arch is lowered. (3) The flat and abducted foot; the foot is flat. The prognosis as to cure is favorable in the order of the classes.

In the first class one has to do simply with an improper attitude, which, when extreme and persistent, is suually a direct result of injury. In the second, the lowering of the arch indicates long duration of deformity, and, in proportion to its degree, therefore, secondary changes in the tissues. The third class includes the final effect of the two others, as well as those cases in which the arch has always been low, or was acquired at an early age, as exemplified in weak and rhachitic children. The prognosis in this class is unfavorable, because the entire structure of the foot is involved. In childhood the ligaments are lax, the muscles are weak, and years of treatment may be required for reconstruction. In the adult and adolescent class the changes secondary to deformity have, as a rule, advanced far beyond the possibility of regeneration.

It may be noted that although abduction and eversion, or adduction and inversion, movements that are always combined and carried out by the same joints, those below and in front of the astragalus are practically synonymous, there is, however, this distinction. One may invert or evert the sole to the full limit when the foot is at a right angle with the leg. Such inversion does not increase the depth of the arch appreciably, because the inner border of the foot is raised as a whole. Adduction as distinct from inversion is demonstrated when the foot is turned downward and inward to the full limit. In this attitude the forefoot is plantar-flexed and adducted over the head of the astragalus; thus, the hollow or arch is increased in depth. Similarly, the extreme limit of abduction is possible only in dorsal flexion.

Fig. 6.—Inversion of the foot, as distinct from adduction, the foot being at a right angle with the leg the arch is but slightly deepened; see Fig. 5.

The full range of adduction implies a normal articulation between the head of the astragalus and the navicular. The characteristic flat foot can be inverted, but not adducted to the normal limit, be-

cause in many instances the head of the astragalus is permanently displaced below the proper level, and flat foot, as distinct from the abducted foot in childhood, indicates an abnormal laxity of structure. This explains the division of the weak foot into classes as far as prognosis is concerned.

Fig. 7.—The best exercise for weak feet. (a) The limbs are rotated inward and the body is raised on tip-toe: see Fig. 8.

Recently, the term pronation, in common use in Germany, has been introduced to designate particularly the less advanced type of deformity, of which eversion is the prominent sign. It has no advantage over abduction or eversion, and it has the disadvantage of being unintelligible to medical students. From my point of view, it is particularly objectionable because pronation is usually understood to imply an attitude of activity, while the characteristic of the weak foot is inactivity, which both eversion and abduction signify.

So much space has been given to the consideration of the nature of the disability because the treatment is directly dependent on its proper conception. If, for example, it is admitted that the weak foot is the result of persistence of the attitude of abduction, the treatment, whether preventive or curative, will be directed toward the assumption of the opposed attitude. This will require, first, the removal of obstruction of whatever character that may limit the range of motion in any direction, and second, the cultivation of the ability of those muscles that govern it. If the mechanism is so weakened that the bones cannot be, or are not, maintained in proper relation to one another, support is essential to normal function.

If the symptoms of pain and discomfort are due to the strain upon a weakened foot, and have therefore no proportionate relation to the deformity, the relief of such symptoms which might follow simple rest is not the test of treatment. For the aim of treatment should be the restoration of normal function to the degree that is practicable in every instance.

In considering treatment one naturally proceeds from the mild to the severe types of the affection. The progress in the last twenty years has now made it unnecessary to more than mention the importance of a shoe that does not compress or deform the foot. From the first I have insisted on the importance also in treatment of a particular type, both for children and adults, that with a well-pronounced inward twist (right and left). This shape is essential, since it aids in preventing abduction. A second point of importance is to make the inner border of the sole and heel thicker, or slightly wedge-shaped, so that the foot is inclined somewhat toward inversion. This is one of the oldest of remedies, one that is continually discovered and applied by the uninstructed patient, whose shoes wear away on the inner side. The principle is applied also by the expert blacksmith, and if the shoe were firmly attached to the foot, instead of merely containing it, the expedient would be of much greater advantage in the treatment of human beings.

The patient having been properly shod must now be instructed as to attitudes. Outward rotation of the limbs must be avoided. The foot should be advanced in the line of the walk and the "springy" step should be cultivated; that is, the body should be lifted over the forefoot by exercising the calf muscle. This protects the foot from overstrain and at the same time strengthens the muscles and improves the tone of the entire body. As the prevailing attitude has been one of abduction, one now cultivates the adducted attitude; thus, in the sitting posture one should always cross the feet so that the weight resting on the outer borders should incline them inward (invert the soles).

As the adductors of the foot have been weakened by inactivity, the patient is instructed to invert the foot voluntarily over and over again. Thus, the limb being extended, the patella to the front, the foot is first plantarflexed, then turned inward, adducted, then inverted, and finally dorsiflexed to the full limit. The final exercise is most important. The patient stands erect, markedly toeing in, with the weight thrown on the outer borders of the feet. The body is then raised on tiptoe with full extension of the limbs, then is allowed to sink slowly

Fig. 8.—The body is lowered and the weight is supported on the inverted feet: see Fig. 7.

back, the feet during the descent being gradually inverted, reaching finally the extreme limit when weight is borne. The exercise, it will be noted, is exactly the same as far as attitude is concerned as that already described, with the addition of the body weight. It is therefore far more difficult. It is

A SERIES OF PHOTOGRAPHS TAKEN BY DR. W. E. GALLIE FORMERLY HOUSE SURGEON AT THE HOSPITAL FOR RUPTURED AND CRIPPLED, ILLUSTRATING THE AUTHOR'S METHOD OF MAKING THE PLASTER CAST OF THE FOOT.

FIG. 10.—The proper attitude, the foot resting upon its outer border on the inclined surface.

FIG. 11.—Applying the upper half of the mould.

FIG. 13.—The lower half of the mould.

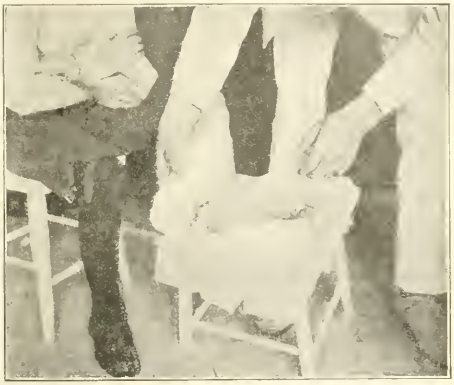

FIG. 12.—Separating the two sections of the mould.

very important, especially in the treatment of weak and awkward children, in restoring the control of the balance (curing weak ankles).

The influence of the modified shoes, the attention to posture, and the cultivation of muscular strength may be quite sufficient to cure the milder cases of disability if the cooperation of an intelligent patient is assured. In most instances, however, the tendency toward deformity has advanced so far that it cannot be controlled by the patient, and, as cure depends on reconstructive changes, in adaptation to the prevailing uses and attitudes, the importance of preventing frequent recurrence of deformity is apparent.

For this reason a brace is usually an indispensable adjunct in curative treatment. For the adjustment of such a brace an accurate plaster model of the foot in the proper attitude is essential. This is made in the following manner: The patient is seated in a chair; before him is placed another of somewhat less height, on which is placed a layer of cotton batting covered with a square of cotton cloth. Upon this the plaster mixture is poured. The foot, previously dusted with talcum powder, is then placed in the plaster, resting upon the outer border, slightly plantarflexed with the sole level, and perpendicular to the chair. It is an advantage to rest the foot on

FIG. 13.—The mould ready for the casting.

an inclined plane, the higher side toward the front of the foot, which, together with the weight of the limb, will usually assure slight adduction. For this purpose I usually use a low rocking-chair, which may be adjusted at the proper angle. By raising the

margins of the cloth the plaster is pressed against the sides of the foot to cover about two-thirds of its extent. The upper surface is then coated with vaselin, and the remainder of the foot is coated with the plaster cream. When this is firm the halves are separated, the foot is removed, and the plaster shell bound together and filled. When the model is prepared certain modifications may be made with advantage. For example, the arch is usually deepened somewhat, particularly at its posterior third, the object being to support the anterior extremity of the os calcis. If the outer border of the cast is flattened a little plaster may be added to round it slightly like the outer border of the hand, so that the brace may not press uncomfortably. If a general bulging on the inner side appears on the cast, indicating residual abduction, it may be reduced somewhat by scraping away the plaster, but if individual bones are prominent, particularly the navicular or the cuneiform, they should be marked with a pencil to indicate to the mechanic that depressions in the brace must be made for them in order that uncomfortable pressure may be avoided.

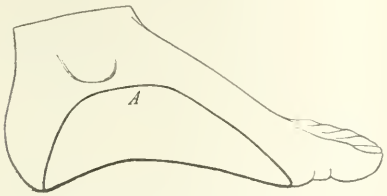

Fig. 14.—The outlines of the author's brace. *A*—the astragalus. Navicular articulation—the highest part of the arch.

On the cast the lines for the brace are then drawn, as illustrated in the diagrams. The inner margin rises above the astragalonavicular junction. The outer covers the anterior two-thirds of the os calcis and the cuboid bones enclosing this joint. The sole part of the brace extends from the bearing surface of the heel to the bearing surface of the first metatarsal bone. The front and outer two-thirds of the sole are not supported unless there are distinct indications for it, such as breaking down of the metatarsal arch. The brace is made of sheet steel, nineteen to twenty-gauge, fitted accurately, tempered, polished, and nickel-plated, or galvanized. It is simply placed in the shoe, and, as it is fitted to the foot, it finds its proper place and holds it.

This brace differs entirely in its principle from those in ordinary use. The foot is placed, as it were, in a saddle, which prevents lateral spreading and the bulging on the inner side that characterizes all grades of deformity. This positive effect is increased by the slight leverage action, for the patient wearing the adjusted shoe, and walking in the proper attitude, the outer flange first bears weight, is pressed down, and in consequence pushes the inner flange slightly against the foot at the movement of greatest strain. The sole part of the brace supports the foot, but the principal pressure often shown by thickening of the skin will be on the inner side of the foot, and there is an entire absence of the hollowed-out, atrophied appearance of the sole, which is so often present when simple, direct support is used.

The comfort and efficiency of the brace depends, of course, on the accuracy of its adjustment. Thus, if a part of the margin indents the foot it may be turned away with a wrench, and, on the other hand, if the inner flange does not clasp the foot closely, it should be turned slightly inward.

The brace may be modified in shape somewhat for special cases, and as the appearance and function of the foot improve under treatment, new casts should be made for more accurate adjustment.

I assume that at the present time it is rather in the application of the principles of treatment than in the principles themselves that I differ from my associates in this society. This is exemplified by the support which is used by many who do not understand its essential differences from those of the common type. I propose, therefore, to explain in some detail the principles of its construction and use.

If one admits that the weak foot in its inception is essentially an abnormal persistence of a normal attitude, the first indication should be the prevention of this predisposing posture. In other words, the principle of overcorrection in the cultivation of postures, and movements opposed to those which characterize the deformity, should be applied in the treatment of this as of all other similar disabilities.

The characteristic deformity of the weak foot is a persistent and often exaggerated abduction, which is always accompanied by a bulging inward below the malleolus. This is often associated with sufficient sinking of the inner border of the foot to merit the name flat foot, but when the foot is slightly adducted the bulging recedes and the depth of the arch is restored. If, then, the sunken arch is primarily an effect of attitude, an attitude first indicated by the lateral projection, a support to be effective must prevent the bulging directly, not indirectly by bracing the arch from beneath. Furthermore, sole plates, which at best are ineffective in controlling the deformity, have no influence on the attitude of the limbs, whereas the brace that has been described, if properly adjusted, controls the attitude as well as the deformity, for out-toeing, predisposing to, and even in the normal individual usually accompanied by, abduction will increase the lateral pressure to positive discomfort, a pressure that may be voluntarily relieved by the assumption of the proper posture.

As attitudes and postures are of importance only secondary to direct prevention of deformity, it follows that this brace is far superior to other supports, even if they were equally efficacious in preventing the depression of the arch, since one is a positive agent in cure, while the others are purely negative in their action. Thus far braces of comparatively unyielding material have been considered. Apparently the purpose of those who apply springs or pads of rubber, felt, and the like, is to accommodate the support to a degree of deformity at which the direct pressure on the sole can be better tolerated. I regard all sole plates of whatever character as wrong in principle. If elastic supports are more comfortable, it is because they are less efficient. No material is capable of indefinite resiliency, or, if it were, it must either permit deformity under the weight of the body or else exert abnormal pressure on the sole when weight is removed.

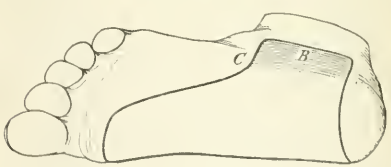

Fig. 15.—Shows the under surface of the brace and the outer flange. *B*—The calcaneocuboid articulation. *C*—The extremity of the fifth metatarsal bone.

The proper brace should hold the foot in the de-

sired position and cause discomfort if deforming postures are assumed. This can only be accomplished by lateral support which, in proportion to its efficiency, relieves the sole from pressure. It is true, doubtless, that patients may be satisfactorily treated by what seem to me ineffective supports if the other

Fig. 16.—Forcible adduction of the foot—"twisting"—the most important manipulation in the treatment of "stiff" feet.

important details of treatment are carried out. It is also true that others find relief in the ready-made braces or in stiffened shoes without supplemental treatment, or by exercises without support; that many, by accommodating their activities to the weakness, recover spontaneously, and that others with noticeable deformity suffer no apparent disability.

This supports my contention that it is the restoration of normal function—at least to that degree that may assure the patient against recurrence of disability and not the relief of the obtrusive pain which is a symptom of strain and injury, and is therefore not proportionate to the deformity or to the weakness that has induced it—which is the true test of treatment.

It will appear, then, that I do not regard a proper support as an encumbrance to be dispensed with if possible, or as an agent that supplants developmental treatment, but as one that by enforcing normal posture makes such treatment effective. Such a support is essential, therefore, in all but cases of the mildest type.

If the support is to be thus effective it must be made and adjusted in the manner described; every modification that has come to my notice, whether the result of ignorance or design, has lessened its efficiency. The most common error of those who use the proper shape is in making the plaster mould with the foot in the upright position. A cast made in this manner is from one-quarter to one-half an inch wider than when the foot is placed upon the side. A brace made on such a defective model is rather a comfortable support than one which not only restrains deformity, but enforces an attitude in which the cultivation of muscular ability can hardly be avoided.

The correctness of the principle on which the brace is constructed will be admitted, I think, the most forcible criticism being the difficulty of its adjustment. This, I thought at one time, would prevent its general adoption, but in view of the fact that it is now applied by various instrument makers with more or less success, and that between three and four hundred were applied at the Hospital for Ruptured and Crippled during the past year, I conclude that its adjustment is only relatively difficult, requiring, as contrasted with other braces, more skill or experience. It is for this reason, doubtless, that surgeons are consulted in certain instances in preference to the mechanic who makes braces or the dealer who sells them.

One is often asked how long a support of this character will be required. This question is difficult to answer, since it depends upon the age, the intelligence, and the interest of the patient, as well as upon the degree and the duration of the deformity. In the treatment of the weak, relaxed foot in early childhood, one can depend on nothing but an enforcement of attitude and the regenerative changes incidental to growth. This may require many years. In the most favorable class a period of from three to six months only is necessary, the braces being held in reserve to check the first symptoms of discomfort. In other instances the habitual use may be indicated to hold the unpleasantly deformed foot in a symmetrical attitude.

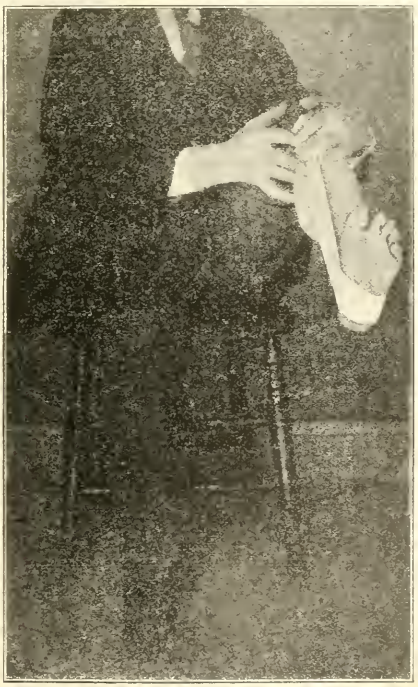

Fig. 17.—The method of applying adhesive plaster, after "twisting," to support the foot in adduction.

It has been stated that the degree of deformity has no proportionate relation to the discomfort which is the result primarily of overstrain. Consequently, when discomfort is entirely relieved, the patient usually discards supports, and often even the proper shoe. As a rule, however, the improved attitude persists, and this, with the knowledge of the

importance of the relief of overstrain, is sufficient to prevent recurrence of symptoms. At all events, it is rather unusual to again see a patient after his first discharge, if the original course of treatment has been conducted satisfactorily. I do not think, therefore, that the patient is in danger of becoming dependent on braces, a fear that is expressed by those who use the negative type.

Thus far those cases have been considered in which the secondary or accommodative changes in the tissues are not far advanced. The first change is the limitation of the ordinary movements of the foot that have been disused, particularly adduction. At first, this limitation is simply the effect of disuse, as is indicated by the fact that passive movement is unobstructed. Later there may be actual shortening of the abductor muscles and of the other tissues on the outer aspect of the foot. In most instances, however, the limitation is, in great part, due to muscular spasm, the result of the slight strain to which the foot is continually subjected during the progression of the deformity. Thus the muscular spasm and the so-called stiffness vary from day to day. At first attention is called to the resistance and discomfort only when the foot is turned quickly inward, but in the more advanced or more rapidly progressive cases the foot may be practically fixed in the attitude of abduction.

In the milder types of this class of cases one may overcome the limitation of passive motion, the first and essential step toward functional cure, by manipulation. This, what the patients call "twisting," to be effective must be carried out in the following manner, since the essentials are sufficient force and steadiness. The patient is seated in a chair; the operator, standing in front of him, places the foot (the left, for example) between his knees. The fingers of his right hand are clasped about the heel; the projection of the palm lies against the mediotarsal joint on the inner and under aspect of the foot, the hand resting on the left knee. The right hand grasps the forefoot, and, with the aid of the thigh muscles of the right limb, the foot is gently forced downward and inward over the fulcrum formed by the palm of the left hand resting on the knee. Slowly under the pressure the tense muscles give way, the movement causing, of course, more or less discomfort. When the full limit of adduction has been reached, the spasm being relaxed, the foot is moved gently up and down and from the middle line to the attitude of adduction, the patient, as far as may be, assisting. If the spasm indicating injury and strain is considerable, the attitude of adduction may be maintained in part by the use of adhesive plaster. One end of a strip about three feet long and two and a half inches in width is apposed to the outer border of the foot beneath the external malleolus. It is drawn beneath the arch and up the inner aspect of the leg to the knee, while the foot is held in inversion. It is further strengthened by strong bands about the calf, and others over the mediotarsal region and ankle, and a bandage is then applied. This method of applying adhesive plaster is not similar to that used in the treatment of a sprain of the ankle. It is used in connection with manual force to insure a progressive improvement of attitude in resistant feet preparatory to the application of a brace. The patient is also provided with the Thomas wedge on the inner border of the shoe. This treatment is continued from time to time until the spasm has sufficiently relaxed to permit the attitude proper for the brace. The patient, meanwhile by posture and by muscular effort, endeavors to improve the attitude. The treatment is especially suitable for hospital cases.

In many instances the deformity is of such long standing, or the resistance is so great, that forcible correction of the deformity under anesthesia is indicated. The steps in the process and the object in view are the same, of course, as in the manipulation that has been described. The patient having been anesthetized, the foot is forcibly moved in the various directions. The limb is then drawn over the end of the table, so that the foot may be seized between the knees in the manner described. It is then first extended and adducted, then inverted, and finally in this attitude forced upward, so that its outer border may form a right angle with the limb. This is the limit of normal dorsal flexion in this attitude. The foot is then very thickly padded between the toes and over the outer border with cotton wadding and a plaster-of-Paris bandage applied. The right-angled attitude is important in order that the patient, in walking about, may utilize the weight of the body to still further correct the foot.

It may be noted that this method of forcible correction, which has for its aim primarily the removal of all restrictions to motion and the complete reversal of the habitual attitude, is quite different from the forcible manipulation in which one attempts to directly raise or remould the arch by pressure from beneath. In the manipulation described, the foot in complete extension is pushed below the head of the astragalus, then to its inner side, and in the final dorsiflexion it lifts it to its normal attitude. Thus the arch of the foot is reconstructed.

In cases of long standing this overcorrection of deformity requires force and persistence, alternate relaxation, and pressure, a force that cannot be supplied by wrenches or other mechanical devices. In very resistant cases, division of contracted parts may be advisable, occasionally the peroneal tendons, more often the tendo Achillis; for the calf muscle, because of the everted and plantarflexed position of the os calcis, sometimes becomes structurally shortened. Such tenotomy is, of course, a mere incident to the correction of the deformity and to the recovery of the complete range of motion.

It may be noted in this connection that slight limitation of dorsal flexion is not uncommon in apparently normal individuals, explained doubtless by the use of heels. Also, as is well known, the dorsal flexors are particularly susceptible, and may be weakened temporarily by various causes permitting slight degrees of equinus, as illustrated by certain types of hollow or contracted foot. This, as well as limitation of motion in other directions, must be overcome before functional cure can be accomplished; the slight degrees by methodical stretching, the more marked forms by force under anesthesia or by tenotomy.

After forcible correction the plaster bandage is retained until all discomfort has subsided. Its object is to rest the injured part and to thoroughly overcorrect the deformity, and to enforce the new attitude upon the patient. Meanwhile the patient is encouraged to walk about, in order that the mechanism may become accustomed to the new attitude and that the weight of the body may still further stretch the contracted tissues. In from two to four weeks, according to the duration and to the degree of the deformity, the bandage is removed, in order to prepare the cast for the braces. It is then reapplied, and is worn until the shoe and the brace are ready, the aim being to prevent even temporary recurrence of deformity. Then may follow, if practicable, special treatment for the restoration of function, namely, massage, hot water, or hot air, and the like. In most instances, however, except in the rheumatic types, the patients are of the hos-

pital class, and one must depend upon the plaster strapping, and particularly the methodical "twisting" in the manner described, this being the one essential for success.

Forcible correction should not be mistaken, as it often is, for an operative treatment of flat foot. Its sole purpose is to place the patient in a position in which he may be treated for flat foot in the manner that has been described.

Time does not permit the consideration of exceptional causes or of exceptional types of deformity, or of exceptional methods of treatment that may be of service in individual cases. That which has been outlined will, if efficiently applied, meet all the conditions that one is likely to encounter.

One of my earlier papers on this subject appeared in the first volume of the *Orthopedic Transactions*, and my last was read before this Association in 1896. Further experience has broadened and confirmed, rather than materially changed, the original conception of the weak foot as essentially an abnormal persistence and exaggeration of a normal attitude. This has enabled me to recognize the early and progressive types of the disability, to demonstrate their curability by the restoration of normal function, to extend the same principle in treatment to all grades of deformity, and to devise practicable means for its application.

At the present time it is rather in these practical, and what seem to me logical, deductions than in the principles themselves that I still differ essentially from many of my associates. To place these distinctions clearly before you is the object of this, the concluding paper of the series.

A PRELIMINARY REPORT OF RESEARCH WORK ON THE EFFECTS OF TROPICAL CLIMATE ON THE WHITE RACE.*

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During the summer of 1905, on account of the conflicting opinions and of the complete absence of any scientific data as to the length of time which the northern white races can safely endure the tropical climate, a series of investigations on the subject were instituted by Colonel Charles B. Byrne, Assistant Surgeon-General, U. S. A., Chief Surgeon, Philippine Division.

It was early realized that the work, to be of value, must be thorough; the examinations extensive and made at regular intervals; that it would be necessary to select a lot of men representative of the various types to be found in the service rather than to attempt to consider the whole mass of troops; that the selection should include an equal number of blondes and brunettes, of men with blue eyes and brown; that uniformity in the work was essential and that the personal equation should be eliminated as far as possible. To this end it was finally decided to make the selection from the troops last arrived in the Islands; to select two posts in each of the three departments; to examine such number as could be readily examined once in six months; to make the initial examination as soon as possible after the arrival of the troops in the Islands, and the last just prior to their departure for the United States; to repeat the examinations every six months, and to have all the examinations in each department made by the same individual so far as practicable.

In keeping the records of the examinations a special blank was found necessary, which I prepared at the request of the Chief Surgeon. It comprised as complete a record as seemed to be required, provision being made for any special feature which might arise during the course of any examination. Exact deductions of the state of the functions of the nervous, muscular, alimentary, and urinary systems could not be made from lack of time and the necessary apparatus. Blood pressure could not be determined for the same reason. Nevertheless, full use was made of all the ordinary methods of clinical diagnosis in every instance. A record of the exact location of the apex, pulse rate, and heart sounds was kept. As to the pulse rate, sufficient time was consumed in the preliminary examination to allow the individual to quiet down before it was taken.

Not only was a complete physical examination made in every case, but also a complete examination of the blood. The von Fleischl hemoglobinometer was used to determine the hemoglobin and the Thoma-Zeiss apparatus to determine the corpuscles. The hemoglobin estimations were made with each eye separately. The strip dividing the two compartments was kept in line with the vertical axis of the eye and several readings were made. These readings were then averaged and the result recorded.

In counting the leucocytes a one-third of 1 per cent. solution of glacial acetic acid in water was used as the diluent and gave very satisfactory results. Sixteen hundred to two thousand squares were counted in every instance. In counting the erythrocytes a 3 per cent. aqueous solution of sodium chloride slightly colored with methyl violet was used as the diluent and was found very satisfactory. Not less than two hundred, and for the most part four hundred, squares were counted in making the estimate. Care was also taken in mixing the blood and solution thoroughly before placing in the counting chamber.

In making the differential count Wright's stain was used and the percentages determined on the basis of a count of five hundred cells. The count was made from smears on the slide, instead of on a cover glass, and generally two or three slides were used. A specimen of fresh blood was examined in every instance to determine the condition of the erythrocytes, the appearance and motility of the leucocytes, and the presence or absence of parasites.

In all, two hundred and fourteen examinations were made by me in the routine of this work. Of these one hundred and four were from the Seventh Cavalry stationed at Camp McGrath, Batangas, twenty-two officers and eighty-two men. Of the latter, two were American Indians belonging to the Seneca tribe, and were examined for comparison. The remaining one hundred and ten were from the Thirteenth Infantry, stationed at Fort William McKinley, Rizal, twenty-five officers and eighty-five men. Of the latter seven were native Filipinos serving in the band, who were examined as controls. In this connection it may be noted that the resemblance between the American Indian and the native Filipino in color, physique, and physiognomy was very striking. In addition, blood examinations were made in four cases of amebic dysentery, in four persons who had been more than two years in the Islands, and in two others who were in their second tour in the tropics. The findings in these various classes appear in the tables herewith.

Inasmuch as these examinations were in every instance the initial examinations, no conclusions as to the effects of the climate on the individuals could

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be drawn from them. Such conclusions must be left to others who make the later and final examinations. Such inferences as may be drawn from my investigations and from observations during my tour of service in the Philippines are given below.

Erythrocytes.—The number varied greatly, as will be seen from the tables. As a rule, the number was above the standard given in the text books, as will be noted from the average. No nucleated erythrocytes were seen. Slight poikilocytosis was seen in a few cases, but appeared to have no significance. Malarial parasites were demonstrated in three instances, two benign and one estivoautumnal.

Leucocytes.—1. Number. This differed materially in different persons. The specimens were taken about 9:00 A.M. and 2:00 P.M. The afternoon specimens showed a higher leucocytosis than the morning specimens. A leucocytosis of 14,300 was observed in a case of acute gonorrheal epididymo-orchitis. No increase was observed in three cases of gonorrhea which had passed the acute stage. In one or two cases a count exceeding 10,000 was made, in which there could be demonstrated in the individual no condition to account for the increase. In the four cases of amebic dysentery examined the count was 7,240, 10,700, 20,300, and 9,150 respectively. None of the four cases showed any signs of hepatic abscess.

2. Motility. In many specimens motility was observed in every type of the leucocyte. It varied in different specimens, depending upon the temperature of the room and the length of time the specimen had been taken. The lower temperatures, 75° to 85° F., inhibited the movements in the smaller forms in a very short time. In the afternoons, when the temperature of the room approached that of the body, the activity was marked and lasted for quite a long time. In the smaller cells the activity was confined to the nucleus, for the most part, but as the cells became larger the movement in the cytoplasm became more marked, reaching its greatest activity in the polymorphonuclears. Sometimes it was greatest in the neutrophiles and again in the eosinophiles. Next in order came the transitional forms, the large lymphocytes and large mononuclears, the larger of the small lymphocytes, and least of all in the smallest of the lymphocytes. Active progressive movements were observed in even the smallest of the lymphocytes in a number of instances. In this connection it may be of interest to note that the activity of the leucocyte was noticeably less in the native Filipino than in the white man under the same condition, and further, that it was greater in those white men who had been a few months only in the Islands than in those who had been there two or three years, the conditions of the examination being the same in both instances.

3. Morphology. The theory that all types of the leucocyte are but different stages in the life cycle of a single leucocyte did not appear to be borne out by the facts. The impression conveyed by this series of examinations was that the polymorphonuclears and the mononuclears belong to entirely different classes and have equally different origin. As to the neutrophiles and the eosinophiles, although the granules of the former approached those of the latter in size and staining characteristics in many instances, the similarity was never so great as to leave any doubt as to the type to which the cell belonged.

Many cells were seen which did not correspond satisfactorily with any of the classified types. This was particularly noticeable in the mononuclears. A great difference in size of different cells of the same type in the same specimen was frequently observed. For instance, eosinophiles and neutrophiles were seen which had all the characteristics of their type, and yet were not larger than the erythrocyte, while other cells of these types had two or three times the diameter of the erythrocyte.

It is believed that the so-called "transitional form" is nothing more than a large mononuclear in which the irregular nucleus is due to the arrest and fixation of the cell upon the slide rather than to a beginning division of its nucleus and transformation into the polymorphous type. So long as the preparation is sufficiently moist and warm, the cell is in active motion, the nucleus partaking equally with the cytoplasm in this activity. If now this activity be suddenly arrested and the cell fixed, as by rapid drying or hardening by chemical agents, the nucleus will remain in the position it had at the moment of fixation, and may have any shape, from a circle to a horseshoe, crescent, or the letter "S."

4. Eosinophiles. The percentage of this type varied greatly in different individuals, as will be seen from the tables. The cause of the increase could be determined in some instances, but not in the majority. In several of the individuals in whom an increase was found an examination of the feces revealed the ova of the hookworm. In one case there was a pronounced bronchial asthma. In the seven natives examined the eosinophilia was very high, intestinal parasites were demonstrated in two, and an extensive skin eruption in one. In one of the two having the intestinal parasites the eosinophilia was the lowest of the seven. One white man, in whose stools the ova of the hookworm were demonstrated in considerable numbers, had an eosinophilia of 40.6 per cent. The administration of the usual doses of thymol succeeded in dislodging only a few parasites. In his case the hemoglobin was 100 per cent., the erythrocytes 6,152,000, and the leucocytes 9,000, thereby showing no anemia, nor were there any symptoms, physical signs or indication other than those in the blood and stools, that the man had any disease whatever. No differential count was made after the administration of the thymol, consequently its effect on the eosinophile percentage is not known. This case would indicate that the eosinophile percentage cannot be taken as an index of the severity of the infection in cases of uncinariasis. Further, it is a demonstration of the fact that a diagnosis cannot be made with the microscope on one symptom alone. If this man had been suffering from diarrhea with abdominal pains, the high eosinophilia would very likely have led to a diagnosis of trichiniasis had the presence of the uncinaria been unknown or their full significance not appreciated.

The four cases of amebic dysentery, as would be expected, showed an increased eosinophilia, but not anything like that in cases of uncinariasis, being 15.4, 5.2, 6.8, and 6.8 respectively.

Motility was observed in this type of leucocyte as late as the third day after the specimen was taken. No pains were taken to keep these specimens at an even temperature. They were left in the laboratory, where the temperature varied with that of the surrounding atmosphere. The only precaution taken was to smear the edges of the cover glass with vaselin to prevent evaporation. The granules in these leucocytes had not only a gliding or flowing motion, such as would be produced by the ameboid movements, but also an independent oscillatory motion very much like that of the pigment granules in the benign malarial parasite. This oscillatory motion continued even when the cell itself was motionless. In one particular specimen this independent move-

ment was especially interesting. The cell membrane was seen to rupture and the granules to escape. They moved across the field rapidly and with sufficient force to jostle about the erythrocytes with which they came in contact. From this it would appear that these granules are provided with flagella or cilia. No stain was available with which to determine definitely the presence or absence of flagella. The nucleus in this case had divided into four irregular rounded masses. The outlines of the cell membrane could still be seen after the escape of the granules.

5. Neutrophiles. The percentage of this type varied as greatly as that of the other types. The granulation varied as much in size and staining characteristics as did the percentage. Sometimes it was very small, and again it was almost as large as that of the eosinophile.

6. Mast cells. These cells were quite diverse in their appearance. In some the nucleus was divided into three lobes, in others into two, while in a few no division could be made out. The granules were comparatively uniform in size, but their arrangement in the cell differed materially. Sometimes they were aggregated at one side of the cell, again they completely surrounded it, and at other times they were scattered indiscriminately over the entire cell. The percentage of these cells was not constant, nor was there any definite ratio between them and the eosinophiles. A high percentage did occur with an increased eosinophilia in some instances, but many specimens were seen in which the reverse was the case.

From the large number of persons found with a high eosinophilia during these examinations, in several of whose stools the ova of the hookworm were found, it is believed that uncinariasis is much more common among our soldiers and among the American people generally than is commonly supposed; that during the early stages there are no symptoms; that a differential leucocyte count is a valuable aid or indication in determining the presence or absence of uncinariasis. It is believed that a differential count made in the case of all troops returning from the Philippines would lead to the early detection and treatment of many cases of uncinariasis that would otherwise escape notice, whereby the spread of the disease would be limited. It is also believed that many of the persons found to have uncinariasis in these examinations contracted the disease before they went to the Philippines, although sufficient time had elapsed between their arrival in the Islands and the examination for the infection to have occurred and reached the stage of development manifested at the time of the examination. Uncinariasis was not found in any of the seven natives examined.

As to the effects of the climate upon the white race the following may be noted.

After arrival in the tropics, and lasting a variable period from three to perhaps twelve months, there is a state of increased activity of all the bodily functions and a sense of well-being. Following this, and lasting likewise a variable period, comes a state of quiescence or indifference which gives place insensibly to a state of lassitude, nervous irritability, muscular weakness, and neurasthenia. The skin loses its soft, ruddy hue, and acquires an anemic, muddy, yellowish-bronzed appearance, most noticeable by contrast with others recently arrived. The eyes lose their brightness and the face its alert, animated look; the conjunctiva and sclera assume a muddy-yellow hue; the elasticity and upright carriage of the body disappears; the shoulders droop; mental activity lessens and becomes more of an effort; there is a decided tendency to slouchiness in the gait and slovenliness in the dress. All these increase until finally the grasshopper becomes a burden, and nothing appears to be of importance. Then follows mental and physical stagnation and retrogression.

The life that the individual leads has much to do with the rapidity of the change. A more or less active life is as necessary for the white race in the tropics as in the temperate climates, all theories to the contrary notwithstanding. The more indolent the life the sooner the stagnation and retrogression. I have repeatedly noted that those who were active and had plenty of exercise and diversion retained their health better and their vigor longer than those who led a less active life. My attention was first called to this fact in Cuba in 1899, where the teamsters and packers, men who drank any and all kinds of water (and liquors, too), were out in the sun nearly all day, and kept all kinds of hours at night, had a very much lower sick rate than the enlisted force who did practically nothing outside of their guard duty, except lie around their tents all day, and for whom it seemed that practically every precaution was taken. There is no doubt, however, that men break down under excessive marching in the tropics quicker than in temperate climate. It is a noteworthy fact that of all the men from the Fourteenth Cavalry at Camp Overton, Mindanao, who formed a part of the provisional cavalry company in the campaign against Datto Ali in the Cotabato Valley in 1904-5, and who were out for nearly six months, not one was returned to the post for any condition which could properly be ascribed to the climate or the campaign. A few had malarial fever, several venereal disease, and one or two injuries. There was quite as much disease among those left at the post, and quite as much of it which could be ascribed to the climate, as among those on the campaign.

It is believed that the ill effects of the climate which exert themselves to the fullest extent on the nervous system are capable of a simple explanation as the results of prolonged and excessive heat.

Taking Manila and New York City for comparison, we find that the mean annual temperature of the former is 80.4° F. as against 51.9° for the latter. Not only is there a difference of 28.5° of temperature, but there is a higher percentage of moisture in Manila, being 79.4 as against New York's 73. This becomes the more significant when it is remembered that the mean minimum temperature for the three coldest months of the year at Manila is 04.5° F., which is more than twelve degrees above the mean annual temperature of New York, while during the hottest months the temperature approaches the normal body temperature for several hours a day, and often exceeds it.

In individuals accustomed to a cold climate the heat production of the body is in excess to balance the radiation and maintain the normal standard. If, now, these individuals are rapidly transported to a warmer climate, the excessive production of heat continues for a varying time, and Nature at once makes an effort to equalize the temperature by deflecting the blood to the periphery and stimulating the sweat glands, thereby promoting the elimination of the extra heat, the cooling of the blood, and through it reducing the internal temperature of the body. The persistent high temperature, and especially the humidity of the tropics, lessen radiation and the evaporation of the perspiration which retards the cooling process. This requires more time for the heat reduction, and results in a more

or less chronic engorgement of the peripheral vessels. The capillaries become dilated, and more or less stasis of the blood current follows. This engorgement of the blood-vessels interferes with the flow in the lymphatics, and the waste products are not eliminated as rapidly as they should be. It has been demonstrated that the cutaneous circulation under these conditions contains more than a third of the entire blood supply. This must of necessity deprive the internal organs, and particularly the brain, of the amount of nourishment to which they were accustomed in the colder climate. If the quantity of the cerebral circulation is diminished, the nourishment of the brain must also be diminished if this depleted condition continues.

That there is such a depleted condition of the cerebral circulation as the result of heat has been demonstrated experimentally by Schüler (*Deutsches Archiv für klinische Medicin*, XIV.), who found that when hot compresses were applied to the abdomen of trephined rabbits "the arteries and veins of the pia mater contracted, the pulsations became less pronounced and more frequent, and the respirations more shallow and rapid," and that "these manifestations were observed with more pronounced effect after immersion of the entire body in hot water, the effect being exactly in proportion to the extent of surface immersed." Immersing the body in cold water was found to have the opposite effect. The high temperature and humidity of the tropics very closely simulates the condition of the hot bath, differing only in degree.

Further, in normal conditions a continuous influence goes out from the vasomotor center in the medulla, which keeps the walls of the blood-vessels in a state of tonic activity, thereby maintaining the force of the heart, the blood pressure, and the blood distribution. Thermic, as well as mechanical, stimuli are transmitted by the sensory nerves, which have their centers in the medulla in juxtaposition with the vasomotor center and transmit impulses to it, which in the tropics result in a relaxed and dilated condition of the peripheral vessels noted above.

Schüler has also shown (*Deutsches Archiv für Medicin*, IV., 1874) that changes in the tonic excitation of the circulatory system would disturb the vasomotor equilibrium of the brain.

From this diminished blood supply to the brain there must arise a condition of malnutrition of the neurons which would manifest itself in impaired function of the various organs, particularly those under the control of the sympathetic system, reduced muscular stimulation (early fatigue), nervous and mental irritability, neuralgias, and finally mental impairment, such a train of symptoms as accompany the so-called "tropical neurasthenia" (Fales, *American Journal of the Medical Sciences*, April, 1907). As a result of the impaired stimuli to the gastrointestinal tract, the quantity and quality of the gastric and pancreatic ferments are diminished, digestion is impaired, and nutrition in general is reduced. This, in turn, results in the impairment of the quality of the blood. The brain now gets not only a diminished blood supply, but also one impaired in quality, forming a vicious cycle.

The intensity and permanency of the effect of tropical climate upon any individual depends upon his initial nerve force and the length of his stay in such climate. The more deficient the nerve force, or the more delicate its balance, the sooner will come the breakdown. The more delicate the balance and the longer the stay, the greater will be the permanency of the nervous impairment.

Some other conditions were observed in connection with the series of examinations which appear susceptible of explanation in the same manner. It will be noted from the tables that the averages for the series are as follows: Respirations, 20.5; pulse sitting, 78.7; standing, 90; exercising, 103.5; erythrocytes, 5,461,000; hemoglobin, 94.7 per cent.

It has been stated above that the mean annual temperature of Manila is 28.5° F. (or about 16° C.) above that of New York. According to the general laws of gases the density of a gas varies directly as the pressure, and inversely as the temperature, consequently the quantity of oxygen in a cubic foot of

TABLES: CAMP McGRATH, BATANGAS, P. I. MOUNTED TROOPS

TABLE NO. 1 — OFFICERS (22)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	Sit	Stand	E					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	96	108	132	26	110	6,800,000	11,250	39.00	18.00	68.00	13.20	1.40
Minimum	60	64	78	16	82	5,050,000	4,350	18.00	4.00	47.11	0.57	0.00
Average	78	88.7	104.8	20.5	94	5,832,000	6,090	26.84	7.56	58.14	4.09	0.56

TABLE NO. 2 — ENLISTED MEN, WHITE (80)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	[illegible]	[illegible]	[illegible]	[illegible]	102	6,924,000	14,300	Small Lymphocytes 37.80	Large and Transitional 17.45	Neutrophiles 84.27	Eosinophiles 18.38	Mast Cells [illegible]
Maximum	[illegible]	[illegible]	[illegible]	[illegible]	72	4,330,000	3,000	6.46	4.40	47.30	0.20	[illegible]
Average	78	89.4	98.1	[illegible]	85	5,270,000	6,500	20.75	10.05	63.91	4.13	[illegible]

TABLE NO. 3 — OFFICERS AND ENLISTED MEN, WHITE (102)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	[illegible]	Stand	E					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6,924,000	14,000	39.00	18.00	81.40	18.38	[illegible]
Minimum	[illegible]	[illegible]	[illegible]	[illegible]	72	4,110,000	3,430	6.46	4.00	44.00	0.20	[illegible]
Average	[illegible]	89.5	101.3	[illegible]	85	5,408,000	6,490	21.62	9.53	63.69	4.12	[illegible]

FORT WM. McKINLEY, RIZAL, P. I. FOOT TROOPS

TABLE No. 4 — OFFICERS (25)

	Pulse Rate			Respirations	Hemoglobin	Erythrocyte	Leucocytes	Differential Count, Per Cent				
	Sit	Stand	Ex.					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	104	120	130	24	110	[illegible]	9,300	36.20	9.80	73.40	*16.00	2.00
Minimum	68	74	80	14	85	4,018,000	3,900	17.40	4.00	21.20	0.40	0.00
Average	78.6	92.5	106	19.6	96.6	5,774,000	6,570	26.65	7.50	60.90	4.44	0.62

*Number over 4 per cent., 8; over 10 per cent., 3.

TABLE No. 5 — ENLISTED MEN, WHITE (80)

	Pulse Rate			Respirations	Hemoglobin	Erythrocyte	Leucocytes	Differential Count, Per Cent				
	Sit	Stand	Ex.					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	120	128	148	28	104	[illegible]	12,150	42.00	12.20	76.60	*40.60	1.80
Minimum	64	68	80	14	70	4,800,000	3,700	18.00	1.60	40.80	0.20	0.00
Average	81.6	91	120	20.6	92.8	5,447,000	6,930	28.05	6.40	59.81	4.23	0.59

*Number over 4 per cent., 24; over 10 per cent., 4

TABLE No. 6 — OFFICERS AND ENLISTED MEN, WHITE (103)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	Sit	Stand	Ex					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	120	128	148	28	110	6,552,000	12,150	42.00	12.20	76.60	*40.60	2.00
Minimum	64	68	80	14	70	4,800,000	3,700	18.00	1.60	40.80	0.20	0.00
Average	80.9	91.4	117	20.2	93.6	5,569,000	6,890	28.39	6.67	59.48	4.29	0.60

*Number over 4 per cent., 31; over 10 per cent., 7

CONTROLS

TABLE No. 7 — AMERICAN INDIANS (2)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	Sit	Stand	Ex.					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	82	94	106	26	102	5,707,000	7,600	32.07	9.20	65.60	2.56	.....
Minimum	74	84	96	24	90	5,664,000	5,500	22.80	7.05	58.82	2.42	.....
Average	78	89	101	25	96	5,735,000	6,550	27.73	8.57	61.20	2.48	.....

TABLE No. 8 — NATIVE FILIPINO (7)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
	Sit	Stand	Ex.					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	80	96	116	24	110	6,814,000	8,160	24.50	10.00	64.70	15.40	1.88
Minimum	68	68	80	18	90	5,020,000	4,750	18.00	4.70	44.72	5.20	0.20
Average	74.6	83.4	102	21	100	5,608,000	6,270	20.06	7.16	53.80	11.10	0.98

TABLE No. 9 — AGGREGATE OFFICERS AND ENLISTED MEN, WHITE (207)

	Pulse Rate			Respirations	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.*				
	Sit	Stand	Ex.					Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	140	150	148	34	110	6,736,000	14,300	42.00	12.20	76.60	40.60	2.00
Minimum	48	56	72	12	70	4,180,000	3,430	18.00	1.60	40.80	0.20	0.00
Average	78.7	90	103.5	20	94	5,461,000	6,570	28.39	6.67	59.48	4.29	0.60

*Lost 103 only.

BLOOD FINDINGS. OTHER CASES

TABLE No. 10 — SIX SUBJECTS WHO HAD RESIDED MORE THAN TWO YEARS IN THE TROPICS*

	Hemoglobin	Erythrocytes	Leucocytes	Differential Count, Per Cent.				
				Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	98	5,872,000	8,550	30.80	10.47	65.00	0.00	...
Minimum	77	4,566,000	6,800	20.00	5.00	59.00	3.00	...
Average	87.3	4,975,000	7,630	25.21	7.19	61.20	5.08	...

*Two included in Table No. 2.

TABLE No. 1. FOUR CASES AMŒBIC DYSENTERY

	Hemoglobin	Erythrocyte.	Leucocyte	Differential Count, Per Cent. Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	[illegible]	6,112,000	20,300	32.00	7.20	70.00	15.40	.60
Minimum	[illegible]	5,336,000	7,240	10.20	4.00	48.40	5.20	.20
Average	[illegible]	5,744,000	11,840	23.00	5.90	61.25	8.65	.40

TABLE No. 2. SEVEN TOUR IN TROPICS (2 Not Otherwise Tabulated

	Hemoglobin	Erythrocytes	Leucocytes	Differential Count Per Cent. Small Lymphocytes	Large and Transitional	Neutrophiles	Eosinophiles	Mast Cells
Maximum	98	4,054,000	6,350	33.40	8.40	60.80	4.60	1.80
Minimum	85	4,202,000	5,680	24.00	8.20	56.40	1.40	.40
Average	90	4,576,000	6,010	29.00	8.30	58.00	3.00	1.10

air in Manila is only .944 as much as that of New York. $(273 + 16 = 289. \quad 273 \div 289 = 0.944.)$ Therefore, granting that the same quantity of inspired oxygen is necessary in both places, it follows that there must either be an increased lung capacity or an increased frequency of respiration in Manila as against New York. Such is believed to be the explanation of the increased frequency of respiration noted in the examinations. Likewise, there would need to be an increased oxygen-carrying power of the blood or increased rapidity of circulation, or both. The increased carrying power is found in the increase noted in the erythrocytes, which increase is present in the native as well as in the white man. It has been claimed by some that the increased number of corpuscles is due to concentration of the blood from evaporation. I was unable to disprove this theory definitely, but I believe the concentration is due to the primary stimulation of the hematopoietic centers and the resultant overproduction of corpuscles, since there is a fall in the number after a certain length of time, due to partial exhaustion of these centers. The blood count was generally lower in those who had been the longer in the Islands. It will be noted also that the average of the corpuscular hemoglobinaire is reduced rather than increased. In fact an erythrocyte count of 6,500,000 with a hemoglobin reading of 110 gives an average of 85 per cent. on the basis of 100 per cent. hemoglobin to a 5,000,000 erythrocyte count.

The increased pulse rate noted is due primarily to the thermic stimuli of the sensory nerves, transmitted to the vasomotor center in the medulla, and secondarily to the depleted condition of the visceral circulation as well as to the diminished quantity of oxygen in the air.

THE LONGEVITY OF IDIOTS.

[illegible] CLARK, M.D. [illegible] WOOD [illegible]

NEW YORK [illegible]

[illegible] belief seems common among physicians that [illegible] children rarely if ever grow to adult life. [illegible] teaching in the medical schools is no [illegible] responsible for this mistaken idea, as [illegible] pile types used in the lectures as illustrations [illegible] are almost invariably children. Most [illegible] nervous diseases illustrate chapters on idiocy, while photographs of [illegible] children, and make the general statement that idiots and imbeciles are short-lived. No official inquiry has been made into the subject, however, in idiot asylums or by bureaus of vital statistics; and, in fact, there is no literature on the subject. In former days, almshouse idiots and imbeciles were less well cared for than at the present day, and the natural reluctance of these persons to exercise predisposes them to diseases such as tuberculosis.

[illegible]

While, therefore, it is true that life is markedly curtailed in the feeble-minded and idiotic, a very considerable number live beyond even the age of forty, as shown in the graphic chart of ages at death of the last thousand cases dying at the New York City Idiot Asylum, and a second chart illustrating the ages of the seven hundred and eighty-five patients now in the service of one of us (Clark) at the Randall's Island hospitals and schools.

Tony W., aged 42 years.

Aaron S., aged 44 years.

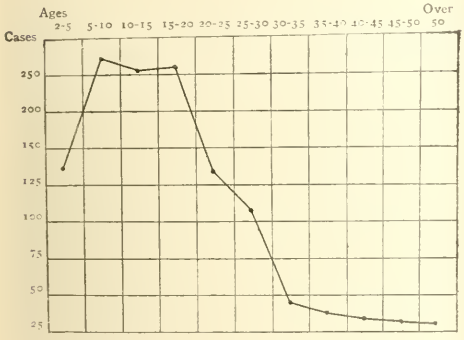

TABLE 1.—Ages at death in 1,000 cases

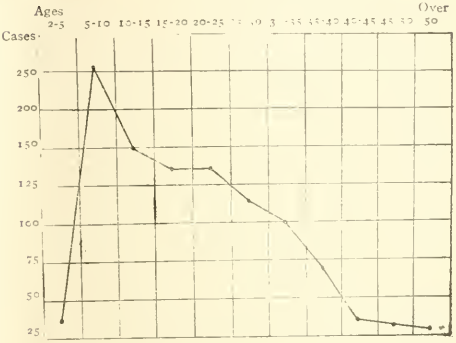

TABLE 2.—Ages of Idiots on Randall's Island.

This chart is based on the following

TABLE OF AGES AT DEATH OF 1,000 CASES.

From 2 to 5 years	115
" 5 " 10 "	221
" 10 " 15 "	204
" 15 " 20 "	217
" 20 " 25 "	110
" 25 " 30 "	80
" 30 " 35 "	23
" 35 " 40 "	13
" 40 " 45 "	8
" 45 " 50 "	5
Over 50 years	4

This table shows that while the maximum number of idiots, in the data, died under the age of twenty-five (25) years, thirty cases lived to be over thirty-five (35), seventeen over forty (40), and four over fifty (50) years of age.

The second chart is based on the following

TABLE OF AGES OF IDIOTS NOW ON RANDALL'S ISLAND.

From 2 to 5 years	14
" 5 " 10 "	201
" 10 " 15 "	125
" 15 " 20 "	111
" 20 " 25 "	111
" 25 " 30 "	88
" 30 " 35 "	73
" 35 " 40 "	41
" 40 " 60 "	21

John M., aged 40 years.

The twenty-one congenital idiots over forty years of age, in this table, were all personally examined by us and photographed by Dr. Sharp. Reproductions of four of these photographs of congenital idiots of advanced life appear in this article.

Mingled with the other cases in the table are idiots of a higher grade, some classed as feeble-minded, but all of the twenty-one cases over forty years of age are idiots of low grade. Three of these are fifty, two, fifty-four, and one is sixty years of age. Thus it may be seen that idiocy, under good custodial care, does not so seriously curtail the lives of many of these unfortunates.

From the photographs two interesting facts are at once apparent even to the novice. First, all the subjects look much older than they really are; and, second, notwithstanding that we are told that idiocy implies an absence of facial expression, we note in these illustrative photographs a remarkably increased number of facial wrinkles, the true significance of which will be analyzed at another time.

FECAL TOXEMIA.

By WILLIAM FRANCIS WAUGH, A.M., M.D.

CHICAGO, ILL.

Sometimes, when we are not sure about the pathology of a case, we form a provisional estimate of it and take this as a working hypothesis—we assume it as the true condition, and on this base our method of treatment, standing ready to make any change that the development of the case may indicate as desirable. This is in fact a duty we must defer to in very many of our clinical cases, in order that we may not lose time while awaiting the tedious processes of the laboratory. Should we wait for the Widal before instituting our treatment of a supposed typhoid fever? If we do, all that this celebrated diagnostic evidence affords us of real value is the somewhat superflous information as to what we might have done with advantage about a week previously.

No real physician does this. We form our conception of the case, and on this base a therapeusis as active as our diagnosis approximates certainty and our means of intervention allow. We may have a moral certainty as to the diagnosis of our case in its entirety. More frequently we have this certainty as to the pathological condition presenting, and we apply our therapeutics to the leading symptoms while awaiting more complete information. Since mathematical precision is so very rarely to be had in estimating deranged function, we are the more grateful that we possess something very close to such accuracy in our newer medical armamentarium. If we *know* exactly what our remedies will do, we may fit them with confidence to the presenting conditions. The comfort of such certainties must be felt to be appreciated. It is incomprehensible to the outsider. To him the confident assertions of the experienced "active-principle" practitioner must necessarily seem to be baseless, simply because he does not appreciate it.

I am contented to risk the peril of being pronounced an enthusiast, an extremist, whose theories have run away with him, in taking the position that our best working hypothesis is that of fecal autotoxemia as an all but universal principle in practice. Let me state this plainly: The functioning of the human body results in the continuous production of certain toxic elements, which are as constantly excreted from the body by the lungs, skin, kidneys, liver, etc. If this excretion is interrupted the person affected "gets sick," or even dies. A very few minutes of complete suppression of the pulmonary elimination suffices to kill. The importance of the cutaneous elimination was unsuspected until a child who had been gilded suddenly perished as a direct consequence of thus stopping the pores. Suppression of the renal output kills in some hours (Bouchard gives the exact data), while the discontinuance of hepatic and intestinal excretion after a longer time causes death, but very frequently induces illness of varying grades.

When the fecal matter lies longer in the bowels than it should decomposition goes on, and toxins are continually formed in the mass, especially in the large intestine, where the gastric acid is spent and no natural obstacle is interposed. The fluid portions, with their content of toxins, are reabsorbed and circulate in the blood. The kidneys, skin, etc., excrete these to a certain extent, and as long as they are equal to the increased task the physiological balance is maintained. If anything occurs to increase the quantity or virulence of the toxins above the power of excretion, or if the excretory function in one or more of these organs is temporarily or permanently disabled, the balance is broken and the accumulation of toxins in the blood reaches a point at which it begins to exert deleterious action somewhere.

Where will this be? At the point of lowest vital resistance—the least protected parts of the body. It may be a weak organ or nerve, one that has been the seat of former disease and is as yet imperfectly restored, its tissues loaded with débris; or one especially exposed, as the facial nerves when uncovered in a cold wind or rain. At any rate, the general toxemia is manifested by a local disorder, and, as this is frequently caused by exposure, the laity, rightly appreciating half of the pathology, say the patient has "taken cold." So he has; but we know that the trouble is due to the toxins, whose elimination has been checked by the contraction of the cutaneous surface by the cold, until they have so accumulated in the blood as to overcome the vital resistance at one point, and the ever-present microorganisms have effected a lodgment and established a colony.

How far is this principle applicable? I really do not know. The results of many years' observation convince me that it is so frequent that we may assume its presence as an element in every case, until shown to be absent. We may base on it our therapeusis, as a routine measure, standing ready to modify according to the succession of symptoms. It does not mean that there are no other elements in the etiology of disease, not by any means; but that this is an ever-present one that should always be taken into consideration and granted its full meed of importance; that unless this is attended to the other treatment is too apt to prove unavailing.

Here we have the much-derided doctrine of intestinal sepsis, the reason for the use of intestinal antiseptics, the "clean up, clean out, and keep clean" dictum. Despite opposition, derision, contempt, every method of opposition except the demonstration of its fallacy, this method has retained its place in the belief and the practice of the masses of our profession, the men who apply to theories the touchstone of actual trial. Like the doctrine of evolution, the world has passed it through the usual process, ridicule, argument, etc., and is now approaching the final stage of acceptance with enthusiasm. Gatherings of the leading specialists of the day have accepted with unanimity the dependence of lesions of the special organs like the eye, ear, throat, and nose, on autotoxemia from fecal absorption. Beginning mental aberrations have been atributed to this cause.

It is many years since Sir Lauder Brunton referred the etiology of chronic maladies of the spinal cord to this source, and we are just commencing to recognize the truth of this statement. To what other source may we, with equal chance of correctness, attribute the many chronic pathological processes in other organs? Here we have a continually acting deleterious influence, a comprehensible condition, and, happily, one under the reach of our therapeutics. We keep our eyes open for other influences, but we attend to the one constantly-present indication—to keep the bowels free.

Of course, the rabble will run away with this great truth, and the formation of the purgative habit will ensue; but we cannot lay aside a fundamental therapeutic principle on account of its liability to be abused and misapplied. It is up to us to see that this does not happen, and that we do not contribute to it by carelessly prescribing popular and easily-obtainable laxatives instead of keeping the patient under our own control.

THE EARLY RECOGNITION OF TABES DORSALIS.

By CHARLES ROSENHECK, M.D.,

NEW YORK.

NEUROLOGICAL ASSISTANT VANDERBILT CLINIC, ATTENDING PHYSICIAN TO THE METHODIST EPISCOPAL DISPENSARY.

In attempting to formulate a working basis for the early recognition of this malady, I am cognizant of the fact that the subject has been extensively reviewed by neurologists as well as clinicians, and that little or nothing original can be said regarding it; but a few timely suggestions, based on the observation of many cases seen in one of our largest neurological clinics may be of help to the general practitioner. Here I will speak particularly of the preataxic stage, when the significance of the somatic signs and subjective symptoms is still *sub judice*. With the appearance of well-defined ataxia and subjective lightning pains, the diagnosis is apparent to the veriest tyro in medicine. The laity have even learned to recognize the uncertain flopping gait and are adepts at diagnosis.

It is well to remember at the outset that for the absolute diagnosis of tabes it is not always necessary to have the classical symptoms present, viz., Argyll-Robertson pupil, lightning pains, and absent knee jerks. Any one of these signs, either fully developed or in a modified form, in conjunction with other symptoms either cutaneous or visceral, are of inestimable value for a proper conclusion. Peterson lays particular stress on the diminution or absence of knee jerks—even in the absence of any other symptom—as pathognomonic of locomotor ataxia. This inactivity of the reflexes may antedate the other classical signs by quite a long period. I have observed several such cases in which the diagnosis was ultimately strengthened by the addition of inactive pupils and lightning pains. Conversely the Argyll-Robertson pupils or pains have preceded the advent of other symptoms by a variable length of time. At the clinic we have repeatedly made a diagnosis in the presence of sluggishly-acting pupils and diminished knee jerks, and the subsequent course of the affection fully confirmed our earliest opinion.

I have made use of the term sluggish pupils. It seems quite opportune to explain the value of that sign. The ophthalmologists hesitate to commit themselves in regard to it. A pupil must be fixed, being totally irresponsive to light, before they deem it worthy of the Argyll-Robertson title; but we have learned by repeated observations that a sluggish pupil, *i.e.* one that does respond to light, but very slowly and feebly, in conjunction with any other distinctive sign, is of the greatest importance in fixing the diagnosis. I have at present under observation several such cases, which show very interestingly the development of the malady in question.

Locomotor ataxia in its incipiency appears under so many guises that it would be futile in a brief paper like this to enumerate its very earliest manifestations. I can but briefly touch upon them, and for the convenience of description and to facilitate early diagnosis will place symptoms under three divisions, viz., visceral, cutaneous, and those referable to organs of special sense.

Visceral Symptoms.—Repeated attacks of vomiting without cause in adults should arouse suspicion and cause the condition of the pupils and reflexes to be determined. Sudden bladder retention or incontinence, obstinate constipation, or inability to control the anal sphincter, should make one suspect tabes. Cardiac and laryngeal crises, while not properly belonging here, may receive passing mention, as in the great majority of cases they make their appearance when the disease is well established. Impotence in healthy middle-aged adults is also a very suspicious symptom and should receive due attention.

Cutaneous Symptoms.—Here may be briefly mentioned the various subjective sensory sensations which are the precursors of locomotor ataxia. These consist of various types of paresthesia, hyperesthesia, analgesia, and anesthesia. Cutaneous or deep-seated pains in any location, the origin of which baffles the diagnostician, may speedily be explained when the pupils and reflexes are tested.

Special Senses.—In a small percentage of cases the organs of special sense herald the approach of the tabetic process. Indistinctness or haziness of vision, in the absence of any other just cause, should lead to an examination which may show surprising conditions in the fundus. All primary optic atrophies, when unexplained by any other condition, point strongly to locomotor ataxia. Here may also be mentioned the various types of ptosis and ocular palsies, which supervene suddenly in the course of the disease.

Attacks of vertigo, dizziness, ringing in the ears, show auditory nerve involvement and mark the advent of the process in a small number of cases. Such symptoms should therefore receive due attention. A very small number of cases show in the incipient stage a blunting of taste and smell. Strong odors or spices are with difficulty recognized, and make little impression on the individual.

Just a word about the reflexes in the early stage of locomotor ataxia. I have found by observing a great number of cases that the condition of the knee jerk is of more value than that of all the other reflexes combined. I have repeatedly observed the presence of the elbow, wrist, cremasteric, and abdominal reflex in the absence of the knee reflex. It is well to remember that it is only very late in the disease that all reflexes disappear. The knee jerk is the earliest and most constant to disappear, and should be tested accordingly.

240 WEST ONE HUNDRED AND THIRTY-FOURTH STREET.

Maryland Buys a Sanatorium.—The "Mountainside Sanatorium," together with fifty-seven acres of land, at Mt. Alto Park, Md., has been purchased by the State and will form part of the State camp for the treatment of tuberculosis.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

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ANTHRAX.

Anthrax among human beings is everywhere a somewhat rare disease, and is especially infrequent in the United States. However, in South America the malady is fairly prevalent, and in that part of Great Britain in which are situated the woolen factories a considerable number of cases of anthrax occur. According to the annual report of the Chief Inspector of Factories and Workshops for Great Britain for the year 1905, fifty-nine cases of anthrax were recorded in Great Britain during that year, an increase of nine cases over the previous twelve months. Eighteen of these proved fatal, compared with ten fatal cases in 1904. The report also states that the incidence upon the Bradford district, the most important British wool center, has been proportionately heavy, a circumstance which has led to the appointment of a local commission with the object of investigating the matter and of devising more efficacious measures of precaution. In the same report attention is drawn to the recrudescence of the internal form of the disease, for whereas in the Bradford district during the five years 1899-1904 there were only six such cases reported, in 1905 out of a total of thirty-four cases, seven—all of which proved fatal—were of this form.

In fact, in all parts of England, in which industries connected with the manipulation of certain animal products are carried on, there has been a considerable increase in the occurrence of anthrax. Especially has this been the case with that form of anthrax known as "wool sorters' disease," or pulmonary anthrax.

Anthrax has been known from very early times. It is supposed to have been referred to in Exodus. Up to the end of the sixteenth century it was not suspected that the disease could be communicated from animals to men, and as recently as 1850 a thoroughly scientific observer, Hewsinger, who studied the disease, both in Russia and in Germany, came to the conclusion that the cause of anthrax was telluric. But in the same year Rayer and Davaine recorded that they had discovered in the blood of animals which had died from anthrax small rod-like bodies, which they presumed to be the cause of the disease. Later, Davaine announced positively that these minute bodies were the essential cause of the malady, and Koch in 1876 produced the disease in animals by inoculation. Pasteur confirmed all these results, and in 1877 demonstrated that the small rod-like bodies were indubitably the sole cause of the disease. So far as wool, in its relation to the incidence and spread of anthrax is concerned, it may be said that previous to the year 1837, when alpaca and mohair were first introduced into England, no specific disease had been associated with wool. With the importation of the alpaca and mohair wools, anthrax also made its appearance, and in 1847 suspicion arose that these new imports might be the cause of the affection. Investigations were carried on for many years, with the view of solving this mystery, and finally Dr. J. H. Bell of Bradford recognized that "wool-sorters' disease" was a form of anthrax.

The disease is contracted in its external or cutaneous form by means of abrasions of the skin. This type of the malady is oftentimes dangerous, but far less of a menace to the lives and health of wool-workers than is pulmonary anthrax, which is peculiar to wool-workers, is produced by inhalation of the disease germs, and is of an especially fatal character.

The distribution of anthrax is very widespread in animals; indeed it is geographically and zoologically one of the most widespread of all infectious complaints. It occurs with varying prevalence in most districts of Europe and Asia, of South Africa, and of South America. It occurs, but less frequently in North America, North Africa, Australia, and Great Britain. Up to the year 1877 wool-sorters' disease had not been known to attack other persons than the sorters of alpaca and mohair. After this date, camel's hair, Persian, and other dry, dusty, low-class wools were found to be infective.

At first sight the fact that the incidence of anthrax among persons employed in the wool industry of Great Britain is centered almost wholly in Bradford and vicinity and in Worcestershire would appear to be somewhat remarkable. The explanation is that it is only into these districts that the dangerous wools from Asia Minor and from Persia are brought. In the other parts of England and Scotland in which are woolen factories, colonial wool is chiefly dealt with. The outstanding feature of the situation is that the menace to the lives and health of wool workers in Great Britain comes almost entirely from imported wools, and of these, wools from British colonies are practically free from dangerous properties.

Anthrax in human beings is of interest to American medical readers only—fortunately—because it is a rare disease, the manifestations of which are both diverse and peculiar. In Great Britain, however, the interest in the malady is of a far more intimate nature, and efforts are being put forth to learn everything that can be learned concerning the disease, and to devise measures to stamp it out.

THE PRACTICAL SIGNIFICANCE OF THE WALCHER POSITION DURING LABOR.

As early as the sixteenth century, Mercurio empirically recommended a posture, similar to Walcher's, in all cases of difficult labor, without, however, understanding how it influenced the latter. Its use practically became extinct until, in 1889, Walcher emphasized the fact that certain changes in the position of a woman caused the length of her diagonal conjugate to vary a centimeter or so. Of late, Lange (*Der Frauenarzt*, May 17, 1907) has

again put the Walcher posture to test clinically and emphasized its usefulness. The patient is placed across the bed, with buttocks raised, but not brought beyond the edge of the bed; the legs are permitted to hang down, but must not touch the floor. As regards the mechanical effect of this position, he agrees with the explanation of Klein, who showed experimentally that when the sacrum is fixed, the ileosacral joint permits the pelvic ring to rotate on a transverse axis, situated behind the promontory. Thus, when the symphysis moves upward, the diagonal conjugate becomes smaller; when it moves downward the conjugate becomes larger. One can easily convince oneself of this change in length of the diagonal conjugate by making measurements with the patient in various positions. Lange found the greatest difference between strong flexion of the thighs and absolute hyperextension (Walcher), it amounting to 0.8 to 1. cm. The difference is only 0.5 to 0.7 cm. when the patient is measured in slight flexion and then in absolute hyperextension, and it is even less (0.3 to 0.4 cm.) when the patient is changed from the flat dorsal to the Walcher position.

The posture is indicated whenever there is a disproportion between head and pelvis, especially if it has to be overcome quickly, as in a breech extraction or extraction following version, when the head cannot be brought into the small pelvis through traction below or pressure above. From the time that this posture was adopted in all cases of contracted pelves in Leopold's clinic, the percentage of living children rose from 68.4 to 80. In cases in which the true conjugate was under 8 cm. it rose from 03.9 to 82.3. As the true conjugate is lengthened by this posture, the high forceps operation is much easier to do, and often is made unnecessary, as under anesthesia the head can be pressed into the small pelvis from above; in fact, Lange believes that forceps should not be used unless the latter procedure is possible. Several conditions must be fulfilled before we try to press the head down from above, the true conjugate must be above 7.5 cm., the membranes must be ruptured, and the cervix must be practically fully dilated. Lange also recommends the posture in cases in which the head is easily delivered, but when broad shoulders make trouble. As a temporary expedient it is of great aid in cases of contracted pelvis in which the head is slow in engaging, but it has the objection that the patients cannot remain in the position long, though they will generally do so for fifteen minutes at a time. As the anteroposterior diameter of the outlet is made smaller by this position, the latter must be discontinued, when the delivery is left to itself, as soon as the head has descended into the small pelvis.

Lately, Sellheim has added another indication. He claims that since the soft parts of the pelvic floor are attached to the sacrum and coccyx, and the Walcher position brings the lower end of the sacrum nearer to the symphysis, the soft parts become relaxed; he therefore uses it in forceps cases and in primiparæ when the perineum looks as if it were going to tear. It must, however, be remembered that this position makes the outlet smaller; hence it is important not to put the patient in it until the largest circumference of the child's head has passed the end of the sacrum, which has usually occurred when the posterior angle of the anterior fontanelle has passed the posterior fourchette. It is known to all obstetricians that the true conjugate is about 1 cm. longer in Walcher's position than in the lithotomy position, with thighs well flexed; yet in cases of contracted pelvis, when a version or breech extraction is done, we usually see the patient put on the operating table with her thighs well flexed. The Walcher posture, though well known to most obstetricians, is taken advantage of far too seldom, and it is allowable to believe that many more children would be saved if it were put into practice more often.

Eclampsia Without Convulsions.

By the term eclampsia we usually mean an acute morbid condition, which is characterized by a series of tonic and clonic contractions accompanied by complete loss of consciousness, and ending in coma or sleep. Pathologically, it is characterized by degenerative processes in the kidneys, liver, and heart, by areas of softening and hemorrhages in the brain, or by the formation of thrombi in these and other organs. This complex of changes, especially the formation of thrombi, is pathognomonic of eclampsia, and on the strength of this pathological picture alone, Schmorl, Bouffe de St. Blaise, Wendt, Meyer-Wirz, Esch, and Labhardt have made the diagnosis of this condition. The clinical course of their cases was very similar; the women all died in deep coma without convulsions. Two patients suffered with nephritis before pregnancy set in, another patient developed a slight albuminuria while she was in coma, while a large percentage of albumin was found in all the others. The pulse was always rapid, and vomiting was a constant symptom. In the case reported by Esch complete amblyopia set in before the coma, while the temperature rose above 103 F. Binder and Schlutius also reported cases which, by reason of their clinical course, were considered to be cases of eclampsia without convulsions. Both their patients complained of disturbances of vision during pregnancy, while soon after labor a rapid pulse and complete unconsciousness set in. The patients regained consciousness, but in the course of the next few days lapsed into unconsciousness several times; both finally recovered; their urine showed large quantities of albumin, which diminished as soon as the threatening symptoms disappeared. In the *Münchener medizinische Wochenschrift* of July 30, 1907, Dr. P. Reinecke again draws attention to eclampsia without convulsions, and relates the history of a young girl who felt perfectly well until she went into labor. She vomited a few times, complained of pain in the epigastrium, passed only very small quantities of urine, while her temperature rose to 103° and the pulse and respirations to 120 and 60 respectively; she died nine hours after the onset of the symptoms, going into coma three hours before death. At autopsy, degenerative changes were found in the heart, kidneys, and liver, but brain changes and thrombi were not found; nevertheless the clinical and pathological pictures together are characteristic of no other disease. Reinecke believes that a diagnosis of eclampsia without convulsions is justifiable in a patient displaying the above-mentioned symptoms and that the entire complex of pathological changes described by Schmorl and the others in their patients need not necessarily be present.

The Diagnostic Utility of Tuberculin.

There has been considerable discussion as to the utility of tuberculin in the diagnosis of doubtful cases of tuberculosis. On the one hand the agent has been condemned as dangerous, while on the other hand its intelligent and conservative employment has been accorded the highest commendation. It is at the present time realized that, when first put forth, tuberculin was administered in excessive doses for both diagnostic and therapeutic purposes, and sufficient discrimination was not exercised in the selection of cases. The limitations of the preparation and the indications for its use have gradually become more and more clearly defined with increasing experience, and the trend of opinion now seems favorable to its judicious and cautious employment. There are many cases in which a positive diagnosis is impossible on account of the absence of convincing and conclusive clinical and physical evidence, and it is just here that such an agent as tuberculin subserves a most useful and highly important purpose. Drs. John B. Hawes and Cleaveland Floyd (*Boston Medical and Surgical Journal*, May 30, 1907) have made a clinical study of cases of tuberculosis in the male and female departments of the Massachusetts General Hospital Out-patient Clinic, and on the basis of their experience they conclude that tuberculin is an agent of great value in the early diagnosis of tuberculosis. It is their opinion, however, that it should be used only as a last resort after all other means of making a diagnosis have been exhausted. Furthermore, it should be used only in carefully selected cases and by men properly trained and qualified to do this work. In initial doses of not more than 0.1 milligram they claim that it is not in any way dangerous. It was demonstrated that while it is perfectly practicable to use tuberculin to advantage, and to get good and trustworthy results in an out-patient department among ambulatory patients, it would be far better to have beds in the hospital for this purpose. It is much easier to obtain good results and to administer tuberculin properly if the patients are handled in groups or classes. If a patient has a history and presents signs that lead to a suspicion of tuberculosis, and in addition to this reacts to tuberculin, he should be treated as an early case of pulmonary tuberculosis, and furthermore the exact state of affairs should be explained to the patient or his friends.

School Hygiene.

One of the most instructive and interesting of the many medical, scientific, and social congresses which have been held recently in London was that on school hygiene. This subject has bulked very large of late years, and especially in this country. Indeed in some of our States we have shown the way to the rest of the civilized world in respect of school hygiene. Medical inspection of schools was inaugurated on a large scale in America. Great Britain has lagged somewhat strangely in taking the necessary measures to insure, so far as lies within human power, the health of her school children. True it is that she is now going forward in this direction at a rapid rate, but at least one of the measures which it is proposed to make law in certain parts of Great Britain, the feeding of indigent school children, is not likely to find favor with the authorities in this country. At the International Congress on School Hygiene which has just taken place in London, the many phases of school hygiene were discussed at length. Sir Lauder Brunton delivered the presidential address, and touched upon the need of plenty of fresh air and sunshine for growing town children. He also pointed out that the increased exercise due to the physicial training now carried on in all schools necessitated more food, and the question of how best to feed children at schools without interfering with parental responsibility was one which he trusted might be elucidated soon. One of the most important papers read was that by Sir Shirley Murphy, on the intimate relations between infectious diseases in the schools and among the population at large. School attendance concerned the general health, for it meant an increase of infectious disease. Thus the statistics of the ten years 1895-1904 showed that there were more cases of scarlet fever and diphtheria in London during the months when the schools were open. In regard to tuberculosis, the same speaker said: "If I may hazard a conjecture as to the trend of evidence concerning the conditions which cause this disease, I might say that infection by ingestion must increasingly be regarded as the largest factor in tuberculosis." He finally urged that the health of the population at all ages depended on the efficacy of school inspection, with which dictum few medical men will be found to disagree.

News of the Week.

The Sanitation of Cuba.—The occurrence of yellow fever at Cienfuegos has brought out the fact that since the former occupation of the island by U. S. troops, Cuba has lapsed into its old condition of insanitation. Governor Magoon has issued a decree nationalizing the sanitary systems of various cities of the island, and thus putting it in the power of the provisional government to take such measures as it sees fit to control the fever situation. This decree will coordinate all the health officers of the cities into one system, under the direct supervision of the medical authorities of the provisional government. The outbreak of the fever was due to the criminal carelessness of a physician who had a patient with yellow fever, and who neither reported the case to the authorities nor took any measures to screen the patient from mosquitos.

State vs. Federal Quarantine.—A despatch to the *New York Times* from Galveston states that the Federal Government will erect and equip a quarantine station there as soon as the board appointed by the Secretary of the Treasury has approved the plans and the site on Bird Island Reef, in Galveston harbor. Governor Campbell also announced that the State would continue in charge of the quarantine stations which it had offered to the Federal Government for $120,000, and a conflict of authority is probable. Officers of the U. S. Public Health and Marine Hospital Service recently pronounced the State's entire outfit worthless and the Texas quarantine ineffective.

Medical Inspection of Schools in Chicago.—The epidemic of scarlet fever, which prevailed in Chicago last winter, has taught the Health Department a profitable lesson. When the children begin their studies in the public schools early next month, 100 medical inspectors, graduate physicians under Civil Service rules, will begin a systematic campaign against measles, scarlet fever, and other diseases which have been accustomed to find their rallying points in the crowded schoolrooms. The city has been divided into one hundred districts, which in size and number of pupils to be looked after are

made as nearly uniform as possible. Each of the medical inspectors for the schools will be under the direction of one of the eleven regular medical inspectors of the Board of Health. Not only public schools, but parochial schools as well, will receive attention. As the total number of school children in the city approaches 400,000, each inspector will have approximately 4,000 pupils to look after. Medical inspection of this kind is not an absolutely new thing in Chicago, but this is the first time the work has been organized on such an extensive scale and also with such system and thoroughness.

Massachusetts State School for Crippled Children.—This school, which was established by the State Legislature in 1904, is for crippled children, who will be under treatment for their deformities at the same time that they are receiving a public school education. Later they will receive industrial training in some line of work for which they are fitted. The school buildings are now nearing completion in Canton. They are of brick and terra cotta, with dormitories and school buildings, hospital, heating plant, and laundry. Separate pavilions for the care of contagious diseases will be erected. Dr. John E. Fish has been appointed by the Governor as superintendent of the hospital school.

Cholera in the Far East.—It is reported that cholera has broken out among the Chinese in Shanghai and that several Europeans have also succumbed to the disease. Elaborate preventive measures have been adopted in the foreign quarter. Several other Chinese and Japanese coast towns are infected.

Cholera in Russia.—The sanitary authorities in Prussia are, it is reported from Berlin, watching with considerable concern the news indicating that cholera is spreading in Russia. The authorities have ordered a strict sanitary inspection of all vessels and rafts entering Prussian territory by the Vistula.

Diseases in Ridgway.—Dr. Arthur B. Moulton, Assistant Chief Medical Inspector of the Pennsylvania State Department of Health, reported to Health Commissioner Dixon that there were now ninety cases of typhoid fever, twelve cases of epidemic cerebrospinal meningitis, and sixteen cases of infantile paralysis in Ridgway. The local and State health authorities are cooperating. The source of the typhoid infection, a case of typhoid on the watershed, has been located, and everything possible is being done to prevent further spread of the disease.

Notifiable Diseases in Massachusetts.—Under a new law passed last year a uniform system of reporting diseases has been established by the State Board of Health. The old law stated that "smallpox, diphtheria, scarlet fever, or any other disease dangerous to the public health," must be reported, thus leaving the different city and town boards wide latitude; the new law, however, placing the whole determination of reportable diseases with the State Board of Health, renders the interpretation uniform. The State Board has prepared a list of eighteen notifiable diseases, tuberculosis and rabies having been added to the list of diseases previously used by most of the local health boards.

The West Virginia Anti-Tuberculosis League, with general offices in Charleston, is making progress all over the State, and local leagues are being formed rapidly. The objects of the League are: "To furnish information, instruct and teach ways and means of preventing tuberculous infection, and raising the standard of physical resistance. To arrest the progress of the disease and to effect cures in those who are now or may become infected with tuberculosis. To encourage the establishment of State, public, and private sanatoria in West Virginia. To centralize cooperative efforts by organizing local, county, and municipal leagues, to be under the immediate management of professional council, thus enabling victims of tuberculosis to obtain and have modern training and treatment within the confines of their respective homes."

Care of Convalescents from Insanity.—M. Ernest Daudet urges in the Paris *Figaro* a new philanthropic undertaking for the relief of those who are recovering from insanity, or who have been cured of it. According to statistics, in the Department of the Seine alone there is an annual discharge of patients from insane asylums of 2,400. Both M. Daudet and the Princess Lubomirska are taking an interest in these rather helpless people. As a rule, when they come back into the world, they are ill-fitted to make their way. They have lost confidence in themselves, are timid with others, and are likely to fall into intemperance and even crime. The plan proposed is to construct special workshops for this class of patients, where they can make a living while enjoying freedom. One such place was opened in Paris five years ago. The importance of caring for such unfortunates will be appreciated by anyone who has observed the effect of an asylum on the feelings and will of patients, however carefully they may have been treated.—*The Evening Post.*

Taxation of Medical Practitioners.—An earnest effort is being made by the Medical Society of Virginia to induce the next Legislature to abolish the State license tax. The *Virginia Medical Semi-Monthly* says that the committee of the State Society, under the chairmanship of Dr. J. B. De Shazo of Ridgeway, has done much good work in arousing the members to action. It says that of all the States of the Union only six require State license taxes on doctors. These States are Delaware, Virginia, North Carolina, Georgia, Florida, and Louisiana. Delaware assesses an annual license tax of $10. Virginia requires $10 of all who have practised five years or less; after that, $25 a year for those who reside in cities or towns, and $15 for country doctors. North Carolina charges a uniform license tax of $5, but no additional city or county tax is allowed. Georgia charges an annual license tax of $10, but no city or county license tax. Florida has an annual license tax of $10 to the State, and $5 to city or county of residence of the doctor, but it is expected that these taxes will all be removed. Louisiana charges license taxes on the basis of annual collections, the lowest being $5, for both State and parish, and intermediate sums up to $50, on $5,000 receipts. "But everybody seems to consider the demand so unjust that the law is not enforced except in a few instances."

Indigestibility of Chicago Potatoes.—The critical period in the condition of a lady from Detroit, Mich., who swallowed a small hat pin at the Auditorium Annex Hotel, Sunday night, while dressing for an automobile ride, has been passed, according to the attending physician. "We have located the pin," said the doctor, "and think an operation will not be necessary. The pin is near the appendix, and if it passes that point safely the patient will soon recover, otherwise an operation will be necessary. Mrs. Ferris is swallowing no liquid, and is sustained by potatoes alone. The potato forms a mass around the pin and is carrying it from her body. We have watched, with the *x*-ray, the potato food as it went through the various organs, tracing its progress inch by inch."—Chicago despatch to the *New York Times.*

Patent Medicine Vending in Connecticut.—At a meeting of county health officers of Connecticut at Eastern Point on August 15, the main subject of discussion was the best means to suppress the peripatetic venders of patent medicines, and it was decided that the most practical was the enforcement of a law prohibiting these men from selling their wares on their own recommendation without the advice or prescription of a registered physician. Even this law was ineffective in one instance related, in which a strolling company of nostrum venders in a city in the western part of the State had hired a registered physician to sit with them on the platform and to recommend the medicine to the purchasers. In this way they were saved from prosecution.

Memorial to a New Yorker in a French Hospital.—The family of the late Thomas E. Stillman of New York has presented to the city of Lisieux, France, an addition to the city hospital, where accident cases, especially automobile cases, are to be treated. The gift is made in memory of Mr. Stillman, who died in the hospital there a year ago from injuries sustained in an automobile accident. The foundation stone of the addition was laid on August 23. The Mayor of Lisieux, M. Cheron, made a speech of thanks to the donors. Their names will be inscribed upon the tablet reserved for those benefactors of the city.

James W. Sweet, one of the famous Connecticut family of "bone-setters," died on August 18 at his home in New Haven. His grandfather, father, and two uncles were all "natural bone-setters," and had a large clientele. James Sweet claimed to have "set" 35,000 bones during the thirty years of his career.

Prof. Marmorek, the inventor of the polyvalent antistreptococcus serum which bears his name, was one of the three leaders in the Zionist Congress held last week at The Hague. Another of the triumvirate was Dr. Max Nordau.

Dr. W. S. Bogart of Erie, Colo., has been appointed Professor of the Practice of Medicine in the Medical Department of Westminster University.

A Medical Library in Springfield, Ohio.—A new medical library has recently been started in Springfield, Ohio. The Board of Trustees of the Warder Public Library have very generously given a special room for the purpose, with excellent service by the librarian and assistants. Three physicians have been appointed as a medical library board to organize and maintain the same. These physicians are: *President,* Dr. C. H. Kay; *Vice-President,* Dr. Noah Myers; *Secretary,* Dr. T. M. Reade.

The John Crerar Library of Chicago announces that arrangements are in progress for the accommodation of its Department of Medical Sciences as part of its main collection at 87 Wabash avenue, N. W. Corner Washington Street, where it will be made available, at least in part, on and after August 10. The rooms now occupied in the Newberry Library building will be closed after August 3.

Five-Year Course at McGill.—According to the recently issued calendar of McGill University, Montreal, the course of study leading up to the degrees of M.D. and C.M. will, beginning with the present session, extend over five years instead of four.

The College of Medicine of the University of Wisconsin, which was authorized by the recent Legislature, will be opened and ready to matriculate students at the beginning of the college year in September, according to the preliminary announcement issued. The first two years' work of a medical college course will be given. Students thus may take all their preclinical work at the University of Wisconsin and then complete their medical studies with two years' clinical work at any medical college of recognized standing.

The Barnes Medical College of St. Louis has become the medical department of the University of Missouri, and with it the Centenary Hospital also becomes the property of the University. The first two years of the medical course will hereafter be passed at Columbia, the home of the University. The last two years of the course will be given in St. Louis.

Trinity Hospital in Varick Street was closed, it is said permanently, on August 16. The building used to be the rectory of St. John's Church, next door to it, but it first served as an infirmary some thirty-five years ago, and then was turned into a hospital, which was in charge of the Episcopal Sisterhood of St. Mary. The building was three stories in height and not adapted for hospital purposes. It is now in need of repair, and it is believed it will be torn down to make room for business buildings.

An Isolation Hospital in Grand Rapids.—The administration building of the contagious diseases hospital of the Board of Health of Grand Rapids, Mich., will, it is expected, be completed in September. There will be separate pavilions constructed for each of the usual infectious diseases.

The Third Council District of the Utah Medical Society, comprising the southern half of the State, was organized at Richfield on August 13. Dr. Frederick Clift of Provo was elected president, and Dr. C. W. Hasler of Lehi, secretary and treasurer.

The Sixth International Tuberculosis Conference will take place in Vienna on September 19, 20, and 21. The mode of infection of tuberculosis will be discussed at the opening session, and other topics for consideration will be the duty of notification and sanatorium expenses. Reports of progress in the crusade against tuberculosis in different countries will be received, and the international meeting at Washington in 1908 will be discussed in all its aspects, and honorary members will be nominated.

The XVI International Medical Congress.—It is announced that there will be a special section at this Congress, to be held at Budapest in 1909, devoted to neurology, and that this will be distinct from the section on psychiatry. The president of the neurological section will be Prof. Ernst Jendrassik, and the secretary, Prof. Charles Schaffer, Kálvin tér 4, Budapest.

The German Urological Society will hold its first meeting in Vienna, October 2-5, 1907. Discussions will be held on "Tumors of the Kidney," "Renal Calculus," and "Albuminuria." The secretary is Dr. Kapsamer, IX., Maria Theresienstrasse 3, Vienna.

Dannemora Overcrowded.—A mutiny recently broke out among the inmates of the Dannemora Hospital for Insane Criminals. In his report of the occurrence, the medical superintendent, Dr. C. H. North, implies that it happened because some of the worst of the inmates, who should have been in separate rooms, were, in consequence of the crowded condition of the institution, together in one of the dormitories and there laid their plans for the outbreak.

Obituary Notes.—Dr. Oliver Cromwell Comstock, formerly of Marshall, Mich., died in Brookline, Mass., on August 10, at the age of eighty-eight years. He was born in Fairfield, Saratoga

County, New York, his father being a well-known physician and a member of Congress. After studying medicine at the Fairfield Medical College and practising two years, he went to Philadelphia and continued his studies. At Trumansburg, N. Y., he practised his profession for several years, until his health gave way. He then went to Marshall, Mich., where he practised for a few years and then went into general business and farming.

Dr. William M. Cole of Sedalia, Mo., died of tuberculosis on August 9, at the age of thirty years. He was a graduate of the University Medical College of Kansas City in the class of 1903.

Dr. E. S. Ramsey of Kansas City died suddenly on August 13 of disease of the heart. He was born in Clinton County, Ill., in 1845, and began the practice of medicine in his native place in 1872. In 1889 he removed to Kansas City, where he practised up to the time of his death.

Dr. August Sander of Marble Hill, Mo., died August 12, at the age of seventy-three years. He was born in Germany, where he received his medical education and began the practice of his profession fifty years ago.

Dr. George Herbert Smith of Holyoke, Mass., died of Bright's disease on August 16, at the age of sixty-seven years. He was born in Chicopee Falls, and began the study of medicine in the office of Dr. Chaffee of Hartford, Conn., in 1861. He soon after entered the army and served for some time in the ambulance corps and in military hospitals. When he was mustered out he resumed the study of medicine and was graduated from Bellevue Hospital Medical School, New York, in 1865. He practised for a time in Illinois, but soon returned to the East and settled in Holyoke. He was elected mayor of the city in 1896, and served one term.

Dr. John Banta of Paterson, N. J., died on August 20 from pleurisy following the fracture of two ribs several weeks ago. He was a graduate of the Bellevue Hospital Medical School, New York, in the class of 1879. He was a member of the New Jersey State Medical Society and of the American Medical Association, and was physician to the General Hospital in Paterson.

Dr. John Hill, formerly a well known practitioner in Nashville, died of pneumonia at the home of his daughter near that city, on August 13. He had been in practice in and about Nashville for some forty years, and retired a few years ago.

Dr. Donald Macrae died at his home in Council Bluffs, Iowa, on August 14, of cardiac trouble. He was born in Scotland in 1839 and obtained the L.R. C. P., Edin., in 1861. He had practised in Council Bluffs for thirty years, during which time he had been prominent in public life as well as in the practice of medicine.

Dr. James M. Solomon of Boston and Attleboro died of disease of the heart on August 21. He was born in Attleboro in 1853 and was graduated from the College of Physicians and Surgeons in New York.

Dr. Theophilus O. Powell, superintendent of the State Sanatorium at Milledgeville, Ga., died August 18, at the age of seventy years. He was a graduate of the Georgia Medical College in 1859, and became attached to the State Sanatorium, then called the Georgia State Insane Asylum, as assistant physician, in 1862. He was widely known as an alienist.

Dr. D. E. Johnson of Mobile, Ala., died on August 15, at the age of sixty-five years. He was a graduate of the Medical College of Georgia in 1868.

Dr. J. M. Young of Alameda, Cal., died on August 14 from injuries received in a fall. He was born in Ireland in 1844, and was educated at Trinity College, Dublin. He studied law and practised for a time in Canada. Later he went to California and studied medicine there, obtaining his degree from the California Medical College in 1884. He had lived in Alameda twelve years.

Dr. Horace G. Leslie of Amesbury, Mass., died August 22, at the age of sixty-five years. He was born in Newbury, Vt., and went to Amesbury to reside in 1868, the year of his graduation from the Medical Department of the University of Vermont. He was active in public life, having been a member of the State Legislature and at the head of many associations for the improvement of the city in which he lived. He was a member of the Essex North Medical Society and of the Massachusetts State Medical Society.

Dr. Eliphalet Wright of Lee, Mass., died on August 22, at the age of ninety years. He was born in Hinsdale in 1817, and was graduated from the Berkshire Medical College, Pittsfield, in 1841. He practised first in Lee, then in Granville, and then again in Lee, where for over fifty years he had had an extensive practice. He was a practitioner of the old school, opposed to operations for appendicitis, and bleeding and sweating (and usually curing) his pneumonia patients. He was an active and prominent Mason.

Dr. Julia Meiklejohn of Clinton, Wis., died suddenly on August 16. She was a graduate of the Woman's Medical College of the Northwestern University, Chicago, in 1895.

Dr. Charles B. Tucker of Brooklyn died in the Hospital for Incurables, Fordham, August 26. He was born in Foxborough, Mass., sixty-seven years ago, and served as a surgeon in Grant's army in the Civil War. He had been suffering from paralysis because of a fall sustained a year ago. He obtained his degree from the Eclectic Medical School in 1865.

Dr. William E. Johnson, for many years a practising physician at Keyport, N. J., died recently at his home in Ontario, Canada. He left Keyport about two years ago.

Obituary.

SENECA D. POWELL, M.D., LL.D.,

NEW YORK.

Dr. Powell, who died at his summer home in Greenwich, Conn., on August 24, after an illness of three years, was born in Wilcox County, Ala., on January 5, 1848. When the Civil War began he was a cadet in the University of Alabama, which institution he left to serve as volunteer in the Confederate army. On the conclusion of the war he entered the Medical Department of the University of Virginia, from which he graduated in 1869; he then came to New York and obtained a second degree from the University Medical College in 1870. In 1871-2 he was an assistant inspector for the Board of Health in New York, and at the same time was chemical assistant to the chair of theory and practice of medicine in the Bellevue Hospital Medical College. From 1879 to 1882 he was adjunct professor in the chair of surgery at the New York University Medical College. In 1882 he became connected with the New York Post-Graduate Medical School as a lecturer on surgical dressings. Since 1887 he had been professor of clinical surgery in this institution. Dr. Powell was vice-president of the Medical Society of the County of New York in 1891 and president in 1893. He was president of the Medical Society of the State of New York in 1897-8.

Correspondence.

A CASE OF TRIPLETS.

To the Editor of the Medical Record:

Sir:—An extract in your issue of August 10 calls to mind a similar case in my early practice. While acting as house physician to the Sloane Maternity Hospital during October, 1888, I was appealed to by a woman to see her sister who lived in the neighborhood. She said several doctors had been called in, but after looking at the girl had declined to stay on. Hoping to get an unusual case for the hospital, I went with her and decidedly got myself into trouble. I found a young German husband who was in the last stages of phthisis sitting beside the bed of a seventeen year-old girl wife, who was having convulsions every few minutes and who was so waterlogged that one could hardly make out her features at all. She was so large with child that when I laid her on her back and removed my hands she would promptly roll back to one or the other side. Seeing I should need aid, and humanity forcing me to disregard a rule of the hospital not to do outside work, I sent for that good-hearted man and physician, Dr. Ogden Ludlow. While awaiting his arrival I put the girl deeply under chloroform and when he came I made an examination and found a head at the brim of the pelvis and the cervix wide open. Forceps was tried, but failing to lock I delivered the child by version. As it was badly asphyxiated I turned the woman over to Dr. Ludlow, while I tried to revive the infant. Suspecting multiple pregnancy, Dr. Ludlow then examined the woman and, finding a breech, brought the child out and began to work on it. My child now being dead, I again took charge of the woman, and to my horror found another head presenting. Another version brought this, the last, into the world. All the children were boys, and all weighed over four pounds. The aggregate weight being over fifteen pounds. There were three cords, two of which joined so that only two were implanted into the single placenta. None of the children could be revived, and after a sigh or two they all died. The woman had one slight convulsion after the anesthetic was stopped, but otherwise did well. Dr. Ludlow took charge of the case and afterward told me the woman weighed in normal condition only ninety-seven pounds.

L. E. Norfleet, M.D.

Tarboro, N. C.

OUR LONDON LETTER.

(From Our Special Correspondent.)

Hospital Funds—The Congress Season—Science at Leicester and Medical at Exeter—Discussions about Alcohol and Tobacco.

London, August 9, 1907.

Mr. Andrew Carnegie has given the King's Hospital Fund £100,000. This munificent gift is made unconditionally, but the donor expresses a desire for it to be used as seems best, adding the "more strenuously for reform the better." This is the fund founded by the King when Prince of Wales to commemorate Queen Victoria's Diamond Jubilee, 1897, and has therefore been in operation ten years. On his accession the King passed over the presidency to the present Prince of Wales. Many generous donors have helped to make it the great success it is with its invested fund of above a million sterling. Last year it distributed £111,000 among the hospitals. Its influence has been all along to promote wise economy and reforms in the direction of the reduction of expenditure. Perhaps it is to this policy Mr. Carnegie refers as reform. I hope expenditure in building will be discouraged. I have frequently referred to this subject and only last week mentioned that the Sunday Fund had moved in the direction of restraint by asking managers to consult the Council before embarking on enlargement. There are now about a thousand vacant beds in our hospitals, but a number of new schemes for adding to the accommodation for in-patients are before the public. Some of these are for enlargement of hospitals which cannot meet their present expenditure. Sir F. Currie, secretary of the Sunday Fund, lately spoke of this "building craze" in the instanced St. Mary's Hospital, where a great wing has been built, but the income is only sufficient to keep the old premises occupied. To fill the 1,000 vacant beds in London would cost about £100,000 a year, and it seems monstrous to add to them until they are provided for.

This is the season of congresses. Last week we had the British Association at Leicester and the Medical at Exeter. It is said there are some people who delight in these assemblies and do not like to miss anything of the kind. There are certainly some who would have liked to attend both meetings, and the secretaries are authorized to negotiate so that next year the two meetings shall not be held at the same time. This week we have two more congresses, which may help those who want a surfeit of such doings. They are the Housing and the School Hygiene, both of them international, and both in London. Before noticing these further it may be as well to say a word or two about the earlier ones. At Leicester the British Association meeting was, I am assured, as important and successful as its predecessors. I gave you a note last week on the president's address. This was followed by communications of absorbing interest. The constitution of the atom, the transmutations of radium and its allies, the fluid and solid theories of the ether, the nature of electrons, or, as Lord Kelvin calls them, electrions, these and other questions of high science were discussed by the recognized masters of their subjects, but I can only indicate them on this occasion on account of the mass of more strictly medical material. I must, however, mention an event which is as interesting as it is novel. The Mayor of Leicester, Sir Edward Wood, whose prodigal hospitality was remarked on all sides, gave a garden party which is perhaps unique on the picnic side of congresses. It was for the benefit of the most unfortunate of the citizens and made a party as pathetic as it was strange. The halt, the maimed, the blind were the guests at this garden party and were brought in ambulances, stretchers, and brakes from all parts of the city, while some made their way on crutches or were carried by friends. Blind people being led across the lawns, or sitting about and enjoying the fresh air, crippled children playing together, and other sick persons under tents made up a scene different from that of the park at other times, or a picnic at any time, and which those scientists who also went are not likely to forget.

Turning now to the Medical Congress, I may give you some notes that I have gathered, referring your readers to your special reports of the chief sections. The meeting is generally pronounced a success, as it was sure to be from the locality, Exeter being a favorite cathedral city and Devonshire claiming to be one of the most delightful counties of England. The popular lecture is rather a new departure, only two or three having been given. It was undertaken this year by Sir John Moore, who discoursed pleasantly on weather, climate, and health. He denounced the penuriousness of the Government in regard to meteorology, for the British Empire devoted a paltry £70,000 a year to this study, against some £290,000 granted by the United States Government. The relation between the birth-rate and death-rate was considered and the connection of infantile mortality with summer diarrhea. The seasonal mortality from various diseases was shown by curves, one of which indicated a falling fatality from tuberculosis in England and Scotland, with a tendency to increase in Ireland, but a relatively low rate prevailing throughout the western half of the island and higher rates in the urban districts of Dublin, Cork, Belfast and Derry. The fact was, he declared, that the slums and tenement districts of the old towns reeked with the poison of tuberculosis, and climate played a very subordinate part in the spread of the disease.

In the Section on Psychology a rather unexpected development took place. The set discussion was on alcoholism and insanity, and was opened by Dr. F. W. Mott, F.R.S., who gave some important statistics. He expressed the opinion that many effects depended on the quality of the alcohol as well as the quantity, and that the personal equation of patient and doctor must not be overlooked. He pointed out that there was a great difference between asylum and hospital cases. In the one there was a tendency towards brain disease. In the other, where this might be absent, the amount drank might be much larger before pathological changes occurred. Thus at Charing Cross Hospital 7.7 per cent. of the autopsies showed cirrhosis of the liver and 8 per cent of admissions were ascribed to alcohol. At Claybury Asylum only 1.8 per cent. had cirrhosis of the liver. His view seemed to be that the allegation that alcohol was the most important cause of insanity could not be maintained, and, apart from its abuse, the beneficial effects should not be denied or overlooked.

There were plenty of members to support this view and to go beyond it. In fact, I am informed, there was quite a lively defense of alcohol, and although Professor Halliburton thanked Dr. Mott for the moderation of his paper others took it as an encouragement to advance the old arguments in favor of moderate drinking.

One asserted that alcoholism was often the effect rather than the cause of insanity. Another thought it absurd to call it a poison. Another talked of the secondary effects—the narcotic—as beneficial, and so on until Dr. Yellowlees refused "to join in the glorification of alcohol" and was supported by several others. In the end the president of the section, Dr. T. C. Shaw, remarked that the question of alcohol would never be settled and there was much nonsense talked about it on both sides.

As a pendant to this discussion it is amusing to hear that at the Temperance Breakfast there was a large attendance, over which the Mayor presided, avowing himself a member of the Temperance League and telling his audience that in view of the number of victims the profession ought to give no uncertain sound. Dr. Davy was present and spoke of the increase of inebriety, especially among women, of the enormous expenditure on drink, and the large proportion in which it produced disease. Alcohol, he said, was not a necessity and very rarely useful in disease. Personally he was in favor of temperance and never would advise a patient to take it. Then, with strange want of logic, he said some teetotallers talked the greatest twaddle. Port wine had been referred to; he rather liked it and it was so great a poison that an uncle of his lived to be ninety-nine and used to consume a bottle a day. He thought a meal of cheese, bread, and light beer better than the tea, bread, and jam which so many children got. Of course, others followed with more scientific speeches and no one called Dr. Davy's twaddle, but as he was president of the Association and a guest of the League it hardly seemed the occasion for such remarks.

In another section, to relieve the deadly dullness which some complain of as prevailing in these meetings, there was a discussion on the allied subject of tobacco. In this, too, there was—may I quote?—"much nonsense on both sides," and some would say "twaddle." One seemed to think it the cause of innumerable diseases and of the deterioration of the race. Another spoke of the "invention of Satan," meaning, I suppose, the smoking of the plant, not tobacco itself. A "deadly poison" to one, a comfort to another, and so on.

I hardly think the Association shines in these conflicts, and some of our newspapers are talking about doctors disagreeing and saying when this is so each man will please himself.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 15, 1907.

A Soluble Bobbin for Intestinal Anastomosis.—John H. Cunningham tells of experiments which tend to show that in the maccaroni bobbin we have a device which, besides facilitating intestinal suturing and holding the sutured ends in position until firmly adherent, serves as a conduit for the intestinal contents and at a period of time not under twelve hours or later than thirty-six hours is digested and absorbed. Maccaroni recommends itself because it is easily digested in the intestines, is cheap, and can be made sterile in its preparation. The maccaroni used was a large size commercial maccaroni, cut into cylinders three inches long by three-quarters of an inch in diameter and bobbins of special design. These were sterilized by dry heat.

New York Medical Journal, August 17, 1907.

A Valuable Sign in Exophthalmic Goiter.—L. Napoleon Boston tells of this sign, which consists in: (*a*) Arrest of descent, (*b*) spasm, and (*c*) further closure of the superior eyelid. This phenomena is seen by all three of these features following one after the other in rather rapid succession as the eye is rotated from above downward. The spasm takes place after the patient has first rotated the eyeball upward, and then attempts to follow the finger of the operator as it is carried below a level with the chin. The superior lid follows downward with the pupil for a short distance, where it rests for an instant, then displays a slight spasm, with apparent slipping back, after which it continues to follow the pupil for an indefinite distance.

The Physical Reconstruction of School Children by Means of Fresh Air.—Linsly R. Williams calls attention to the fact that the New York Board of Health has records of examinations of nearly 200,000 children from five to fifteen years of age, which show the following defects: 60 per cent. undernourished, 66 per cent. need medical and surgical care, or better nourishment, 40 per cent. need dental care, 38 per cent. enlarged cervical glands, 31 per cent. defective vision, 18 per cent. enlarged tonsils, 10 per cent. postnasal growth. Facts in regard to school inspection are given to show the marked need of fresh air agencies, which exists in every large city. The entire value of the fresh-air home depends upon its character, and he explains this by giving a brief description of Sea Breeze at Coney Island. To obtain the best results for school children certain important principles must be maintained. To preserve the family as a unit, in order to teach the mother; to visit the family in its home; to ascertain its special needs, and to exclude contagion; to examine each child in order to advise properly the best thing for its health, for treatment, before, during, and after its stay; to follow up, after their return to their own homes, those children who may be sick or in need; and, finally, to maintain even at increased cost and apparently diminished usefulness the highest standard of efficiency.

Some Notes on Malarial Fever as Seen in the Jungle.—Charles S. Braddock says it is beyond dispute that the mosquito of a certain variety carries the germ of malaria and transmits it to individuals, but of still greater importance is the fact that persons can and do contract malarial fever when there are no mosquitos to give it to them. If an expedition is traveling in the jungle in either the wet or the dry season, the men traveling on foot first get malarial fever, the men on horseback rarely get it, while the men on elephant back will still more rarely and seldom get it. He attributes this seldom getting it by those high from the ground entirely to the miasma arising from the soil and rotting vegetation. In some bad districts one can smell the miasma. It is the immutable law of the jungle that if one sleeps on or near the ground, one must not change the clothing at once when wet by a tropical shower, get wet in the early morning from the heavy dew, and let the clothing dry, or the same after fording a tropical stream; or if one bathes in canal or river a short time after coming from a hard day's march, then fever will follow in a few hours afterwards. In the jungle one must boil the drinking water, and must clear away the jungle and let the sun in, and must not live close to or turn over the soil in the tropics; also, one must not neglect the mosquito curtain.

Eczema in the Second Year of Life.—Charles A. Kinch says that infancy comprises three years of life, and is divisible into two periods: Nursing, about twelve months; ambulant or runabout second and third years. In the nursing period by far the most common form of eczema is the neurotic. The typical picture of infantile eczema is vesicular, covering the face like a circular mask, avoiding the region of the eyes and nose. It is not parasitic. Scrofulous eczema is seldom seen in babyhood, seborrheic never. In the runabout period neurotic eczema is rare. Scrofulous eczema is common in the ambulant child. Seborrheic dermatitis in the runabout period takes on a character similar to the same disease in adults and responds with the same readiness to local treatment. It is in these cases that mild and brief applications of the *x*-ray, as in psoriasis, are helpful, and parasiticides accomplish brilliant results. Proper attention should be paid to tonic and corrective internal medication.

Journal of the American Medical Association, August 24, 1907.

The Diagnosis of Anemia.—R. C. Cabot summarizes the conclusions of his paper as follows: 1. In the diagnosis of anemia all facts must be considered. The etiological factors and the general physical diagnostic data are as important as the hematological findings. This is particularly true of the secondary anemias. 2. There are but two important types of anemia if we are to judge by the blood examination alone. To the first type belong the anemias due to hemorrhage, malaria, nephritis, and other diseases leading to increased destruction of red blood corpuscles. He also includes chlorosis in this class, so far as the blood picture is concerned, though elsewhere than in his conclusions he mentions the characteristic usual non-reduction of red corpuscles and low color index. Here he says it is distinguished wholly by the absence of etiological factors and the age and sex of the patient. 3. Pernicious anemia can usually, but not always, be distinguished by the blood picture alone. If this is supported by the history and physical examination the diagnosis is one of the clearest and surest in medicine. The most important single fact is the low red cell count with relative increase in hemoglobin. 4. The parasitic anemias are not always recognizable by the blood examination, but offer no difficulties in diagnosis if the eggs of the parasite are sought. Myelophthisic anemia is easily recognized by the evidences of its cause. The rare aplastic anemia has usually been observed in young girls and associated with severe purpura. The blood is like that in pernicious anemia, except that the erythrocytes are smaller and rarely contain nuclei.

The Treatment of Anemia.—S. J. Meltzer notices certain special methods by which he thinks there has been distinct progress in the treatment of anemia. The first of these is the method of direct transfusion introduced by Crile, whose experiments and results he considers a brilliant illustration of the value of vivisection to humanity. The second is the use of colonic irrigations in pernicious anemia, as recommended by Herter, and successfully employed by Ditmar and Hollis. Herter's discovery that special putrefactive processes in the intestines are due to the prevalence of anaërobic bacteria, particularly the *Bacillus capsulatus aërogenes*, and the parallelism of their presence with the symptoms of the disease suggested this treatment by injections, which Meltzer considers a valuable therapeutic advance. The third point touched on in his paper is the establishment of the clinical value of inorganic iron in the treatment of anemia. His explanation of the action of ingested iron is that it, like the carbohydrates, however it may be taken in, is converted into intermediate organic compounds and enters into the reserve iron stored up in the body, which is normally in excess of the needs of the system.

Fecal Bacteria.—The significance of the amount of bacteria in the feces is noted by J. Dutton Steele. Diet is an important factor governing their abundance, coarse and indigestible food favoring their increase, and it is probably from some such reason that the findings of Strasburger for Germany exceed those obtained in this country. The bacteria are increased with excessive bacterial activity in the stomach, as in achylia with diarrhea. They were also increased in some cases of hyperacidity, which is accounted for by assuming imperfect digestion or chemical irritation from excess of hydrochloric acid, the normal intestine being assumed to have a certain power of protection against bacteria. Poor starch digestion gave in one case twenty-seven per cent., and when the starch in the diet was reduced one-half, the bacteria fell to fourteen per cent. The reaction of the stool in this case was strongly acid. The bacteria were increased in one case of chronic cholecystitis and in one of pancreatic gumma. The growth of the intestinal bacteria is also increased by the administration of various so-called intestinal antiseptics. The intestinal bacteria are decreased in amount with diets giving a small residue, in uncomplicated atonic constipation, and apparently also in jaundice. Steele does not consider this last due to antiseptic action of the bile, but rather to the reduced diet. Certain intestinal antiseptics (bismuth salicylate and beta-naphthol) reduce the quantity of fecal bacteria in normal persons, but it does not necessarily follow that this would be the case in abnormal conditions. Steele thinks that the opposite would be more probable.

The Physiological Effects of Gastrojejunostomy.—H. J. Paterson defends the operation of gastrojejunostomy from certain charges that have been made against it, summing up his conclusions as to its effects on the physiology of digestion substantially as follows: 1. A certain amount of bile and pancreatic juice enters the stomach after gastrojejunostomy, but the amount is small and has no bad effect. 2. The acidity of the gastric contents is markedly reduced, usually about thirty or thirty-five per cent. This is due partly to a reduction in the total amount of chlorides secreted, partly to the partial or complete neutralization of the free HCl by the alkaline bile and pancreatic juice, and probably also to earlier stimulation of the pancreatic secretion with compensatory earlier fall of the gastric secretion. In gastric ulcer cases the removal of spasmodic stenosis of the pylorus likewise tends to diminish the total acidity. 3. Gastric digestion is only impaired, not lost, after gastrojejunostomy. 4. The gastric motility if previously normal is practically unaffected. Gastrojejunostomy is therefore not a drainage operation. Its good effects in gastric ulcer are due to the reduction of the acidity of the gastric contents. 5. Gastrojejunostomy has no material effect on the metabolism of the human body, the percentage of nitrogen and fat absorbed being within the limits observed in healthy persons. This chemical fact is confirmed by the result of clinical observation.

Factors in the Production of Coagulation Necrosis.—D. H. Bergey states that coagulation necrosis is usually defined as that form of death of tissue in which the proteid suffers changes similar to or identical with coagulation. He discusses the influence of bacteria in producing coagulation necrosis and the other alterations of the colloids in the body, and treats briefly the lines of experimentation pursued. The results which he has made indicate: (1) The coagulation of blood serum through bacterial agency is induced directly and indirectly by a coagulating and a carbohydrate-fermenting enzyme produced by the bacteria; (2) that the inhibition of the effects of the carbohydrate-fermenting enzyme alone, through neutralization of the organic acids produced will annul or materially reduce the pathogenic effects that would otherwise ensue; (3) if some safe and certain method can be devised for overcoming this mode of offense by the bacteria we shall possess an additional defensive measure against bacterial action in the body.

Sewage Purification.—G. T. Moore concludes that the septic tank, under ordinary conditions when there are no trade wastes calculated to retard bacterial action, is well suited to remove a considerable percentage of the suspended matter in sewage. It requires but a moderate space, can be cheaply run, but cannot be considered a complete method of sewage disposal and needs to be followed by some process that will expose the effluent to further purifying action, to give a satisfactory result. The chemical method, he thinks, gives promise for the future, but how far its applicability extends remains to be seen. If a sterile as well as an oxidized effluent is demanded, it is not unlikely, he thinks, that the result can be obtained by combining a germicide with chemical precipitation methods as cheaply and satisfactorily as by other means that would have to be employed. The local condition must largely govern the choice of method of sewage disposal, and no plan ought to be adopted until after careful and thorough investigation of all the conditions by competent experts. Many failures have been due to the lack of this, as well as to gross mismanagement or neglect.

The Lancet, August 10, 1907.

Bodily Posture and Cardiac Physical Signs.—William Gordon sums up briefly by stating that in most cases the change from the erect to the recumbent position: 1. Raises and narrows the normal cardiac dullness. 2. Makes the first heart sound duller and the second sharper, thus producing the classical "lub-dup." 3. Diminishes the antero-posterior diameter of the chest. 4. Markedly narrows the dullness of an enlarged heart. 5. Increases the loudness and area of audibility of (*a*) "hemic murmurs" both at the base and apex; (*b*) mitral and tricuspid regurgitant murmurs; and (*c*) aortic stenotic murmurs. (Some of these murmurs may be audible only in the recumbent posture.) 6. Lessens the loudness and area of audibility of (*a*) the "venous hum" in the neck; and (*b*) the presystolic murmur of mitral stenosis. (Some of these murmurs may be audible only in the erect posture.) 7. Leaves unaffected the murmur of aortic regurgitation. 8. Increases the loudness of the accentuated pulmonary second sound. 9. Makes more marked the reduplication of the reduplicated second sound. (In some cases the reduplication is heard only in the recumbent position.) 10. Causes the partial or complete disappearance of the cardiac dullness in certain cases of cancer in their later stages.

Further Researches into the Etiology of Cancer: Note Upon Certain Histological Features of Carcinomatous Tumors Revealed by an Improved Ammonio-Silver Process.—W. Ford Robertson and M. C. W. Young have made recent histological observations which are essentially a continuation of those already recorded in the *Lancet*. Distinct advances as regards the clearness of the histological pictures have been obtained by stronger silver impregnation and by the employment of various agents which practically remove either the silver deposit or the gold which has replaced it. For the removal of the silver deposit platinum bichloride has been of most service; for the removal of the gold deposit potassium cyanide has been used. A still further and very striking improvement has recently been effected by fixing the tissues with corrosive sublimate. The necessary directions for carrying out this improved ammonio-silver process are given. The general result of these new investigations has been to obtain a considerable amount of additional evidence of the occurrence of special intranuclear bodies of the nature of those previously described, to show that structures morphologically identical with the *Spirochæta microgyrata* can be demonstrated in human carcinomata, and to confirm the previous observation of the occurrence of small nucleated bodies, evidently of amœboid character, in such tumors. They also record some observations upon the Jensen mouse tumor, including that of the presence of a body morphologically identical with the spirochete described by Gaylor and Calkins.

A Method of Amputation at the Ankle-Joint Which Leaves the Heel Intact.—C. Gordon Watson describes an operation which resembles in many respects Le Fort's modification of Pirogoff's operation and may be termed "transcalaneal amputation of the foot." He concludes that: (1) it will be found that with the incision given the margin of the plantar incision will be about from one to two inches longer than the margin of the dorsal, so that in suturing slight puckering of the plantar flap will be necessary. Any attempt at lengthening the anterior flap at the expense of the plantar offers two disadvantages—dan-

ger of sloughing in the dorsal flap, which consists only of skin and is not too well supplied with blood, especially in paralytic limbs, and also a risk of getting the ultimate scar too near the sole. (2) At the completion of the operation the plane of the sole remaining will not be horizontal, but tilted forwards and upwards at an angle which corresponds to the position of the os calcis and sole in the normal foot. (3) The tendo Achillis having been divided there is no likelihood of the os calcis becoming displaced backward, and lateral displacement is prevented by retaining the malleoli. It is important to remove all cartilage and to get accurate adaptation of the bony surfaces before fixing. (4) The results of the two cases reported offer encouragement to repeat the operation in similar cases. The resulting stump is certainly as good as, if not better than, that produced by any other known amputation at the ankle. The operation should be applicable also to some cases of disease and injury in which it is possible to leave the os calcis.

A Case of Streptococcic Septicemia.—W. Greenwood Sutcliffe and H. Wansey Bayly report the treatment of a case of streptococcic septicemia by Wright's method with a vaccine made of organisms obtained from the patient's blood, the inoculations being controlled by the opsonic index. The patient recovered. The chief features of interest in this case is the development of the second threatened focus in the left thigh which might be fairly ascribed to the vaccine and the administration of citric acid. There was a marked general improvement after each inoculation with the vaccine, which in almost every case was followed by a rise in the index within twenty-four hours, associated with a fall in the temperature. The boy was throughout kept out of doors from morning till night. The infection evidently took place at the time of operation, the streptococci no doubt being already present in the discharging sinus and gaining admission through the wound in the vein into the general circulation and setting up rigors and a general septicemia fifteen days later.

British Medical Journal, August 10, 1907.

Occurrence of Epileptoid Attacks in Tachycardia and Bradycardia.—Fred. Hugh Clarke considers the clinical aspects of these two conditions and suggests that tachycardia is a pure neurosis, characterized by a great increase in auricular contractions from disturbed nervous influences. After a time, from overexertion, fatigue in the conductivity of the band of His occurs; missed impulses result, causing longer or shorter delays in the ventricular contraction. When these delays are sufficiently prolonged, cerebral anemia is produced, followed in due course by certain nervous symptoms. Tachycardia, being a neurosis, is commonly recovered from. In bradycardia the ventricular pauses are due to structural changes in the band of His, and, therefore, the condition is never recovered from. Life, according to Balfour, is rarely prolonged for more than three or four years. Rest, both physical and mental, is of the greatest importance in the treatment, with head low and foot of bed raised. Any deviations from health should be attended to. In tachycardia nerve tonics seemed to do good. In bradycardia strychnine hypodermically, with heart tonics, seemed to have been of use. Osler records a case of recovery after treatment with iodide of potassium.

The Prevention of Valvular Disease.—Richard Caton says that in acute rheumatism and most of the pathological states in which valvulitis occurs we can secure a large measure of rest and of the conditions favorable to heart repair if we take sufficient trouble. We lessen pain and fever by appropriate measures; we insist upon the most absolute quiet and rest, alike of body and mind; a light diet is given and, if necessary, some sedative. Sodium or potassium iodide is given. Small blisters are applied over the distribution of the first four dorsal nerves between the clavicle and the nipple. The effect of the first group of measures is to slow the heart and diminish its amount of work, offering it the opportunity of self-cure. The second measure stimulates the curative activity of the part. Of these two measures of treatment, the prolonged period of rest is by far the most important. The rest should continue for six or eight weeks or more. By degrees the bruit lessens, becomes intermittent, and at length vanishes. He has witnessed the workingman whose incipient heart lesion has been treated, thus fulfilling year after year his full measure of hard work without dyspnea and without discomfort. The rest treatment must be commenced fairly early before too great an amount of structural change has taken place.

Malnutrition in an Infant Due to Excessive Putrescence in the Alimentary Canal Successfully Treated by Lactic Acid Bacilli.—A. Veitch says that in 1904 Metchnikoff made a strong plea for the systematic introduction of the lactic acid bacilli within the alimentary canal, both as a preserver of health and as a remedial agent in disease. The recent laboratory work and clinical experiences give strong support to the views of Metchnikoff and suggest that in soured milk we have a valuable intestinal antiseptic. He reports a case which seems to warrant the adoption of sterilized or pasteurized milk treated by pure culture of the lactic acid bacillus in all cases of malnutrition in children where intestinal decomposition is found to be excessive.

Berliner klinische Wochenschrift, August 5, 1907.

The Bier Treatment in Gynecology and Obstetrics.—E. Runge finds that in gynecology this form of treatment is best suited for inflammatory conditions of the cervix and for those of the endometrium of the uterine body, i.e. in all forms of endometritis. To treat cervix conditions he inserts a glass speculum into the vagina, the one end fitting snugly over the cervix, the other being attached to a suction apparatus. While this method is also used by many in endometritis, he claims it is practically useless, as the suction causes the two walls of the uterus to come in close contact with each other, so that there is no uterine cavity which can communicate with the suction apparatus. In order to treat these cases properly he first inserts a dilator into the uterus; this consists of a glass rod surrounded by a wire netting which fits closely to the rod while the latter is being inserted. After the dilator is in the uterus a screw at the end of the rod is turned, which in turn raises the wire netting from the rod and thus keeps the uterine walls separated and the cavity in communication with the suction apparatus. His results in these conditions with the Bier treatment were good, but no better than those obtained with other methods, while it took longer to attain the same results. He warns against keeping the suction up too long and against pulling on the apparatus when it is in place, as shock and uterine displacements have been caused by not heeding these warnings. The suction is usually kept up five minutes, at five-minute intervals, one sitting lasting from one-half to three-quarters of an hour and is repeated every two or three days. He has not had enough experience with metritis, parametritis, and amenorrhea cases to report on the value of this treatment in these conditions. In obstetrics he has tried it in septic endometritis and subinvolution cases with some good results. In mastitis it prevents suppuration when applied early, its main use, however, he finds in cases of suppurative mastitis, where the suction apparatus is applied for ten minutes at a time, at ten-minute intervals, for three-quarters of an hour twice a day, but only after one or two small incisions have been made. It certainly has the advantage over the more radical surgical procedures in that it does not leave large scars, destroys less breast tissue, cures more rapidly, and thus permits the child to be put back to the breast sooner, while it keeps up the secretion of milk by its suction even though the child does not nurse.

Münchener medizinische Wochenschrift, July 30, 1907.

Vicarious Respiration.—Geigel prefers this name to compensatory or vicarious emphysema, which is usually applied to a lung which is doing part of the other's work in addition to its own. When a healthy lung does such additional work the extent of the respiratory excursion is increased, quite a different condition than the one which exists in emphysema. Of course, when such a lung is overworked a secondary emphysema may set in, when its respirations must cease to be compensatory; for these reasons he uses the name vicarious respiration. As regards the mechanism of the latter he believes that the inspiratory muscles play the greatest part. In some cases only the muscles of the healthy side are brought into play, for instance, in large pleural effusions with total compression of the lung. In other cases where the slightest excursion of the thoracic wall is still possible both sides are used. He recites a case proving this. An aneurysm in the mediastinum caused a bronchial stenosis on the left side, so that respiratory sounds were practically not heard over the left lung. On being skiagraphed the tumor was seen to move one to one and a half centimeters to the left with each inspiration, the respiratory muscles of both sides having been used. The case, furthermore, showed that a healthy lung does not only expand upward, downward, and outward, but also towards the affected lung, a phenomenon of vicarious respiration not described heretofore. The movements of the mediastinum he claims are brought about by the inspiratory muscles of the diseased side. He thinks that possibly these movements of the mediastinum may be of value in diagnosing between bronchial stenosis caused by an aneurysm and bronchial stenosis caused by an infiltrating tumor.

Hot Air Treatment of Chilblains.—Hornung refers

to the recent articles of Ritter and Mirt in which they recommend this treatment for chilblains. He reminds us that this is an old household remedy which was in vogue in the first half of the last century, though its mode of application was a little different. The parts affected were rubbed with petroleum and then held as long as possible near an open fire, sometimes for a whole afternoon. After several days the chilblains disappeared. Horning admits that the petroleum played no part in the cure.

Deutsche medizinische Wochenschrift, August 1, 1907.

Primary Arteriosclerosis of the Pulmonary Artery.—Monckeberg distinguishes between an arteriosclerosis of the pulmonary artery, which is secondary to an increased blood pressure caused by a mitral stenosis or some lung disease, and a primary one not dependent on any heart or lung trouble. The former is an interesting condition found at autopsy, but one which had no influence on the clinical picture of the case; the genuine primary arteriosclerosis, on the other hand, is the cause of clinical symptoms and pathological changes in the heart. It is a rare condition of which he could find only two complete accounts in literature. After giving a synopsis of these cases he relates the history of two cases of his own with detailed microscopical and macroscopical post-mortem findings. In none of the cases was the correct diagnosis made during life. Twice a congenital heart lesion was suspected; in one of his cases Basedow's disease was diagnosed, in the other a mitral insufficiency with lost compensation. Clinically the lungs were usually found normal, the right heart was hypertrophied, various murmurs were heard over the cardiac area, the pulse was rapid, but regular, the patient was cyanosed, and towards the end the signs of a tricuspid insufficiency set in. At autopsy the lungs were found normal, the right heart enlarged, and its walls hypertrophied, the pulmonary artery and its main branches dilated, while the lumen of the smaller branches was found diminished throughout both lungs. The microscopical and macroscopical changes in the pulmonary artery and its branches resembled those found in secondary arteriosclerosis of the pulmonary artery and in arteriosclerosis of other arteries. No organic valvular disease was found nor any lung conditions which might have caused the hypertrophy of the right heart. The autopsy findings left no doubt that the greatly diminished lumen of the smaller branches of the pulmonary artery were the cause of the right-sided cardiac hypertrophy and the relative tricuspid insufficiency with its symptoms. As there was no cause for any increased blood pressure in these cases, this could not have been the cause of the arteriosclerosis. The only explanation he can offer for the condition found is that since the patients were all young, the walls of the pulmonary artery and its branches may have been congenitally weak, so that finally even the normal blood pressure became too much for them and caused the arteriosclerosis.

Bier's Hyperemia in Otology.—Leutert reviews most of the articles published by others on the value of the Bier treatment in otology. He does not share the opinion of those who claim it has already been proven useless in this branch of medicine, but is inclined to believe that it deserves further trial in a certain class of cases in which good results have been obtained. He furthermore holds that this form of treatment should be confined to ear clinics where the patient can be constantly watched and immediately operated upon if necessary. The deductions which he draws are as follows: (1) In chronic middle ear disease the treatment is useless. (2) In mild, fresh cases of otitis media paracentesis relieves the patient much quicker than the hyperemia artificially produced. (3) Fresh, severe cases of otitis media, with or without mastoid tenderness, in which an early paracentesis was necessary and in which the Bier treatment was instituted at the same time, are not cases by which we should judge the efficiency of the latter form of treatment, since the good results were probably due to the paracentesis. Many of the reported cases of cure with the Bier treatment are of this kind. (4) In mastoid disease the treatment is dangerous on account of the close proximity of the sigmoid sinus. Bier claims that artificial passive hyperemia increases the area of inflammation, which increase amounts to possibly one centimeter in an extremity and is of no account; but in the ear one centimeter is a big distance and may bring one very close to the sigmoid sinus which may then become diseased. The danger of such a complication is greater when there is no external opening in the mastoid process and supervening abscess through which pus can drain. Four cases of mastoiditis in which there was no such opening and in which the hyperemia treatment was tried ended with sinus involvement. While the Bier treatment may not have been the sole cause of the latter complication, it probably aided in bringing it about. (5) In a certain class of cases with a superficial skin abscess in the mastoid region the treatment might be of value. Bier's and Heine's successfully treated cases came under this head. They always first incised the skin abscess without knowing, however, whether the bone was intact or not. Probably the mastoid abscess had ruptured into the subcutaneous tissue, in which case their good result can easily be explained by the free drainage which their skin incision with suction brought about. As Bier and Heine were not certain whether in their cases the bone was intact or not, it remains to be seen whether their method of treatment will be efficient in cases of mastoiditis with a superficial skin abscess where the bone has remained intact. (6) The treatment is contraindicated in all cases of mastoid disease in which complications are suspected.

French and Italian Journals.

Alcohol and the Infant.—Raoul Brunon draws a painful picture of the increase of drunkenness in France since spirits have been substituted for the wines of the country as a common drink. It has become the custom to give brandy and spirits to infants at the breast to make them sleep, and to children at their meals. The nurse takes spirits to increase her milk, and the pregnant mother to help the development of her child. The workman drinks brandy three times daily. The infant is poisoned before birth, cursed with the paternal heredity, and made a toper in childhood. Many children suffer as a result from skin and intestinal diseases, and the number of deaths is appalling. Nervousness, insomnia, bad temper, and constant crying are the results in young children. Older ones are the victims of tuberculosis, epilepsy, and crime. Absinthe is the drink of the young man, and it is the cause of the majority of crimes among the young. The effect of this state of things is evident in the small number of children and the large increase in crime, as well as in the smallness of the race, evidenced by the necessity of reducing the required stature in the French army.—*Le Bulletin Médical,* May 15, 1907.

Relations Between Acromegaly and the Sexual Function in Women.—Serafino Patellani has made experiments, as well as examined the histories of 145 collected cases. As a result of his studies he gives us some definite conclusions. He believes that the absence of menstruation bears a definite relation to the presence of the disease. Experimental studies of the hypophysis have convinced him that its function is to regulate metabolism, and that its destruction causes accumulation of toxic substances and poisoning of the system. He finds that the classic form occurs most frequently between the ages of twenty-one and twenty-five years, and in virgins or sterile married women. It may result from injury, infective diseases, prolonged lactation, and uterine atrophy. It never occurs before puberty or after the menopause, but is a disease of the sexual period. The normal menopause may be considered a physiological acromegaly. Amenorrhea is not only a symptom, but bears a causal relation to the disease. Lactation may end in uterine atrophy, followed by amenorrhea. In all cases of acromegaly in which the genitals were examined during life or after death these organs were found small or atrophied. Ovulation may go on during the disease, and pregnancy occur, but lactation will generally precipitate the development of the disease. It may exist unobserved for from one to five years.—*Annali di Ostetricia e Ginecologia,* March and April, 1907.

Experimental Researches on the Specific Value of Certain Sera in Infections by Streptococci and Pneumococci.—Raffaele Chirolanza says that the streptococcus and the pneumococcus are germs that frequently produce peritonitis. In young children these infections are not very serious, but in adults death is generally the result. The author has made experiments to ascertain whether by the use of sera effects cannot be obtained that may aid in the cure and prevention of these infections. Possibly a preventive action may be obtained in infections consecutive to laparotomy. There are several varieties of streptococci found in different diseases, whose virulence and effects are different. The author has made use of the sera of Aronson and Tavel, injecting them into the abdominal cavity of rabbits. He made use of a streptococcus from a human subject in producing the infection to be combated. The serum used had no beneficial effects in the case of streptococcus infection in rabbits. The serum does not act uniformly because there are several varieties of streptococci. The ethereal serum of Pane in small doses has a slight effect in the case of nonvirulent streptococci, but when the germs are virulent the serum has no preventive action. Against the pneumococcus the serum of Pane has a marked and constant preventive action.—*Il Policlinico,* June, 1907.

Book Reviews.

A Manual of the Diagnosis and Treatment of the Eye. By Edward Jackson, M.D., Professor of Ophthalmology in the University of Colorado. Second Revised Edition. Philadelphia and London: W. B. Saunders Company, 1907.

The second edition of Jackson's work forms a volume of 615 pages. It is well printed and sufficiently well illustrated by original cuts. The work is intended for the use of the student and general practitioner and is admirably adapted for the purpose. The revision of the first edition has been thoroughly done. There have been many additions, particularly to the part devoted to diseases of the eye. The descriptions are condensed, but are clear and quite comprehensive. The volume is one to which the phrase "multum in parvo" may be very appropriately applied. The work is particularly strong in the department of practical optics; nevertheless, it is well to the front in all of its various parts. An excellent feature is the bibliography, which gives reference to many of the recent exhaustive articles on all of the topics discussed, enabling the student to continue further the study of any subject in ophthalmology.

Manual of Anatomy, Systematic and Practical, Including Embryology. By A. M. Buchanan, M.A., M.D., C.M., F.F.P.S. Glas., Professor of Anatomy in Anderson's College, Glasgow; Examiner in Anatomy for the Triple Qualifications of the Scottish Licensing Bodies; Examiner in Anatomy and in Physiology for the Double Diploma, and Examiner in Anatomy (Human and Comparative) for the Fellowship of the Faculty of Physicians and Surgeons of Glasgow; Ex-Examiner in Anatomy to the University of Glasgow; Formerly Senior Demonstrator of Anatomy in the University of Glasgow. Vol. II. Chicago: W. T. Keener & Co., 1907.

The second and concluding volume of this excellent work on anatomy treats of the abdomen and its contents, the thorax and its contents, the head and neck, the nervous system, and the organs of special sense. An appendix contains the Basle Anatomical Nomenclature and a glossary of anatomical terms, giving sometimes the definition, sometimes the derivation, of some eight or nine hundred words. This work is one which ought to meet well the needs of the student during dissection, for the descriptive portion is well arranged, with heads marked in distinctive type, and not too voluminous. The pictures, of which there are 629 in the two volumes, are plain, but clear, and a number are colored to distinguish the arteries and veins. The book is of convenient size for the dissecting room, and the binding is such that the volume will lie flat when opened at any page. The work is hardly elaborate enough to compete with any of the large treatises on anatomy now in use, but as a dissecting manual it can be heartily commended.

The Common Bacterial Infections of the Digestive Tract and the Intoxications Arising from Them. By C. A. Herter, M.D., Professor of Pharmacology and Therapeutics in Columbia University, Consulting Physician to the City Hospital, New York. New York: The Macmillan Company, 1907.

Now that it has been clearly shown how large is the part played by the intestinal flora in many apparently remote morbid processes the appearance of the present volume is to be regarded as a boon to the profession. It is especially valuable, however, not alone from the fact that it offers a summary of what has been learned from and is suggested by the work of others in this field, but in that it comprises the results of the enormous amount of original work relating to the subject carried out in the author's laboratory, and contains a wealth of new information that seems destined to form what may almost be termed a new point of departure in diagnosis and treatment. The first chapters are devoted to a discussion of the bacterial flora of the human digestive organs in health, and the bacterial processes in the gastrointestinal system of normal and bottle-fed nurslings, children, adolescents, and adults. The intestinal bacteria of carnivorous and herbivorous animals are taken up and the methods used in investigating and classifying the gastroenteric bacteria are described. The following chapters treat of the common bacterial infections of the digestive tract, first from the standpoint of the organism concerned and then in regard to the products of the fermentative and putrefactive processes. The types of the chronic excessive intestinal putrefactions are grouped under the indolic type, the saccharo-butyric type, and the type consisting of a combination of these two. Finally the subjects of prophylaxis and treatment are taken up, and the book closes with a chapter in which the acute and chronic enterogenic infections are considered from the sociological standpoint. The prevention of the acute forms, such as dysentery, typhoid fever, and the milk-borne infections of infants, has long occupied the attention of hygienists, though their efforts are even now inadequate to the importance of the issues at stake, but the injurious effects of the more insidious chronic enterogenic diseases are none the less real because their nature is only rarely recognized, and the economic loss to the community that they entail is almost beyond calculation. Dr. Herter's book should serve to point out the gravity of these intoxications and to direct the attention of the profession to the means for their control. The problems involved are many and difficult, but much has already been gained in regard to the means available in combating them. This volume will no doubt prove an incentive to much further investigation.

Tics and Their Treatment. By Henry Meigs and E. Feindel. With a Preface by Professor Brissaud. Translated and Edited with a Critical Appendix by S. A. K. Wilson, M.A., M.B., B.Sc., Resident Medical Officer, National Hospital for the Paralyzed and Epileptic, Queen Square, London. New York: William Wood and Company, 1907.

In this volume will be found an exhaustive, yet readable, account of tics. It is unfortunate that the term tic should be so frequently misapplied and misunderstood, and the authors of this work are at considerable pains to clear away much of the misconception that has surrounded the word. Their definition of tic, though lengthy, is worth quoting: "A tic is a coordinated purposive act, provoked in the first instance by some external cause or by an idea; repetition leads to its becoming habitual, and finally to its involuntary reproduction without cause and for no purpose, at the same time as its form, intensity, and frequency are exaggerated; it thus assumes the characters of a convulsive movement, inopportune and excessive; its execution is often preceded by an irresistible impulse; its suppression is associated with malaise. The effect of distraction or volitional effort is to diminish its activity; in sleep it disappears. It occurs in predisposed individuals, who usually show other indications of mental instability." The book begins with a chapter on the confessions of a victim to tic; this is followed by chapters on the history of the term, the pathogeny of tic, the mental condition of tic subjects, the etiology, and pathological anatomy, study of the motor reaction, accessory symptoms, the different varieties of tics, tics of speech, the evolution of tics, antagonistic gestures and stratagems, the complications of tics, the relation of tics to other pathological conditions, the distinctive features of tics, diagnosis, prognosis, and treatment, including treatment by reeducation. There is a critical appendix by the editor, and the volume closes with a valuable bibliography. There is much in the work that will repay careful reading; and there are few practitioners who have not at some time or other been at a loss for the information contained herein.

Physicians' Manual of the Pharmacopœia and the National Formulary. An Epitome of all the Articles Contained in the U. S. P. VIII and the National Formulary. By C. S. N. Hallberg, Ph.G., M.D., Professor of Pharmacy, School of Pharmacy, University of Illinois, Member of Committee on Revision of the U. S. Pharmacopœia and of the Committee on the National Formulary, and J. H. Salisbury, A.M., M.D., Assistant Professor of Medicine, Chicago Clinical School. Chicago: American Medical Association, 1907.

This is a useful little book of reference for the busy practitioner who wishes to treat his patient on purely ethical lines, but is sometimes at a loss to know whether the use of a certain drug or combination of drugs is permitted. The book contains a list, with formula and brief description, of all the articles sanctioned by the Pharmacopœia and National Formulary. The latter book is one prepared by druggists for the guidance of physicians in the treatment of their patients, and which the National Food and Drugs Act has made a legal standard in company with the Pharmacopœia. The use of the book is facilitated by a therapeutic index and by a glossary of synonyms. It is interesting to learn from a study of the latter how many of the now accepted preparations were first brought to the notice of physicians under the guise of secret remedies and even quack medicines, to say nothing of ordinary proprietaries, and the thought is suggested that some of the latter, even of those now under the ban, may possess valuable therapeutic properties which might win for them admission to some future edition of the U. S. P. or N. F.

Society Reports.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS.

Third Annual Meeting, Held at Washington, D. C., May 6, 7, and 8, 1907.

(Special Report to the MEDICAL RECORD)

(*Concluded from page 33.*)

CLINICAL AND CLIMATOLOGICAL SECTION.

DR. GEORGE DOCK OF ANN ARBOR, MICH., CHAIRMAN.

Address of the Chairman.—Dr. DOCK, in his address, limited himself to a discussion of some of the problems that forced themselves on the attention of those who had to treat and study tuberculosis, as well as to instruct others to do the same. While under the impetus of the movement that had brought about this meeting a tremendous advance had been made in our attitude toward tuberculosis, and it was well to view the field and see whether the strategic positions were properly held and whether the most effective blows were being delivered at as many points as the forces available permitted, one apparent need was to enlarge our facilities for the treatment and education of early cases of pulmonary tuberculosis. Another, equally great, was the means and places for the treatment of tuberculosis patients, in any and every stage, near their homes. At the present time general hospitals and public institutions either had no room for such cases or had not the necessary facilities. Phthisiophobia had much to do with this state of affairs, and while it was not everywhere so severe and obvious as it was soon after the infectiousness of tuberculosis was first made known, it was still partly responsible for the fact that, with few exceptions, the tuberculous patient could not secure proper and adequate hospital treatment near his home at a price that he could compass. Quite as great as the need of facilities for caring for the tuberculous was the need of more perfect arrangements for study and instruction. In some cities, as in many of the private and a few public sanatoria, there were facilities for study by graduate physicians, but the instruction of undergraduates still left much to be desired. Sanatoria could not largely be used for teaching undergraduates on account of their distance in general from teaching schools, but dispensaries could be made to suit that purpose admirably if they had, as they should always have, proper rooms, sufficient laboratory equipment, and an adequate corps of physicians. For teaching the phenomena of the later stages, special wards or hospitals for advanced cases would be of equal value.

Report of the Committee on Clinical Nomenclature.—Dr. VINCENT Y. BOWDITCH of Boston, the chairman of this committee, in his report gave the results of the schema for the classification of tuberculous patients, which was adopted by the National Association in May, 1905. Briefly, the cases were classified under the term incipient, moderately advanced, far advanced, and acute miliary tuberculosis, and the results of treatment were classified under the terms unimproved, improved, arrested, apparently cured, and cured. The committee reported that in addition to the sanatoria and hospitals for consumptives in which the classification schema and the tabulation schema adopted by the National Association were already in use, it had been adopted by thirty three institutions during the past year.

Dr. LAWRENCE F. FLICK of Philadelphia said the report, even as modified by the committee, did not lay sufficient stress upon prognosis.

Dr. CHARLES L. MINOR of Asheville said he had used this method of clinical nomenclature in his private work since it was first brought out, and was very well satisfied with it. He thought it was adapted not only to institutional work, but also to private practice.

The discussion was continued by Dr. ALFRED MEYER of New York and Dr. EDWARD O. OTIS of Boston.

Report of the Committee on Medication in Tuberculosis.—Dr. ALFRED MEYER of New York, the chairman of the committee, presented this report. It was the result of the combined efforts of six members, including the chairman. Each member of the committee submitted his views in writing to the chairman, and the latter then collated and edited the data thus obtained into one combined report, and sent a copy for signature or correction to each member of the committee. From this corrected preliminary report the final report, as presented to-day, was obtained. The committee believed that no directly curative medication had yet been discovered, but that many drugs greatly improved the general condition by ameliorating different symptoms, and indirectly limited the extension of the disease or brought about fibrosis. In view of that fact, the committee deplored the prevailing tendency to ignore the use of drugs in tuberculosis, regardless of their character or the special indications in individual cases. The committee, in its report, first referred to creosote. This remedy, and its carbonate was perhaps prescribed more generally by the profession in tuberculosis than any other. The committee was not much impressed with the value of creosote, excepting in lessening the secretion from an accompanying bronchial catarrh. The routine administration was not advised, but in patients whose kidneys were healthy and whose appetite was increased by small doses (one to three drops) it might be of service in consequence of this latter effect. Ichthyol appeared to be but little used by members of the committee. There appeared to be considerable difference of opinion as to the value of iodine and its derivatives. Its use appeared to be much less frequent among physicians than among surgeons. Whereas one member dismissed it as of no service, another one believed it deserved the title of specific more nearly than any other remedy. The truth probably lay somewhere between these two contradictory extremes. Arsenic in the form of Fowler's solution, or arsenic and iron in combination, were of service if anorexia or anemia were present. Codliver oil was but little used by members of the committee, the food fats being substituted for it. A number of members of the committee attributed great value to strychnine. Tuberculin had been used by five members of the committee. There was general agreement that in properly selected cases and in proper doses no harm was done, and those who had used the remedy longest believed they had seen improvement in previously stationary cases, and open changed to closed tuberculosis. When any opinion had been expressed by a member of the committee in regard to antistreptococcic sera it had been one of skepticism as to their value. In speaking of symptomatic treatment, the report first referred to cough. For this symptom, in the vast majority of cases, no special remedy was required. The value of training and the use of the will in unnecessary coughing was pointed out, as was also the striking absence of coughing at institutions where this principle was inculcated. To prevent harassing cough at night, however, with its attendant sleeplessness, codeine or heroin was advised. Fever was mostly combated with the rest and air cure; night sweats with atropine, agaricin, zinc oxide, and camphoric acid; pleuritic pains and pleurisy, with strapping and, if necessary, small successive cantharidal blisters or tincture of iodine. For hemoptysis, when slight, glonoin or sodic nitrite, the dose to be determined by the blood pressure, which should be below 120 mm. of mercury; also aconite and atropine. Morphine should be given only when the bleeding was severe, and then preferably hypodermically with atropine. One member of the committee had the impression that not infrequently pneumonia resulted from a stoppage of the cough and the retention of the blood. Calcium chloride appeared to act about as well in small doses as in large ones, and the question arose whether it had any

hemostatic effect at all. Ergotin, although still recommended by Cornet, had been practically dropped. For diarrhea calomel was recommended, or, if it was of tuberculous origin, iodoform or ichthyol. For constipation, besides the usual cathartics, oil enemata at bed time deserved a more frequent use. For tuberculous laryngitis, insufflation of iodoform or orthoform. For ulcers, the application of lactic acid solution and frequent daily inhalations of weak formalin solutions. In many of these cases no treatment was recommended, excepting cocainization before mealtime.

Dr. Howard Fussell of Philadelphia said the report of the Committee on Medication in Tuberculosis took a safe, middle ground, and while it discouraged polypharmacy and over-drugging, it made a plea for the use of well tried single remedies which, in the experience of the members of the committee, had been of value. The speaker believed with the committee that no directly curative medication had yet been discovered, but he ventured the hope that the workers in the laboratory on the most attractive subject of opsonins, vaccines, and sera would in the relatively near future give us a substance that would enable us to cure a case of tuberculosis absolutely, instead of merely arresting it, as was now the case. Speaking of drugs, Dr. Fussell said that creosote and carbonate of creosote had been entirely disappointing in his hands, excepting that in small doses the remedy appeared to have a favorable effect upon the gastric distress which often accompanied tuberculosis, and which appeared to be more frequent now, when forced feeding was so much in vogue. He had found arsenic and iron most helpful in the anemic state, which was practically always present in advanced cases. Strychnine he regarded as the one drug of paramount importance in doses of 1-30 of a grain three times daily, and under its influence the heart was strengthened and the body musculature decidedly improved. Cough was best controlled by rest in the open air, but there came a time in many cases when codeine or heroin had to be used. Hemoptyses were best controlled by rest alone, but small doses of morphia, given hypodermically, would often allay the irritating cough which increased the bleeding.

Dr. Silvio von Ruck of Asheville, N. C., who was a member of the Committee on Medication, presented a minority report, in which he limited himself to the discussion of tuberculin. In properly selected cases and in proper doses tuberculin did no harm, but, on the contrary, was capable of accomplishing good. He especially wished to emphasize the fact that the occurrence of fever reaction of any degree was an indication of a therapeutic overdose, and while such reaction was the signal for an intermission between injections until the fever had subsided, it was better to avoid it entirely. The constitutional symptoms of a tuberculin reaction depended upon reaction in the local tuberculous areas, and it was the local and not the constitutional effect which was the best and safest guide in dosage. In the earlier stages, before there was marked catarrhal or cavernous phenomena present, it was not a difficult matter for one practiced in auscultation, by frequent examinations, to observe the effect of the remedy locally. Dr. von Ruck said that at the Winyah Sanatorium crude tuberculin was now seldom used, its place having been taken by various modifications, including those of Klebs, Hunter, and himself, and later by extractives of the bacillus itself. With the exception of Hunter's modification, these modifications had proved equally as effective, and some of them infinitely more so, than crude tuberculin, and they had the additional advantage of greater safety.

Dr. Edward O. Otis of Boston said that with dispensary patients and those in hospitals for advanced tuberculosis he had found codeine and heroin the two most efficient drugs for the purpose of allaying cough. To control night sweats he depended largely on agaricin and camphoric acid. In spite of the view that it was now considered almost heretical to use ergot in hemoptysis, he still believed it had some value in selected cases, using the blood pressure as a guide. He had in mind several cases of hemoptysis where ergot proved beneficial, in connection with a low blood pressure, where other remedies had previously been employed without avail.

Dr. Flick said he did not believe that nephritis was a contradiction to the use of creosote. He looked upon creosote as one of the most valuable remedies we had in certain forms of mixed infection, and in all advanced cases of tuberculosis the drug should be used in large doses. He had given it in fifty-drop doses, three times daily, for several years without intermission, in most advanced cases, in which he could not help but feel that the preservation of life and whatever restoration occurred was due largely to the creosote. Iodine he regarded as the nearest specific remedy we had against the tubercle bacillus itself. It should not be used by mouth, but by the skin. For over fifteen years he had used iodine by inunction, first as iodoform, and later as iodized oil. Sulphate of magnesia, in small doses, was the one drug which he had found of value in tuberculous diarrhea. He also referred to the use of fly blisters, not to relieve pain, but for the purpose of withdrawing serum, which was allowed to be reabsorbed by the patient.

Dr. Charles L. Minor of Asheville said he also used fly blisters, but not for the purpose suggested by Dr. Flick. He was satisfied that in incipient apical lesions the persistent use of fly blisters, once or twice weekly, was beneficial. They reduced the patient's temperature and might even have an actual physical effect upon the underlying lesion. The fly blister should be left on long enough to raise a good blister; then it should be removed, and the wound dressed in the usual way. He did not try to get reabsorption of the serum that was withdrawn.

Dr. F. M. Pottenger of Los Angeles said that in the treatment of cough he rarely used either codeine or heroin, preferring the use of the wet jacket. If this was properly made and applied it would relieve not only the cough, but also reduce the temperature and prevent night sweats. He was somewhat disappointed that the committee did not recommend hydrotherapy in connection with the fever of tuberculosis. For that purpose he used sponging with tepid water, which he preferred to cold water. In dealing with tuberculous diarrhea, he cleaned out the alimentary canal and prescribed a carefully selected diet. He believed that tuberculous laryngitis, taken early, had practically the same prognosis as tuberculosis in the lung.

Dr. Charles Denison of Denver said that in dealing with hemoptysis he had almost entirely discarded the use of drugs, preferring the mechanical method of strapping the chest, thus putting the affected lung at rest.

Dr. George Mannheimer of New York showed an instrument by which a patient could medicate his own larynx. It consisted essentially of an elongated medicine dropper, made of heavy glass and properly bent at the tip. The instrument could be employed for the injection of either watery or oily solutions. It possessed the advantage of being cheap, simple, and effective, and could be used by the patient himself.

Dr. Woods Hutchinson of California regretted that the report did not refer a little more radically to codliver oil as an article of food. As to night sweats, the older routine methods of treatment he considered irrational and unnecessary. Night sweats were the result of the collection of toxins in the system, and by keeping the patient in the open air and regulating the bowels and the diet the night sweats would disappear.

Dr. S. A. Knopf said that more stomachs had been spoiled by creosote than by anything else he knew of. It was absolutely unpardonable to give a man fifty drops of creosote three times a day. As for the specific value of the drug, he doubted it very much. He did not think there

was any specific in tuberculosis excepting tuberculin, and that had its limitations. In diarrhea, Dr. Knopf said he did not give any medicine at all. He cleaned out the intestinal canal and regulated the diet. Under this plan of treatment the patients usually did nicely; but there were certain diarrheas that we could not control without large doses of opium. When we were in the presence of a dying consumptive, he believed it was a sacred duty to give him morphine in doses sufficient to make him comfortable and relieve his distress.

Dr. Myer Solis Cohen of Philadelphia said that under the use of carbonate of creosote he had seen patients with mixed infection and fever improve, after months of fresh-air treatment night and day had failed to benefit them.

Report of the Committee on Mixed Infection in Tuberculosis.—Dr. Lawrence F. Flick of Philadelphia, the chairman of the committee, read this report. He stated that in the light of our present knowledge it was not practicable to draw up a report on mixed infection in tuberculosis which in all its details could be consistently indorsed by a committee of six men. There were many points upon which men agreed, and there were some points upon which they held personal views based upon facts as they saw and understood them. It was the opinion of the majority of the members of the committee that mixed infection in tuberculosis was a symbiosis of other microorganisms with the tubercle bacillus in the tissues of the body, either in the tubercle itself, or outside of the tubercle in the parenchymatous tissue, in intracellular tissue, in a mucous membrane or a serous membrane. The secondary microorganisms might fraternize with the tubercle bacillus, or merely coexist with it. It was possible that they might repress or stimulate the growth of the tubercle bacillus, and it might be that they had no effect upon it. Mixed infection played an important rôle in tuberculosis, and gave rise to the symptom-complex known as consumption. Pure tuberculosis was a disease with a low temperature range, with disturbance of the circulation out of proportion to the temperature, usually with loss of weight, fatigue, variation in mental attitude, disturbance of the vasomotor equilibrium, and excessive reflex activity. The symptoms of high fever, extremely rapid emaciation, excessive weakness and violent cough were due to mixed infection. The microorganisms that produced mixed infection, either by symbiosis with the tubercle bacillus in the tubercle itself, or by running a concurrent course in some other tissue of the body were the streptococcus, the staphylococcus, the pneumococcus, the influenza bacillus, possibly undiscovered microorganisms which produced colds, the diphtheria bacillus or pseudo-diphtheria bacillus, the colon bacillus, Friedlander's pneumobacillus, and possibly a number of other microorganisms the pathogenicity of which was not recognized. All of these microorganisms had been found in sputum, and some of them could be found constantly in the sputum of advanced cases. The staphylococcus, the streptococcus, the pneumococcus, the influenza bacillus, and the diphtheria bacillus had all been found in cavities in the lungs, in the lungs apart from cavities, and in other organs of the body after death. The pneumococcus, streptococcus, and staphylococcus had been found in washed sputum, and the pneumococcus and streptococcus had been found in the blood in hemorrhage of the lungs. The streptococcus had been found in miliary tubercles which had not broken down. Nearly all the microorganisms which had been named as playing a secondary rôle in tuberculosis had been found in the mouths of people apparently in good health.

Dr. J. S. Bullock of Silver City, N. M., in a minority report said that many years experience with tuberculosis had not served to give him any very definite ideas regarding the rôle of mixed infections. To say just where tuberculosis began and mixed infection left off, granting that such an entity as a mixed infection existed, he believed to be impossible in any given case. That mixed infections had a place he was prepared to admit, and one might almost say prove from the fact that tuberculosis of closed cavities, as for instance joints or the classic cold abscess, ran a practically afebrile course until exposed to air, which apparently gave rise to secondary infection. The same was true of nonulcerative pulmonary tuberculosis, closed cases. That pure tuberculosis could, however, give rise to all the phenomena that were ordinarily ascribed to mixed infection the speaker had no doubt. Granting the existence of mixed infection, it became impossible to say what organism or combination of organisms with the tubercle bacillus was causing the condition. An exception might be made in the very exceptional instances in which a brilliant result attended the use of streptolytic serum, when the cause was manifestly the streptococcus. This serum was rarely ever efficient during cavity formation, which fact was at least suggestive of the nonidentity of the streptococcus with cavity formation. That hemorrhages occurred without the aid of mixed infection, Dr. Bullock said he had not the slightest doubt, and the same was true of night sweats, fever, and every other symptom presented in tuberculosis. This was not affirming, of course, that other organisms did not sometimes aid the tubercle bacillus in its destructive campaign. Whether a mixed infection could occur without tangible evidence of its presence in the symptomatology of tuberculosis we did not know, nor were we able to recognize its presence either scientifically or practically. After all had been said, it seemed to him that we used the term "mixed infection" rather too glibly, and that tuberculosis was almost always the real enemy to be fought. It was certain that without tuberculosis we would not be discussing pulmonary infections other than those well known to us. We all knew and admitted the rarity, if they existed at all, of serious pulmonary infections running the course of tuberculosis of the lungs without the tubercle bacillus and its life cycle as a pathogenic foundation. Mixed infection was a convenient terminology for one of the generalizations of our art and science, so tempting to apply and partly explain one of the enigmas of tuberculosis, that we often used it to cover a really enormous ignorance of actual conditions. The real mixed infections we had to regard and care for were those well known to us all, namely, syphilis, influenza, and various other diseases, intercurrent and frank, which threatened the future of our tuberculous patients.

Mixed Infection in Pulmonary Tuberculosis.—Dr. Arnold V. Klebs of Chicago, in a minority report, said he could not see the causal correlation between certain symptoms in pulmonary tuberculosis and a "mixed infection" determined *intra vitam* by methods at present at our command, in the vast majority of cases. Attempts at explanation of certain signs and symptoms in the course of pulmonary tuberculosis by the activity of other microorganisms than the tubercle bacillus must be considered futile, and in no way had given information or assistance to the clinician as regarded the diagnosis, prognosis, and treatment of the disease. It could not be denied, however, that in certain cases, especially those with more or less extensive tissue destruction, the activity of certain other microorganisms, chiefly the pyogenic types, influenced the clinical picture. The exact clinical division of cases into such with or without "mixed infection," and especially the determination in these cases of the dependence of certain symptoms on the presence of definite species of bacteria seemed not possible at present. The two principal methods of clinical medicine which had been used for the recognition of mixed infection were the bacterial findings in the sputum and the determination of fluctuation of the body temperature. Personally, Dr. Klebs said, he had not been able to draw any valuable clinical conclusions from the presence or absence of bacteria other than the tubercle bacillus in the sputum, and he held that it was fairly well established, both clinically and experimentally, that the

tubercle bacillus (and its products) alone was capable of producing fever in various degrees according to its virulence. Furthermore, the variability of the type of fever was very largely dependent on the individuality of the patient.

Dr. W. L. DUNN of Asheville said the whole difficulty in connection with this question seemed to come from the attempt to reconcile the clinical features of tuberculosis with the bacteriological findings in the sputum. Personally, he had not been able to explain his cases by the bacteriological findings in the sputum, and he thought these various microorganisms must be considered in the sense of being secondary rather than symbiotic.

Dr. MINOR said he was satisfied that a mixed infection could and did exist in tuberculosis, but he had been unable to prove to himself that the sputum could give us satisfactory evidence of its existence. One of the beneficial effects of country air was that it did not add to the already existing mixed infection, and allowed that present to die out, and one of the great dangers of patients who had advanced to that stage of tuberculosis in which there were excavations was the probability of streptococcus reinfection when they returned to ordinary climates.

The discussion was continued by Drs. G. B. WEBB of Colorado Springs, KNOPF of New York, and S. VON RUCK of Asheville, and closed by Dr. Flick.

Some Experience with Tuberculin.—Dr. L. ROSENBERG of Bedford Station, N. Y., read this paper, giving his experience with the use of tuberculin at the Bedford Sanatorium of the Montefiore Home. He expressed the opinion that with the aid of tuberculin, judiciously administered, they had been able to obtain somewhat better results than with the ordinary methods employed, particularly in those cases that had advanced beyond the first stage of the disease.

Dr. LAWRASON BROWN of Saranac Lake said a careful review of the literature on the subject forced one to the conclusion that the evidence in favor of tuberculin was very slight in the vast majority of cases, and that it depended largely on personal opinion. The more the man used tuberculin, the more he was in favor of using it, but there was little proof to show that it did good. Undoubtedly, there were cases upon which it exerted a great influence, but there were others on which it exerted no influence whatever.

Dr. ALFRED MEYER of New York said that in spite of his belief in the data presented by Dr. Rosenberg, which were quite favorable to tuberculin, he was inclined to agree with Dr. Trudeau that we must be a little cautious in drawing conclusions, because of the kind of cases selected for this treatment. Let us use our hygienic and dietetic and hydrotherapeutic remedies, and so forth, and then, when the patients no longer continue to improve, let us try this or that drug, or this or that serum or tuberculin, and see if there is any additional improvement following its use.

The Varieties of Tuberculosis.—Dr. WOODS HUTCHINSON of New York stated that the subject of the varieties of tuberculosis was of immense practical and general importance. The current miliary, bronchopneumonic, and fibroid types were merely on a symptomatic basis. The first was merely an expression of an involvement of the blood stream, and was not a definite and characteristic type. The bronchopneumonic and the fibroid were often different stages of the same type, like the old "parenchymatous" and "interstitial" nephritides, the first representing the acute stage, which, if the patient survived, would pass on into the chronic or fibroid stage. The line of demarcation between these two types, was very uncertain. Dr. Hutchinson said he simply wished to call attention to one factor which, while it had been referred to frequently in a vague and general way, had never received the recognition to which it was entitled, namely, the factor of race and social condition, so far as the latter affected the life and habits of the class. During his residence on the Pacific coast he had come in close contact with a number of the Indian tribes living there on the reservations, and was struck by the fact that so many of the Indian children had scars on the neck or elsewhere, and showed other evidences of a strumous condition. He was informed by the physicians to the reservations that fully nine-tenths of the deaths among the Indians were due either to tuberculosis or gunshot wounds, the vast majority to the former. Not only among the Indians on the reservations, but also among the Alaskans and the Eskimos from 60 to 80 per cent. of the deaths were due to tuberculosis, and in a communication presented to the Association a year ago by Dr. James Walker, among the Sioux Indians 47 per cent. of the deaths were shown to be due to tuberculosis (24.4 per 1,000 living), a mortality eighteen times greater than the general mortality from the disease, and this among people who were living under favorable conditions as regarded food and open air. Dr. Hutchinson said this matter was also brought home to him by a visit which he was called upon to make in his official capacity as State Health Officer of Oregon to a group of tuberculous cases among the descendants of the French voyageurs who had settled near Portland. In that colony there was one house in which eight individuals had died of tuberculosis within the last six years. In another house, five deaths had occurred, and in another three. These people were apparently very susceptible to the disease, and the type was extremely interesting. Its dominant features were the enlarged glands, with crippling involvement of the bones and joints, and ulcerations of the cornea; in fact, it was a reproduction of the old-time scrofula, or King's Evil, which was regarded as such a scourge in Europe three or four hundred years ago. A similar frightful mortality he later found in a two years' residence in Southern California, among the Mexicans and Indians of the southwest. Dr. J. W. Brewer had investigated the Indian agencies of Arizona and New Mexico, and found that 72 per cent. of the death rate among them was due to tuberculosis. He had also observed among the pure American-born population of various regions of the United States a very virulent and rapidly fatal form of tuberculosis, especially among frontiersmen and their descendants, who had lost the immunity of the city dwellers. This might account for the comparatively high death rate from tuberculosis all over the United States. In contradistinction to this condition among races whose ancestors had not been exposed to tuberculosis, Dr. Hutchinson referred to the Jews, who had apparently acquired a high degree of immunity by continuous exposure to the disease. In the most densely populated tenement house districts of New York City, inhabited largely by Jewish people, the death rate from tuberculosis was strikingly low, averaging 163 per 100,000 living, whereas among the Gentile residents of the same districts it was 505 per 100,000 living. Similar contrasts in Chicago gave Jews 162; Gentiles, 502 per 100,000. In Philadelphia the Jewish death rate was 76.7, while that of the native white population was 205. per 100,000. While this striking immunity to tuberculosis among the Jews had been ascribed to the beneficial effects of the laws of Moses, Dr. Hutchinson said he did not coincide with that view. The laws of Moses were a mixture of crude rule-of-thumb hygiene and pure ceremonial, chiefly the latter, and had little to do with the case. Their system of meat inspection had no scientific basis, and all commissions on this subject had agreed that tuberculosis was rarely transmitted by meat. Living side by side with the Jews, in the same environment and under practically the same hygienic conditions, were the Irish and the negroes, with a death rate from tuberculosis of 645 and 531, respectively. The gradual acquirement by the Jew of a resistance to tuberculosis 100 times that of the American white, and 20 times that of the Sioux Indian, was a most encouraging fact in the campaign against the disease.

Dr. L. ROSENBERG said that much had been written in

regard to the immunity of the Jews to tuberculosis that was more or less of a dream. While it was a fact that the death rate from tuberculosis among the Jews living in the slums was lower than that among their neighbors, this was not because the Jews had acquired immunity—for most of them were recent immigrants from rural Russia and Poland where tuberculosis existed to a very limited extent—but because they were a sober race, whereas their neighbors, as a rule, were intemperate and dissipated. Otherwise, they possessed no immunity against the disease; they acquired it readily and succumbed to it readily.

Dr. Theo. Potter of Indianapolis said that in his experience the prognosis of tuberculosis was more unfavorable, on the average, among people who had been brought up in the country than it was among city dwellers. He ascribed this to the fact that an examination of the lungs of the city dwellers would almost invariably show more or less fibrosis, due to the constant inhalation of dust, from which the people living in the country were practically free.

Dr. Hutchinson, in closing, said the Jew of Europe was in the main a ghetto dweller, and while Russia showed a higher mortality from tuberculosis than any other country in Europe, the Russian Jew came to us with the lowest. He did not believe that alcohol had much to do with it. There had been a good deal of cant about the influence of alcohol upon tuberculosis, and it had proven a very convenient stone to throw at the dog. Alcohol or drunkenness was simply one of the subsidiary causes, and it did not account for the enormous discrepancy in the death rate from tuberculosis between the Jews and the Gentiles.

Phagocytosis in Sputum as a Measure of Resistance in Tuberculosis.—Dr. Albert H. Allen of Saranac Lake, N. Y., presented this paper, in which he offered the following conclusions: (1) Fifty-nine per cent. of the cases of tuberculosis showed phagocytosis when the phagocytic index was applied. Eighty-two per cent. of the cases showed phagocytosis when all cases showing phagocytosis at any time were included. (2) Phagocytosis in ordinary sputum examination seemed of little practical value in prognosis. In large groups of cases, certain features might be observed, *e.g.* phagocytosis was much less in his tuberculin cases. (3) From one autopsy, and from the variation observed, whether sputum was taken at intervals of minutes or months, it would seem that a specimen from the homogenized daily output was necessary for much accuracy. (4) Tuberculin reactions failed to produce positive and negative phases. (5) Phagocytosis seemed not to vary with the presence of bad symptoms. (6) Phagocytosis deserved a more extended study, especially since its importance in immunity was still undetermined. (7) Disintegrated tubercle bacilli, parallels, variation in staining—all seemed to be of no practical use in prognosis. This was in harmony with the literature.

Bacteriological Examination of the Feces as a Means of Early Diagnosis in Tuberculosis.—Dr. Myer Solis-Cohen of Philadelphia said the finding of tubercle bacilli in the feces of patients suffering from intestinal tuberculosis was not uncommon, but as a routine examination in cases of pulmonary or general tuberculosis, bacteriological examination of the feces was very little employed. Dr. Randle C. Rosenberger of Philadelphia had found tubercle bacilli in the feces of recognized cases of pulmonary tuberculosis, and also of patients who at the time of examination were not known or suspected to have tuberculosis in any form. A large percentage of these cases had since come to autopsy, and in but few were the peritoneum or intestinal tract involved. All showed evidence of tuberculosis in some portion of the body, many only in the lymphatic glands. The speaker then reported in detail six cases in which tubercle bacilli had been found in the feces. There was no family history of tuberculosis in any of these. One had pneumonia a year before admission. Another, three months before, had an attack of what was diagnosed as influenza. The previous medical history of the rest was negative. The duration of the illness from which the patients were suffering varied from two weeks to three years. Four of the patients suffered from diarrhea, one from chills, and three from muscle pains. Cough was not marked in any case, and was absent in four, although two of these had previously suffered from cough, and one developed it later. Three did not expectorate at all, and one only occasionally. When examined, the sputum in every instance failed to show tubercle bacilli. Two of the patients had suffered slightly from night sweats, and one complained of loss of weight. Hemoptysis had never occurred in any. There were no symptoms of peritonitis in any case. In one case examination of the lungs gave practically negative results. Two showed slight infiltration of one apex. One case presented slight consolidation of both apices; another, consolidation of the right apex with infiltration of the left. One patient who was thought to have tuberculous infiltration of the right apex, tuberculous pleurisy, and tuberculous ulcer, was found on autopsy to be suffering from general miliary tuberculosis.

SOCIOLOGICAL SECTION.

Mr. Paul Kennaday of New York in the Chair.

The Class Method of Treating Consumption in the Homes of the Poor.—By Dr. Joseph H. Pratt of Boston, Mass. This paper described in detail the work of the Emmanuel Church Tuberculosis Class, in Boston, which was organized in July, 1905. In an article published in the *Journal of the Outdoor Life*, the following September, the plan of treating poor consumptives by sanatoria methods in their own homes was outlined. The first report was published in February, 1906, in the Boston *Medical and Surgical Journal*, and the class method explained more fully. Recently a report was published by Drs. Hawes and Floyd of the work done in the Suburban Tuberculosis Class, which was formed in January, 1906. The latter was designed for those consumptives who lived too far from the city to be visited by the paid nurse of the Emmanuel Church Tuberculosis Class. In the Suburban Class the visiting was done by volunteers in the various towns and cities where the members lived. In this work, Dr. Pratt said, it was important that the classes should be small, as the doctor and the friendly visitor must establish close personal relations with each other. In the Emmanuel Church Tuberculosis Class the limit of membership was twenty-five. If more than this number were to be treated an additional class should be formed, as the work could be carried on most effectively in small units. Each class had its own directing physician and a paid friendly visitor, who devoted practically her entire time to the work. The cases taken into the class were those to whom other avenues of escape were closed. Either they were too poor or the disease was too far advanced for them to gain admission to the State sanatorium. Three advanced cases, rejected as unfavorable by the examining physician for Rutland, had recovered from the disease in this class and had been allowed to return to their work. In all fifty-two consumptives had been admitted to the class since it was started, nearly two years ago. The membership was confined to those in whom the clinical diagnosis had been confirmed either by finding tubercle bacilli in the sputum or by a positive tuberculin test. Deducting fifteen, the number of present members, thirty seven were left. Thirteen of these were in the third stage of the disease (far advanced tuberculosis) when they joined the class; three in this group had recovered and were now at work; seven had died. Of these seven, four were on the roll of the class at the time of their death; two were discharged for not conforming to the rules, and one was now too ill to attend the class.

There were fifteen moderately advanced cases. One of these was sent to Rutland in an improved condition; two had withdrawn from the class because they considered themselves well, although the disease was not arrested and the danger of returning to work was fully explained; one was unable to continue treatment on account of chronic joint disease; the remaining nine left the class with the disease arrested; in five of these it was apparently cured. There were also nine incipient cases. In seven of these the disease was apparently cured, and in the other two it was arrested. In other words, 75 per cent. of the twenty-four incipient and moderately advanced cases recovered. The average gain in weight was 25.2 pounds; the greatest gain was 60 pounds. The expenses of the class from July 1, 1904, to May 1, 1907, were about $2,000. The four chief factors in the success of the class had been: 1. The patients had spent the nights as well as the days out of doors. 2. They had been kept at rest in the recumbent position, not only until their temperature was normal, but until the symptoms of active disease had disappeared. 3. The system of daily records advised by Dr. Charles L. Minor of Asheville. 4. The weekly meeting. 5. Implicit obedience to the rules and regulations laid down. The class method had proved to be economical and efficient, and the speaker expressed the hope that classes would be established in cities where at the present time no systematic effort had been made to cure consumption.

Dr. Alexander M. Wilson of Boston said that while we must have sanatoria for early cases of tuberculosis and hospitals for the advanced cases, still along with our agitation for increased institutional provision for patients should go the perfecting of the tuberculosis clinic for the cases for which adequate institutional facilities could not be provided for years to come, and the home-class method, which Dr. Pratt had described, was the last and best development of the tuberculosis clinic. The day camp was another method of attacking the problem of the care of the tuberculous who remained at home. The first of these to be established was in Berlin, in 1900, rapidly followed by others in that city and throughout the empire, so that there were fifty such camps in Germany to-day. The value of the camp in educating a large number of advanced patients who had to remain at home, and in changing the habits of life of the patient's family, was inestimable. Neither the day camp nor the home class equaled the sanatorium in the supervision they afforded of the entire life of the patient, but each was recommended by its cheapness for a work that needed to be done for the patients who would not or could not go to a sanatorium. In the last analysis, the value of each of these methods doubtless lay in its service of education and prevention.

Dr. Walter L. Niles of New York described the general plan of the Christ Church Tuberculosis Class in New York City, which was essentially similar to that of the Emmanuel Church in Boston, with some necessary modifications, the most important of which was that, because of their environment, none of the members could sleep out of doors. There were no yards, verandas, nor areaways that could be utilized for that purpose in the crowded tenement-house districts where these people lived. Dr. Niles summarized the advantages of the "home sanatorium" treatment as follows: 1. It provided a satisfactory method of treatment for a large number of tuberculous patients who at the present time could not be treated in institutions. 2. It provided a satisfactory method of treatment at a minimum cost. 3. It afforded a detailed supervision of a small number of patients by physician and visitor, which resulted in accurate attention to details and, consequently, more satisfactory results. 4. Being cured or improved in their homes, patients were more likely to remain so, as they had learned to adapt the antituberculous life to their surroundings and would continue it. 5. It did not break up the home, which was so often necessary when patients were sent away. 6. Observation of cases was continued for a long time, and they were not required to return to heavy work as soon as the disease was arrested, but were gradually brought back to their limit of activity. 7. Because of the example which friends and neighbors saw as well as heard about, a wider and more important dissemination of knowledge regarding tuberculosis resulted. The only possible disadvantage which he saw was that by remaining at home patients might be subjected to worries and cares which they would not have to contend with in an institution. To relieve patients of such obstacles to recovery, however, was the special function of the friendly visitor, and a competent one could more than counterbalance any possible objection on that score.

Dr. Arthur K. Stone of Boston said the fundamental thing in the care of tuberculosis patients was the wise, constant, and persistent supervision of their daily life. Dr. Pratt had shown how private patients might be successfully managed in their homes. He had taken a selected group of difficult cases, and by his indomitable energy and enthusiasm had made his tuberculosis class a success. If he could do that with such inferior material, surely the general physician could find inspiration in treating similar private cases in their homes. It was obvious, however, that difficulties arose in the care of private patients. They could not be disciplined in the same way as could dispensary patients, and they were more firmly bound by conventions; but, on the other hand, there were obvious compensating advantages. The very successful classes conducted by Drs. Hawes and Floyd were a part of the out patient work of the Massachusetts General Hospital, and the background of their success was dependent on the existing machinery of that institution. The day camp that Dr. Wilson had described fully justified any expense that might have been incurred, as it was an object lesson to the hospitals of the city and of great educational value to the whole community.

Dr. Charles L. Minor of Asheville said he would take issue with Dr. Pratt about the necessity of continued rest until all activity of the disease had ceased. That seemed a rather indefinite term. A normal temperature alone would not indicate cessation of activity, because in many cases of tuberculosis we had no elevation of temperature. In some cases, where the pulse and temperature had fallen to normal, he thought carefully graduated exercises were advisable, especially among the poorer class of patients, who needed to build up a muscular force so that they could return to their work. Dr. Minor said the general impression should not go out that these patients could not be treated in their own rooms. A room with but a single window could not be ventilated, but with two or more windows properly placed excellent ventilation could be obtained.

Dr. Lawrence F. Flick of Philadelphia said that while the class method of treating consumption in the homes of the poor was not the most economical, it was the one most generally applicable, if introduced rightly. The best cure for tuberculosis was the home cure, because it was produced under conditions which would endure through life. When a patient had been cured in a sanatorium or away from home, it was sometimes a very difficult problem to again teach him a proper mode of life at home or anywhere else, and at the same time be a useful citizen; but the patient who had recovered under home conditions, and had step by step unconsciously learned the right life to live, was more apt to continue in that way, and that was the best result. Dr. Flick said the dispensary method, the class method, and the day camp method of treating tuberculosis were superior to the sanatorium method, in that they took care of the masses. There was one other, and that was the hospital method for dying cases, where the patient during the final stage of the disease was under absolute control, which was a most important factor in the prevention of tuberculosis.

Dr. Pratt in closing said that, broadly speaking, the lesson that the medical profession had yet to learn in the treatment of pulmonary tuberculosis was the benefit to be derived from rest. He had seen many patients harmed by exercise; he had never seen any harmed by rest.

Country Treatment of City Cases.—By Dr. B. H. Waters of New York. This paper gave the results obtained in 48 cases of pulmonary tuberculosis treated in suitable boarding houses in the country for a period of time varying from one to five months, and regularly visited by a physician. The conclusions arrived at by Dr. Waters were as follows: (1) That carefully selected, fairly early cases, placed in carefully selected homes, and kept under medical supervision, improved to such an extent as to be comparable to sanatorium patients. Certainly many of them in the same period of treatment would have done no better in sanatoria. (2) That certain cases, especially those of the first stage, had so improved as to be admissible, upon their return, to incipient sanatoria classes, having demonstrated, so to speak, their right to a further chance. (3) That the large majority of these patients had come back to the city improved in health, hopeful, and realizing the value of fresh air, quiet, rest, and food, knowing how to protect their families against infection, determined to do their part in the long struggle for health, and to help others. (4) That there was no danger of infection to others, or of the misuse of their own advantages by the patients themselves if they were carefully selected and efficiently supervised. (5) That only a small number of those suffering from tuberculosis were fitted for such country treatment, and of these a very much smaller number might safely take such form of treatment without medical supervision. (6) That the method was expensive ($7.78 per week per patient), and could only be used where special funds were available. It was quite possible, however, that the experience of last season would be of such value that by more careful management another year the cost might be materially reduced.

Dr. Flick said that he would feel a good deal of hesitation about sending a consumptive who was not properly trained out on a farm. The moment the consumptive was removed from the environment in which discipline was necessary, that discipline ceased unless he had been trained properly and had a full and complete understanding of the protection of others.

Dr. S. A. Knopf of New York said the patients referred to in Dr. Waters' paper were well instructed; otherwise, they would not have been sent to the country.

The chairman, Mr. Kennaday, said that many of these patients were very intelligent people, who had been in the hands of their physician for several months, and had been carefully instructed in regard to the danger of infecting others.

A Working Program for a Small City.—Dr. Oscar H. Rogers of Yonkers, N. Y., read this paper. The speaker said that whether the city in which a campaign was to be undertaken was a large or a small one, the problem in the fight against consumption resolved itself into: (1) The control of those who were now ill, so as to give these sufferers the best chance of recovery, and also, what was of still greater importance, so as to minimize the danger of infection to others. (2) The education of the people with regard to the disease to which they were all exposed, so that they might intelligently protect themselves against it. The first and most important step in a campaign against consumption was the formation of an efficient, concentrated organization. In Yonkers, N. Y., the movement was begun by organizing a Sanitary League which had for its object "the protection and promotion of the health of the people of Yonkers." All citizens interested were invited to become members, but the franchise was limited to those who contributed a small annual sum. The organization of the League was such that its affairs were administered and controlled by an Executive Council composed of a president, vice-president, a secretary, a treasurer, and twelve councillors or directors. From this Executive Council were chosen the chairmen of the standing committees, as follows: (1) On Laws and Ordinances; (2) On Water Supply and Drainage; (3) On Education and Publication; (4) On Relief; (5) On Hospitals; (6) On Statistics; (7) On Finance; (8) On Membership. Each chairman of a committee was empowered to select five associates, and was required to render to the Council at stated intervals detailed reports of the work done by his committee. After describing in detail the work of these various committees, Dr. Rogers said that as consumption was largely a house disease any system of control was inadequate which permitted case after case of the disease to occur in one house, while houses on either side, equally unsanitary in construction and condition, remained unaffected. Much of the high mortality was undoubtedly explained by the important circumstance that no provision nor special organization had ever been perfected for keeping track of the migratory cases—those cases which, having lived for a time in one house, moved to another, leaving infected apartments behind them, death traps for the unfortunate tenants who, all unconscious of the danger, succeeded them. If he were called upon to choose one single feature of an organization which would—in his judgment—be more efficient than any other in the fight against tuberculosis, he would choose that which kept track and control of the migratory cases. This was the particular work of a statistical committee. In the educational branch of the work physicians were of the greatest value. A course of popular lectures, for example, was more effective if given by the physicians of the community. In organizing a course of lectures care should be taken to see that they were made as attractive as possible. They should be illustrated, and for that purpose, and in order to limit to a certain extent both the length and subject matter of the lectures, a series of lantern slides should be prepared, a list of which should be furnished to each lecturer. In addition to this, each lecturer should be supplied with a set of pamphlets dealing in the simplest and most direct fashion with the various aspects of the subject. In the campaign in Yonkers, in which so much had already been accomplished, and in which the future was bright with still greater results, each speaker was furnished with fourteen monographs of this sort. They were also provided with a lantern and a set of slides, with gas tanks, and a potable frame on which to stretch the screen, and were prepared to go at a moment's notice to any part of the city and give a lecture. Of still greater value in the long run than lectures was the use of circulars of instruction, distributed at the time of the lectures and through other agencies, such as churches, public schools, societies, labor organizations, and the like. The most efficient single means of distribution was the public and parochial schools, the authorities of which had shown great willingness to assist in the good work. In Yonkers these circulars were printed in English, Italian, Polish, German, Slovak, and Yiddish. They preached fresh air, day and night; rest as much as could be had; food as much as could be taken. They also urged the importance of the early recognition of the disease. Casting about for some other way of appealing to the people, the Committee on Education and Publication hit upon the advertising lantern idea, and, having secured a suitable plant, various lantern scenes were given alternating with tuberculosis aphorisms. In the text of these slides, a certain amount of repetition was deliberately made use of, and each slide, as nearly as possible, was complete within itself. Some of the lantern slides had been criticised on the ground that they were pitched in a tone rather too optimistic. Dr. Rogers said that while this criticism was perhaps just, his own opinion was that we needed a lot of optimism in this work, and

that the element of hope was a most important factor in the fight.

The committee was now experimenting with another scheme of education. Through the courtesy of the telephone company they had secured permission to post notices on the telephone poles, and four bulletins, made of tin, had been prepared for that purpose. The texts were printed in colors, and the bulletins were so distributed as to reach the parts of the city where they were most needed. They had been criticised as vulgar, but the speaker confessed that he had little sympathy with such criticism. He believed that, for purposes of education, people did not "expectorate;" they did "spit," and if they were careless or inconsiderate in spitting, and needed instruction on the subject, the more direct and frank the instruction was, the more permanent its effect on their understanding. The following was an example of one of these tin bulletins: "Consumption is caused by the poison present in the consumptive's spit. The poisonous spit dries and goes as dust into other people's lungs. Don't spread the disease. Don't let others spread it. Spit into the gutter or into a spittoon." In whatever educational work was done, Dr. Rogers emphasized the fact that it was of the utmost importance to concentrate the efforts as much as possible upon the essential features; for example, upon the spitting nuisance; upon the importance of fresh air; upon the early treatment, and upon the avoidance of alcohol. Concentration was the keynote of success in educational work. But the real object of the campaign was broader than the education of the people generally; it was broader than the accumulation and publication of data regarding the disease. It was to get control of the disease, to limit its spread, and, wherever possible, to stamp out and destroy the sources of infection. This could be done only through a special dispensary organization. A tuberculosis dispensary, then, should be the goal of our effort: a place where the needy poor might receive the necessary treatment, and where all the interests and aspects of the disease were centered and kept under observation and control.

Mr. KENNADAY, in referring to other practical methods of disseminating facts regarding tuberculosis, referred to the use of the back of transfer slips that were issued on the street cars. Another important medium which had hitherto been largely overlooked was the public press. The papers, as a rule, were anxious to get this material if it was properly placed before them. Lantern slide pictures he also considered very effective in this educational propaganda.

Schools and Tuberculosis.—Dr. JOHN H. LOWMAN of Cleveland, Ohio, said it was less than ten years ago since the prophylaxis of tuberculosis in the schools had been seriously discussed. In 1899, Huebner, in a report on this subject, suggested that teachers as well as pupils in the schools should be under medical observation, and that one should not concern himself alone with the health of the scholars, but also with that of the teachers. Since that time there had been many contributions bearing upon this question by physicians, sanatorians, and educators, until now the school authorities themselves had taken up the matter practically, and were seriously considering the best way to protect the children. In order to control tuberculosis during the school age, it was necessary: (1) To discover through the records of the municipality and public institutions the children who were infected and those who lived in infected houses. (2) To examine and classify the individuals thus found, and place the contagious cases in sanatoria and the others in separate schools. (3) To develop the hygienic surroundings of these separate schools to the highest plane of excellence. (4) To specialize these children even during the vacations by referring them to the special consideration of outing societies. (5) To provide physicians who would at stated intervals examine the children and report to the supervisors the conditions found. (6) To use the utmost precautions for the protection of the teachers. (7) To introduce systematic courses on hygiene and tuberculosis into the curriculum of the schools. (8) Sanatoria for children. The difficulties to overcome were: (1) The examination of thousands of children in order to detect and classify those affected with tuberculosis. (2) Provision for the contagious cases in sanatoria for children. (3) Teachers for the classes of children with latent noncontagious tuberculosis. (4) Vigilant adequate supervision of the tuberculosis classes.

Dr. LINSLEY R. WILLIAMS of New York said that the New York Department of Health, in the examination of 90,240 school children from March 5, 1905, to the end of the school year of 1906, had found 1,039 cases of pulmonary disease (1 per cent). These examinations were made during the winter months, and without the removal of the children's clothing. In the examination of 2,295 school children of Manhattan, made at Sea Breeze, Coney Island, during the summers of 1905 and 1906, there were found 61 cases of pulmonary disease. Of these, 22 were cases of pulmonary tuberculosis. There were also 22 cases of tuberculosis other than pulmonary. These examinations were all made with the clothing removed.

Dr. JOHN J. CRONIN of New York said he thought too much attention was spent on the sanitation and ventilation and various other features of school life—which nobody regarded of more importance than he did—but it seemed to him that the one factor that we were trying to protect was the one that we neglected, namely, the school child itself. We paid no attention to the fact that the child was physically handicapped by being unable to breathe properly. After the removal of enlarged tonsils or adenoids, the change for the better that was observed in some of these children was frequently little short of marvelous. We should first try to make the child as near physically perfect as possible, and once that was done he believed that a great deal of tuberculosis would be eliminated from the schools.

Dr. S. A. KNOPF suggested instructing the teacher in the seemingly easy signs of early tuberculosis. The average school teacher was intelligent, and could be taught the objective symptoms of tuberculosis, especially those of early tuberculosis or the pretubercular stage. With teachers so trained, and with periodical examinations by skilled diagnosticians, he firmly believed that we would strike at the root of this evil.

The discussion was continued by Mr. KENNADAY and closed by Dr. LOWMAN.

The Detection and Treatment of Cases of Tuberculosis Among Factory Employees in Providence.—Dr. FRANK T. FULTON of Providence, R. I., presented this paper. He stated that for about a year he, in connection with others, had been engaged in an effort to detect and treat cases of tuberculosis among the workmen in some of the leading factories in Providence. It was thought that perhaps by engaging the interest and help of the management of some of the factories and mills, patients suffering from tuberculosis in a comparatively early stage, who were still actively engaged in their work, might be secured for treatment before the disease had entirely disabled them. The details of the scheme were decided on after considerable deliberation, the idea being to handle the matter in such a way that there would be no antagonism aroused on the part of the operatives. The movement was inaugurated by posting on the bulletin boards of the shops official notices stating that the management of the mill or factory had provided, without expense to the employees, a physician to examine anyone who had any suspicion that he might have tuberculosis, emphasizing the fact that in the very beginning the disease could be cured. The two establishments which took the matter earnestly were the Brown & Sharpe Manufacturing Co., which employed about 4,200 operatives, and the Wanskuck Woolen Mills, which em-

ployed about 1,000 operatives. From these two plants 34 operatives were examined during about ten months, 18 of whom were found to have tuberculosis, and were not under a physician's care. Some of the others had symptoms suggesting the disease, but no definite signs could be found. It was found that most of these men were living in a very unhygienic way, and their symptoms in several instances quickly disappeared upon their being advised how to live. Altogether, the work in connection with these two establishments have been very satisfactory, and while the number of cases treated had not been large, the speaker said he doubted if there were many sanatoria which would show a more marked improvement in as large a percentage of cases and in so short a time. The reason for this he certainly did not believe to be due to any advantage that the home treatment had over sanatorium treatment, but to the fact that the cases were detected before they reached an advanced stage. Whether the results obtained in the Brown & Sharpe Co. and the Wauskuck Mill would be obtained in many other establishments remained to be seen. The plan was entirely practicable, but would certainly fail unless some man in the management who was sympathetic, and who had the confidence of the employees, took an active, aggressive part. Originally, the plan was for the purpose of detecting and treating the disease, but Dr. Fulton felt sure that its greatest value had been educational. It had caught the interest and attention of wealthy, influential, and philanthropic business men, and at the same time brought the subject prominently before the laboring class.

Dr. Charles S. Millet of Brockton, Mass., in discussing Dr. Fulton's paper, said he had recently organized a campaign of a somewhat similar nature in one of the shoe factories of Brockton, and his experience would lead him to refer to one or two points which had not been sufficiently emphasized. One of these was the finding of the cases. Printed signs and circular letters would not answer for that purpose. It was necessary for some one to give his personal attention to the matter and seek out the cases at the bench, or else this plan of action would prove a total failure. It was also a good plan to call the superintendents together and describe to them the way in which the disease spread, what they could do towards preventing it, and how they could pick out the men who ought to be sent to the physician's office. This work among mill or factory hands must be done with extreme caution, and in a very unobtrusive manner, for even if a person is found not to have phthisis his fellow-workers were liable to shun and ridicule him if they learned that he had been subjected to an examination of the lungs. In order to find these poor victims, the foreman must be instructed to look for certain signs of tuberculosis, or at least of a debility which might or might not be due to the tubercle bacillus. For instance, any pallor of the skin which was so noticeable as to be discovered by a person who was not a physician must be deemed of enough importance to render a decision as to the presence of tuberculosis necessary. Another suspicious sign was emaciation; this might not be extreme nor accompanied by an appreciable loss of strength, and yet it was easily perceived, especially when it was of rapid onset. The third symptom which we should be on the lookout for was cough, and, although it might be insignificant in character, the reason for it must be determined, or else the physician had a right to conclude that he could justly ask the patient to submit to the tuberculin test. Osler had said that any cough which lasted over three weeks was very suspicious. The fourth and last symptom which must be sought for was hemorrhage. Many persons were prone to conceal a slight hemoptysis. Blood-spitting, no matter how small in amount, always demanded a careful consideration of all the sources from which the blood might come.

Mr. Frederick L. Hoffman of Newark, N. J., in a communication read by Dr. Charles O. Probst of Columbus, Ohio, said he had for many years taken an active interest in the problem of factory inspection, with special reference to preventive methods tending to reduce the liability to and the mortality from diseases of the lungs among men engaged in recognized unhealthy occupations. The facts were conclusive, fully sustaining the argument of Dr. Fulton, and emphasizing the necessity of an active propaganda for better factory conditions, using the term in a broad sense, and including workshops generally. Regardless of an earnest effort to diminish the mortality from tuberculosis, it was significant to find that the rate per 100,000 of population in the registration area of the United States was higher during 1905 than during 1902 and 1903. There had not been the anticipated decline in the death rate, and more so was this the case among men engaged in unhealthy trades or employments, especially those in which there was a constant and considerable inhalation of health-injurious minute particles of dust. Out of every 100 deaths from all causes, the deaths from consumption were among barbers, not quite 40; among bakers, 20; blacksmiths, 15; bookkeepers, 22; boot and shoemakers, not quite 13; cabinet makers, not quite 23; cigar makers, 28; clerks, 33; coopers, 25; drivers and teamsters, 22; dyers, 18; engravers, 25; file cutters, 50; flour millers, 15; machinists, 22; laborers, 19; jewelers, 30; harness makers and saddlers, 20; molders, 21; musicians, 13; peddlers, 23; painters, 15; plumbers, 22; printers, 28; rubber workers, 39; silversmiths, 29; stone cutters, 25; tailors, 12; wheelwrights, 20; upholsterers, 29; general textile operatives, 26. In contrast, out of every 100 deaths among agents, 8.5 were caused by consumption. Among carriage makers, 8; engineers and firemen, 10; teachers and professors, 6; merchants, 6; grocers, 8; physicians, 8; clergymen, 9, and farmers, only 6. Of course, the material differences in the age distribution in the different employments referred to had an important bearing upon the question, but it was safe to hold as a broad principle that wherever the number of deaths from consumption in the mortality from all causes exceeded 10 per cent., the conditions were such as to demand a careful and searching inquiry, and a deliberate program of sanitary reform.

Mr. W. A. Viall, the secretary of the Brown & Sharpe Manufacturing Co. of Providence, R. I., which was one of the institutions in which Dr. Fulton's experiments were carried on, said that in talking with other manufacturers who were anxious to undertake some work in this line, the feeling had been expressed that such measures might cause a certain amount of distrust among their employees, while others took the ground that it savored of paternalism. Personally, Mr. Viall said, he did not agree with those views; it was not paternalism, but protection, pure and simple, against an infectious disease. In order to obtain results, it was necessary to have a person in authority who was interested, one in whom the men had perfect confidence, and to whom they could go with the feeling that they would be treated sympathetically. Furthermore, it was necessary to select a physician who was interested in the work, and who had the ability to diagnose the cases and properly advise them. When the manufacturer and the physician were ready to cooperate in a hearty, sympathetic manner, results would be obtained that would be of lasting benefit, not only to the present generation, but to generations to come.

The discussion was continued by Mr. Christopher Easton of Pittsburg, Pa., and closed by Mr. Kennaday.

The World's Greatest Retail Drug Store.—The greatest drug store in the world is said to be found in Russia. It exists in Moscow, and is 203 years old. Its title is the Old Nikolska Pharmacy, and since 1833 it has been in the family of the present proprietor. It is a building of imposing dimensions, with many departments, including one of professional education for the staff, which numbers 700 persons. About 2,000 prescriptions are said to be dispensed daily.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

NORTH CAROLINA BOARD OF MEDICAL EXAMINERS.

Morehead City, June 5-8, 1907.

CHEMISTRY AND DISEASES OF CHILDREN.

1. Define an atom. (*a*) How always found? (*b*) What is taken as the standard?
2. Define a symbol. (*a*) Also a coefficient. (*b*) What does each represent?
3. Define a metal. (*a*) How many are known? (*b*) Name the noted exception.
4. What is a thermometer? (*a*) How is it made? (*b*) Name standard brands.
5. What is a blood corpuscle? (*a*) How many kinds? (*b*) To what is the color due?
6. Define dentition. (*a*) At what age does it appear? (*b*) Name some of its disturbances.
7. What is ophthalmia neonatorum? (*a*) Whence derived? (*b*) Give treatment.
8. Define exanthematous fever. (*a*) Name three. (*b*) What ages are exempt?
9. What is diarrhea? (*a*) Acute inflammatory. (*b*) Treatment.
10. Define rachitis. (*a*) Who is most subject to it? (*b*) How long do the effects last?

PHYSIOLOGY AND HYGIENE.

1. Describe a complete physiological revolution of the heart; fetal and adult.
2. Give origin of salivary and gastric secretions and function of each.
3. Give function of pancreatic and intestinal secretions.
4. Through what media is the blood relieved of effete material and provided with new?
5. How is the blood current maintained and what arteries carry venous blood?
6. What is the function of the cerebellum?
7. If seventh cranial nerve were incised at its exit from the stylomastoid foramen, state briefly the result.
8. Give function of pneumogastric nerve as related to respiration.
9. Detail uses of the largest gland in the body.
10. What occupations cause a predisposition to pulmonary diseases?

ANATOMY.

1. Describe the pubic or pectineal bone.
2. Name the ligaments of the elbow joint (humerus with ulna and radius).
3. Give the relations of the deep palmar arch.
4. Name the divisions of fifth (trigeminus) pair of cranial nerves and mention in a general way the parts supplied by each (motor, sensory, etc.).
5. Give the boundaries of the inguinal canal.
6. Describe the cecum.
7. Name the contents of the submaxillary triangle and give its boundaries.
8. Mention the hepatic fissures, name the structures found in each and the lobes separated by each.
9. Describe the prostate gland (do not give its relations or its histology).
10. Name the structures cut in performing a tracheotomy above the isthmus of the thyroid.

N. B.—Answer only eight questions.

OBSTETRICS AND GYNECOLOGY.

1. Given: Primapara at end of eighth month of pregnancy, considerable edema of the face, feet, and legs, urine scant in quantity, slight cephalalgia, dimness of vision, anemic, weak, short of breath upon slight exertion; (*a*) give diagnosis; (*b*) what grave symptom might be expected to follow if patient is not properly treated; (*c*) briefly outline treatment.
2. During normal labor (*a*) how and by means of what action is the dilatation of the cervix brought about? (*b*) What forces are employed in the stage of expulsion?
3. Give diagnostic symptoms of placenta previa.
4. How would you treat a case of adherent placenta?
5. Prescribe for a case of pruritus vulvæ.
6. Name three causes for which you would curette the uterus, and state in which you would use the dull and in which the sharp curette.
7. In ventral fixation, (*a*) what organ is fixed, (*b*) for what purpose is it fixed, (*c*) to what (anatomically) is it fixed, (*d*) what kind of sutures should be used?
8. How would you treat a case of congenital atresia of the cervix?

MATERIA MEDICA.

1. Name and describe the methods of introducing medicine into the circulation.
2. Name an example of. (*a*) An alterative, (*b*) antiperiodic, (*c*) antispasmodic, (*d*) diaphoretic, (*e*) diuretic
3. Name the alkaloids of hyoscyamus—doses.
4. What are the uses of the bromides?
5. Name the preparations and doses of arsenic.
6. What is the dose of (*a*) ol. terebinthinæ, (*b*) tinct. veratrum viride, (*c*) Basham's mixture, (*d*) tincture of aconite, (*e*) caffeine citrate; (*f*) sparteine sulphate?
7. Why is atropine often combined with morphine when the latter is used?
8. Name three drugs most useful in the treatment of intermittent fever.
9. Write a prescription for an adult with bronchitis, containing three ingredients.
10. Criticise the following prescription:

℞ Argenti Nitratis.....gr. xx
Sodi Chloridi.....1 drachm
Aqua.....2 ounces

Sig. I drachm every four hours.

SURGERY.

1. Give symptoms and treatment of anal fissure.
2. Give diagnosis of strangulated hernia.
3. Give differential diagnosis between hydrocele and inguinal hernia.
4. Give diagnostic characteristics of syphilitic skin eruptions.
5. In hemorrhage of superficial palmar arch, which end of the bleeding vessel would you tie?
6. Give etiology of hydronephrosis.
7. Give diagnosis of mastoid disease.
8. Give indications for intubation of larynx.
9. In an injured elbow, what signs would verify fracture of internal condyle?
10. What conditions associated with loss of consciousness must be differentiated from traumatic intracranial lesions

PRACTICE OF MEDICINE.

1. Give symptoms of diagnostic value in the first and second week of typhoid fever.
2. Give differential diagnosis between primary lobar pneumonia and acute pneumonic phthisis.
3. Give causes and treatment of chronic dysentery.
4. Define leukemia, Addison's disease, myxedema, brachycardia.
5. Give symptoms and signs of aneurysm of the abdominal aorta.
6. Give symptoms of acute intestinal obstruction.
7. Give differential diagnosis between uremia, alcoholic coma, and cerebral hemorrhage.
8. Give definition and etiology of thrombosis in the brain.
9. Write one, and only one, prescription for chronic constination.
10. Describe the most important symptoms of cerebrospinal meningitis.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

NORTH CAROLINA BOARD OF MEDICAL EXAMINERS.

Morehead City, June 5-8, 1907.

CHEMISTRY AND DISEASES OF CHILDREN.

1. An *atom* is the smallest quantity of an element that can enter into chemical action, or that can enter into the composition of a molecule.

(a) It is always found in combination with other atoms (either of the same or of different elements).

(b) The weight of an atom of hydrogen is taken as the standard for atomic weights.

2. A *symbol* is a sign by which an atom of an element is represented or expressed in chemical writing. It is generally the first letter or letters of the name of the element in Latin.

(a) A *coefficient* is a number placed before a chemical formula to denote how many times the formula is to be multiplied.

(b) *A symbol represents*:—(1) The name of the element; (2) one atom of the element; (3) the combining weight of the element as compared with hydrogen as unity; and (4) one volume of the element in a gaseous state

A coefficient represents the number of times that the formula is to be multiplied.

3. A *metal* is an element which is capable of replacing part or all of the hydrogen of an acid, to form a salt.

(a) There are between fifty and sixty metals.

(b) Mercury is an exception in that it is not a solid at the ordinary temperature.

4. "Thermometers are instruments for the measurement of temperature. They are usually glass tubes having a bulb blown at one end and closed at the other, the bulb and part of the tube being filled with mercury or with alcohol, whose contraction or expansion indicates a fall or rise of temperature. . . . In every thermometer there are two fixed points, determined by experiment. The lower, or freezing point, is fixed by immersing the instrument in melting ice, and marking the level of the mercury in the tube upon the glass when it has become stationary. The higher, or boiling point, is similarly fixed by suspending the instrument in the steam from boiling water. The instrument is then graduated according to one of three scales: the Celsius, or Centigrade, the Fahrenheit, and the Réaumur. The freezing point is marked 0° in the Centigrade and Réaumur scales, and 32° in the Fahrenheit. The boiling point is marked 100° in the Centigrade, 212° in the Fahrenheit, and 80° in the Réaumur scale. The space between the fixed points is divided into 100 equal degrees in the Centigrade scale, into 180° in the Fahrenheit, and into 80° in the Réaumur." (Witthaus' *Manual of Chemistry.*)

(b) Standard brands are:—Fahrenheit, Celsius, or Centigrade, and Réaumur.

5. A blood corpuscle is a minute solid body or cell, suspended in the liquor sanguinis.

(a) There are three kinds:—(1) Colored, or red corpuscles, or erythrocytes; (2) colorless, or white corpuscles, or leucocytes; of these there are five varieties: (a) small mononuclear leucocytes, (b) large mononuclear leucocytes, (c) transitionals, (d) polynuclears, and (e) eosinophiles; (3) platelets or plaques.

(b) The color is due to the hemoglobin in the red cells.

6. *Dentition* is the process of teething or "cutting the teeth."

(a) Primary dentition occurs normally between about the sixth and twenty-fourth months; secondary dentition occurs normally between about the sixth and twenty-fourth years.

(b) "The disturbances incident to teething may be divided into:

"1. *Local.*—The gums may be hot, painful, and tender. There may also occur a catarrhal stomatitis, with increased salivary secretions that, by dribbling, excoriate the chin, and may, by wetting the chest, cause a bronchitis.

"2. *Sympathetic or Reflex.*—Any of the following complications may occur: *Eye*: More or less severe inflammation. *Ear*: Catarrhal or purulent otitis media. *Digestive tract*: Gastrointestinal disturbances. *Respiratory tract*: Bronchitis, cough, etc. *Skin*: Erythema, urticaria, eczema. *Nervous system*: Restlessness, disturbed sleep, convulsions." (Gould and Pyle's *Cyclopedia of Medicine and Surgery.*)

7. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the new-born.

(a) It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

(b) *Treatment* is:—(1) Prophylactic—whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth. (2) *Remedial:*—Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

8. An *exanthematous fever* is a fever accompanied by an eruption on the skin.

(a) Scarlet fever, measles, smallpox.

(b) As a rule very early infancy and old age are exempt, but there are exceptions.

9. Diarrhea is a symptom of many pathological conditions; it is characterized by the fecal discharges being too frequent or too liquid.

(a) Acute inflammatory diarrhea is the above-named condition when due to some inflammatory process in the intestines.

(b) The treatment consists in withholding all food while the trouble lasts (but water must be given); castor oil or calomel should be given, this can be followed by bismuth subnitrate or chalk mixture. Milk feeding should only be resumed slowly and gradually, and can be preceded by beef juice or veal broth.

10. Rachitis is a constitutional disease of infancy and early childhood, characterized by defective nutrition with its chief manifestations in the growing bones.

(a) The most subject to it are the *artificially fed* children

(b) The effects last for a variable time, from some months to some years.

PHYSIOLOGY AND HYGIENE.

2. The *salivary secretion* is derived from the salivary glands (parotid, submaxillary, and sublingual).

Its functions are twofold:—I. *Mechanical:*—(1) to moisten the mouth, (2) to assist in the solution of the soluble portions of the food, and thus (3) to administer to the sense of taste, (4) to lubricate the bolus of food, and thus (5) to facilitate the acts of mastication and deglutition.

II. *Chemical*:—See Question 3, below.

The *gastric secretion* is derived from the glands in the mucous membrane lining the stomach.

For function see Question 3, below.

3.

SECRETIONS.	ACTIVE PRINCIPLES.	FUNCTIONS.
Salivary	Ptyalin.	Changes starches into dextrin and sugar.
Gastric	Pepsin.	Changes proteids into proteoses and peptones in an acid medium.
	A curdling ferment.	Curdles the casein of milk.
	Trypsin.	Changes proteids into proteoses and peptones, and afterwards decomposes them into leucin and tyrosin; in an alkaline medium.
Pancreatic	Amylopsin.	Converts starches into maltose.
	Steapsin.	Emulsifies and saponifies fats.
	A curdling ferment.	Curdles the casein of milk.
Intestinal	Invertin.	Converts maltose into glucose.

4. The blood is relieved of effete material through the lungs, the liver, the kidneys, and the skin. It is provided with new material through the alimentary canal, the lungs, the liver, the lymphatics, the spleen, and the skin (by absorption).

5. The circulation of the blood is regulated in (a) *the arteries*, by: (1) the elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries; (b) in the *capillaries* it is regulated by: (1) the action of the heart, (2) the action of the arteries; (c) in the *veins* it is regulated by: (1) the action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

The pulmonary arteries carry venous blood.

6. The functions of the cerebellum are:—Coordination and equilibrium.

7. The facial nerve is the motor nerve of the muscles of expression, also of the platysma and the buccinator; it also supplies the muscles of the external ear, the stylohyoid, and the posterior belly of the digastric. Through the chorda tympani it is a nerve of taste and a vasodilator of the vessels of the submaxillary and sublingual glands.

Hence section of the nerve would cause abolition of these various functions; notably, facial paralysis would ensue.

"When it is paralyzed, the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums." (Kirkes' *Physiology.*)

8. The pneumogastric nerve carries impulses which stimulate the respiratory center to increased activity, and hence quicken the respiration; it also contains fibers which inhibit the act of inspiration, and increase expiration.

9. The largest gland in the body is the liver. The functions of the liver are:—(1) The secretion of bile, (2) the

formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

10. The following occupations cause a predisposition to pulmonary diseases:—Earthenware makers, file makers, cutlers, workers in quarries, builders, bricklayers, stonecutters, bakers, glass blowers, players on wind instruments, millers, accountants, clerks, printers, glass polishers, wool and cotton spinners.

ANATOMY.

3. The deep palmar arch extends from the base of the first interosseous space to the base of the fifth metacarpal bone, and is about one finger's breadth nearer to the wrist than the superficial palmar arch is. It is covered by the superficial and deep flexor tendons, adductor obliquus pollicis, parts of flexor brevis minimi digiti and of opponens minimi digiti. It rests upon the adductor transversus pollicis, the distal extremities of the metacarpal bones, and the interossei muscles. It is accompanied by the deep branch of the ulnar nerve, and two venæ comites.

7. The submaxillary triangle *contains*:—Styloglossus and stylopharyngeus muscles; stylomaxillary ligament; external carotid, internal carotid, facial, posterior auricular, temporal, and internal maxillary arteries; internal jugular, facial, and submaxillary veins; facial, pneumogastric, glossopharyngeal and mylohyoid nerves; parotid, submaxillary and lymphatic glands.

It is bounded:—*Above*, by the lower border of the inferior maxilla, and a line from the angle of the inferior maxilla to the mastoid process; *below*, by the posterior belly of the digastric and the stylohyoid; in *front*, by the median line of the neck.

10. The structures cut in performing a tracheotomy above the isthmus of the thyroid are:—The skin, subcutaneous areolar tissue, sometimes the platysma myoides, the anterior layer of the cervical fascia (separate the sternohyoid and sternothyroid muscles of each side), deep cervical fascia, the trachea, also any veins that may be encountered.

OBSTETRICS AND GYNECOLOGY.

1. (a) Toxemia or uremic intoxication.

(b) Convulsions (eclampsia).

(c) All channels of elimination must be freely opened; the bowels, skin, lungs, and liver must all be actively set to work to help the disabled kidneys. Purgatives, such as calomel, aloes, and jalap, or a saline; warm or hot baths; plenty of water to drink; also milk, and diaphoretics; meats should be prohibited; abundant fresh air is necessary; and all waist bands and corsets should be removed.

2. (a) *Dilatation of the cervix* is brought about by:—(1) The contraction of the longitudinal muscular fibers of the upper part of the uterus which tends to separate the edges of the os; (2) the hydrostatic pressure of the bag of waters against the os during these contractions; (3) the softening of the cervix.

(b) The *forces* employed in the *stage of expulsion* are:—(1) The contractions of the uterus (which are the main factors, and are involuntary); (2) the contractions of the diaphragm and abdominal muscles.

5. The treatment of pruritus vulvæ consists in removal of the cause, if possible; cleanliness, fresh air, tonics, and general attention to hygiene; local applications of solution of bichloride of mercury, 1:2,000; or carbolic acid, 1:100; or lead and opium; dusting powders of bismuth subnitrate, calomel, or zinc oxide are also useful.

6. Curettage is indicated:—(1) For the removal of placental debris, (2) in hemorrhagic endometritis, and (3) for diagnostic purposes.

A dull curette should be used in (1) and a sharp curette in (2) and (3).

7. In ventral fixation, (a) the fundus of the uterus is fixed; (b) to make a firm and permanent union between the fundus of uterus and the anterior abdominal wall, to prevent prolapse; (c) it is fixed to the anterior abdominal wall; (d) silk-worm gut sutures are used.

8. *Congenital atresia of the cervix* can be treated as follows:—After all proper antiseptic and aseptic precautions, the patient, anesthetized, is placed in the lithotomy position; the cervical canal is then perforated with an aspirating needle, and afterwards with a sharp-pointed bistoury, and then stretched with dilators. The uterus is then washed out with an antiseptic solution, and the cervix packed with gauze for twenty-four hours. A plug or tube of hard rubber or glass can be worn for a few weeks to keep the newly made canal patent.

MATERIA MEDICA.

2. Example of (*a*) an alterative, mercury; (*b*) an antiperiodic, quinine; (*c*) an antispasmodic, amyl nitrite; (*d*) a diaphoretic, jaborandi; (*e*) a diuretic, caffeine.

3. The alkaloids of hyoscyamus are:—Hyoscyamine, dose gr. 1/128; hyoscine, dose gr. 1/128. Only the salts are used.

4. The bromides are used as nerve sedatives, to lower reflex activity, in epilepsy, to induce sleep, as anaphrodisiacs, in congestion of the brain, in delirium tremens, in diabetes mellitus, in vomiting of cerebral origin, and in the vomiting of pregnancy.

5. The preparations and doses of arsenic:—Arsenic trioxide, dose gr. 1/30; liquor potassii arsenitis, dose ♏iij; sodium arsenate, dose gr. 1/10; liquor sodii arsenatis, dose ♏iij; arsenic iodide, dose gr. 1/10; liquor arseni et hydrargyri iodidi, dose ♏jss.

6. The dose of (*a*) ol. terebinthinæ is ♏x; (*b*) tinct. veratrum viride ♏xv; (*c*) Basham's mixture ʒiv; (*d*) tincture of aconite ♏x; (*e*) caffeine citrate gr. ij; (*f*) sparteine sulphate gr. j, by mouth.

7. Atropine is often combined with morphine when the latter is used, for the following reasons:—(1) To prevent nausea and insomnia; (2) to intensify the effect of the morphine, and so a smaller dose may suffice; (3) to neutralize the effect on the pupils.

8. Three drugs most useful in the treatment of intermittent fever:—Quinine, calomel, and methylene blue.

9. *For bronchitis*:—

℞ Acidi hydrocyanici diluti ♏xxxij.
Syrupi pruni virginianæ
Aquæ camphoræ aa ʒij. Misce.
Sig: One teaspoonful every three hours.

10. In this prescription the two salts will form an insoluble compound, silver chloride; further the sodium chloride is the chemical antidote to silver nitrate; sodi should be written sodii; aqua should be written aquæ; 1 drachm and 2 ounces should be written ʒj and ʒij, respectively; and in the last line one teaspoonful should be written in place of 1 drachm.

SURGERY.

2. "The diagnosis of strangulated hernia presents in the majority of instances no especial difficulty. The general symptoms to which most importance attaches are the severe and persisting vomiting, the absolute constipation, and the marked constitutional depression. Of the local symptoms, the most important perhaps is the absence of impulse on coughing in the tumor. In obstructed or incarcerated hernia the most conspicuous symptoms are those of obstinate constipation. In inflamed hernia the local manifestations predominate over all others. In strangulated ruptures the constitutional symptoms are the most striking." (Treves' *Manual of Surgery*.)

3. In *hydrocele* the tumor begins in the scrotum and may ascend to the inguinal region; does not vary very much in size, except to steadily increase; is translucent; is dull on percussion; gives no impulse on coughing.

In *hernia* the tumor begins in the inguinal region and may descend to the scrotum; is very variable in size, and may be reducible, or disappear on lying down; is not translucent; is not dull on percussion; gives an impulse on coughing as a rule.

4. *Syphilitic skin eruptions* are characterized:—By not itching; by being of a coppery or raw ham color; by being painless; by polymorphism, macules, papules, pustules, etc., being present at the same time; by being generally symmetrical.

5. In hemorrhage of the superficial palmar arch both ends of the bleeding vessel should be tied.

6. The chief causes of hydronephrosis are:—(1) Congenital obstruction or twisting of the ureter; (2) compression of the ureter by an abdominal tumor or gravid uterus; (3) impacted calculus in the ureter; (4) twisting or kinking of the ureter due to movable kidney; (5) stricture of the urethra; and (6) enlarged prostate gland.

7. Mastoid disease is characterized by:—Rise of temperature (up to 104° F.), tenderness, and pain over the mastoid process, which may be remittent or persistent; redness and swelling over the mastoid; bulging of the posterior and superior auditory canal; if the periosteum is affected, the auricle is unusually prominent; there may be fluctuation if pus is present.

8. The *indications for intubation* are:—Laryngeal diphtheria, or intense dyspnea from some other cause; it has been found necessary in fracture of the hyoid bone and in laryngysmus stridulus.

9. In fracture of the internal condyle:—(1) If the internal condyle is held between the thumb and index finger it can be moved independently of the shaft of the ulna, and crepitus will be obtained; (2) if there is any displacement, the fragment of the internal condyle will be found *above* the level of the external condyle and the tip of the olecranon.

10. The following conditions with loss of consciousness are to be differentiated from traumatic intracranial le-

sions.—Apoplectic coma, alcoholic coma, uremic coma, diabetic coma, and opium poisoning.

PRACTICE OF MEDICINE.

1. Diagnostic symptoms of value in the first and second weeks of typhoid fever are:—The characteristic temperature curve, each evening showing a higher fever than the preceding; the rose colored spots on the abdomen; distended and tender abdomen, chiefly in the right iliac fossa; "pea-soup" stools; the Widal reaction; and the presence of the Eberth bacillus in the urine and feces.

2. The symptoms and physical signs of *lobar pneumonia* and *acute pneumonic phthisis* may be the same for the first eight or ten days; at this period the fever in *pneumonia* drops by crisis; whereas in *phthisis* the fever continues for some time longer and the patient gets worse; the sputum contains tubercle bacilli and elastic fibers, and instead of retaining the rusty color it becomes purulent and greenish.

4. *Leukemia* is a condition characterized by a marked increase in the number of the colorless blood corpuscles, and by enlargement and other pathological changes in the spleen, lymphatic glands, and bone-marrow.

Addison's disease is a rare condition characterized by some pathological condition of the suprarenal glands and the sympathetic nervous system, and in which the skin becomes bronzed.

Myxedema is a condition characterized by atrophy of the thyroid gland, mental dullness, sluggish movement, and thick speech.

Brachycardia is a condition characterized by abnormal slowness of the pulse.

6. The symptoms of acute intestinal obstruction are:—(1) Sudden, intense, localized pain, at first in paroxysms, later continuous; (2) early and persistent vomiting, which later becomes stercoraceous; (3) absolute constipation; (4) abdomen tender, distended, and tympanitic; (5) anxious countenance, cold and clammy skin, feeble and rapid pulse, and collapse.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Sept. 1–6
Arizona*	Ancil Martin, Phoenix	Phoenix	October 7
Arkansas*	F. T. Murphy, Brinkley	Little Rock	October 8
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	October 1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov'ber 12
Delaware	J. H. Wilson, Dover	Dover	Dec'ber 10
Dis. of Col'bia	W. C. Woodward, Washington	Washington	October 10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov'ber 20
Georgia	E. R. Anthony, Griffin	Atlanta	October 8
Idaho	J. L. Conant, Jr., Genesee	Boise	October 1
Illinois	J. A. Egan, Springfield	Chicago	October 23
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	October 22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept'ber 17
Kansas	T. E. Raines, Concordia	Topeka	October 8
Kentucky*	J. N. McCormack, Bowling Green	Louisville	October 22
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	October 15
Maine	Wm. J. Maybury, Saco	Portland	Nov'ber 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec'ber 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Sept'ber 10
Michigan	B. D. Harison, 305 Whitney Building, Detroit	Lansing	October 8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	October 1
Mississippi	J. F. Hunter, Jackson	Jackson	October 8
Missouri	J. A. B. Adcock, Warrensb'g	St. Louis	Sept'ber 10
Montana*	Wm. C. Riddell, Helena	Helena	October 1
Nebraska	Geo. H. Brash, Beatrice	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov 4
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	January 14
New Jersey	J. W. Bennett, Long Branch	Trenton	October 22
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec'ber 2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	October 1
N Carolina*	G. T. Sikes, Grissom	Winston, Salem	May 1908
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	October 1
Ohio	Geo. H. Matson, Columbus	Columbus	Dec'ber 10
Oklahoma*	J. W. Baker, Enid	Guthrie	Sept'ber 24
Oregon	B. E. Miller, Portland	Portland	January 7
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec'ber —
Rhode Island	G. T. Swarts, Providence	Providence	October 3
S. Carolina	W. M. Lester, Columbia	Columbia	June 9, '08
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	January 8
Tennessee*	T. J. Happel, Trenton	Memphis Nashville Knoxville	May, 1908
Texas	G. B. Foscue, Waco	Fort Worth	October 21
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	October 7
Vermont	W. Scott Nay, Underhill	Montpelier	January 14
Virginia	R. S. Martin, Stuart	Staunton	Dec'ber 10
Washington*	C. W. Sharples, Seattle	Spokane	January 7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg	Nov'ber 12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	January 14
Wyoming	S. B. Miller, Laramie	Laramie	Oct. 9

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 24, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	353	149
Diphtheria	196	22
Measles	170	14
Scarlet Fever	98	2
Smallpox	..	..
Varicella	7	..
Typhoid Fever	153	17
Whooping Cough	16	14
Cerebrospinal Meningitis	10	9
Malarial Fever	.	..
Totals	1003	227

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended August 23, 1907:

		CASES.	DEATHS
SMALLPOX—UNITED STATES.			
California, Oakland	July 1–31	1	..
San Francisco	Aug. 4–10	1	..
Indiana, General	June 1–30	103	in 31 counties.
Iowa, Keokuk	July 1–31	2	..
Louisiana, New Orleans	Aug. 4–10	1	..
Shreveport	Aug. 7–14	1	
Massachusetts, Boston	Aug. 12–17	1	
Michigan, Detroit	Aug. 4–10	2	
New Jersey, Newark	Aug. 4–10	2	
West Hoboken	Aug. 9–15	2	
New York, New York City	Aug. 4–10	1	
Utah, Salt Lake	July 1–31	5	
Washington, Spokane	July 28–Aug. 3	1	
Tacoma	July 28–Aug. 3	2	
SMALLPOX—FOREIGN.			
Austria, Galicia	June 23–July 13	9	
Vienna	July 21–27	1	
Brazil, Para	July 1–27	9	2
Pernambuco	June 1–15	..	77
	June 16–30	..	100
Rio de Janeiro	July 8–14	4	3
Egypt, Cairo	July 9–22	1	1
Canada, Halifax	July 21–27	2	..
Chile, Iquique	July 18–24	..	Present
China, Shanghai	July 1–13	For., 6, Nat. 83	
Ecuador, Guayaquil	July 21–27	..	1
France, Paris	July 21–27	11	4
Great Britain, Sunderland	July 21–27	1	.
India, Bombay	July 11–16	..	3
Calcutta	June 30–July 6	..	9
Rangoon	June 30–July 6	..	1
Java, Batavia	June 16–July 6	5	.
Madeira, Funchal	July 22–28	45	3
Manchuria, Dalny	July 7–13	2	.
Mexico, Mexico City	July 14–20	..	8
Monterey	Aug. 2–8	..	1
Portugal, Lisbon	July 21–27	9	..
Russia, Batoum	July 24–31	1	.
St. Petersburg	July 14–20	2	..
Warsaw	July 14–20	..	2
Siberia, Vladivostok	June 29–July 5	1	.
Spain, Malaga	June 1–30	..	4
Valencia	June 22–28	14	1
Turkey, Constantinople	July 22–28	..	1
CHOLERA.			
China, Tientsin	Aug. 15		Epidemic.
India, Bombay	July 10–16	..	1
Calcutta	June 30–July 6	..	44
Cochin	July 28–July 5	..	7
Kashmir	June 30–July 9	42	26
		Subject to increase.	
Madras	July 6–12	..	1
Japan, Moji	Aug. 20	26	..
Straits Settlements, Singapore	June 23–20	..	1
YELLOW FEVER.			
Brazil Manaos	June 30–July 6	..	3
Para	July 21–27	1	1
Cuba, Alacranes	Aug. 10	1	.
Cienfuegos	Aug. 15–19	8	1
Matanzas	Aug. 7–19	2	2
West Indies, Trinidad Port of Spain	July 25–31	6	2
PLAGUE—UNITED STATES.			
California, San Francisco	Aug. 12–14	5	4
PLAGUE—FOREIGN.			
Africa, King William's Town	June 23–July 6	2	..
Brazil, Rio de Janeiro	July 8–14	..	..
Pernambuco	June 1–30	2	3
China, Swatow	June 1–15	..	Present
Chile, Antofagasta	July 2–8	8	3
Pisagua	July 18–24	..	Present.
French Indo China Saigon	June 28–July 4	15	15
Japan, Formosa	June 30–July 13	116	98
Peru, Callao	July 2–17	3	1
Lima	July 2–10	1	1
Mollendo	July 11–17	..	1
Paita	July 12–17	1	1
Trujillo	July 2–4	11	4
Egypt, Alexandria	July 10–Aug. 1	13	6
Port Said	July 10–Aug. 1	2	2
Provinces—Behera	July 10–Aug. 1	6	8
Beni Souef	July 10–Aug. 1	4	1
Kena	July 10–Aug. 1	7	7
Minieh	July 10–Aug. 1	1	1

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Original Articles.

THE ATTITUDE OF PUBLIC HEALTH AUTHORITIES REGARDING THE PRESERVATION OF MILK BY HEAT.

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At the present time a perfectly sterile method of obtaining milk is impossible. We strive, just as the surgeons do, to keep out the pathogenic germs or to destroy them. But while a milk expert is almost always able to point out the microorganisms which make milk unfit for sale or diminish the value of butter and of cheese, the physician can only in individual cases trace diseases to contamination of milk. In the case of typhoid fever, indeed, this is quite frequently possible, one-fourth of the epidemics being traceable to this source; much more rarely is this possible in epidemic cholera and in diphtheria, while only exceptional cases of foot-and-mouth disease and of pleuropneumonia can be thus accounted for. It is likewise not yet decided whether the causative agents of the inflammatory affections of the milk ducts in cattle can produce disease in man, such as inflammations of the pharynx or of the intestinal canal, when they are carried over to him in the milk; while the question of transmission of scarlet fever through milk can be settled finally only when the cause of this disease has been discovered.

Individual prophylaxis quite suffices to prevent the possibility of such infections, the simple boiling of milk, such as is practised in our kitchens, sufficing to destroy these infecting agents; transmission of typhoid fever through milk has been observed only after the use of raw milk; for instance, the drinking of skim-milk practised by workmen in the bakeries. Epidemics of scarlet fever said to have been spread by milk have been reported only from countries where much raw milk is taken as food—England and Scandinavia, for example. Hamilton has shown, moreover, that such reports cannot withstand a careful critical examination (*American Journal of the Medical Sciences,* CXXX., 879). No one, however, is compelled to drink raw milk.

In the case of milk products such as whipped cream, butter, and cheese, the matter stands somewhat differently. The first of these, whipped cream, is one of the most dangerous articles of diet in the warm season, but as it can be made acceptable to the taste by the addition of sugar, when prepared from pasteurized soured cream, this delicacy, so important in fattening cures, may be safely enjoyed in this form. The agents that cause pure souring of milk are the most effective destroyers of the pathogenic germs, and we act in this case just as the farmer, who most effectively fights the tares that harm his grain by favoring the growth of their enemies. For the same reason butter and most forms of cheese are not dangerous. In most modern dairies the first article is made from pasteurized cream that has been soured by pure cultures of bacteria, while cheese is likewise manufactured from soured milk or is ripened after being made, in which case most of the pathogenic bacteria are likewise destroyed.

Accordingly, only the milk used for the feeding of infants need occasion concern. We have passed through the purely bacteriological epoch when a few enthusiasts thought it necessary to trace all nutritive and digestive disturbances of artificially-fed children to microorganisms; indeed, there are many more physicians now who trace the acute summer diarrheas, for example, rather to the gross and minute differences between raw woman's milk and boiled cow's milk, and explain the typical increase of such diseases during the hot summer months either by the increased amount of food taken because of increased thirst with a corresponding increase in the noxious material introduced, or by the lowering of resistance that may result from the exhausting and injurious effect of a midsummer in the city. There is, however, no evidence to warrant such interpretation of facts, though at the same time there are no experimental proofs to show that contaminated milk is indeed the cause of summer diarrhea, and we must be provisionally satisfied with indirect evidence.

Anyone who has toured the Austrian Alps knows that milk obtained from the dirty alpine farmhouses, where the cows stand knee-deep in manure, when eaten raw produces most severe attacks of vomiting and of diarrhea, accompanied by serious symptoms of poisoning; even after being boiled, indeed, it may produce diarrhea, while the milk of a neighboring farm, perhaps, that is kept clean and is provided with a centrifuge, is quite harmless even when eaten raw. This fact is well known to the mountain guides, and one of them once told me how, after hurrying, burdened with baggage, behind a couple of long-legged Englishmen, he at last compelled them to take more frequent rests by advising them to drink "pure alpine milk." On the other hand, every practising physician who can with me compare the period before and after Soxhlet's agitation and activity, will agree with Variot that when clean milk, pasteurized or sterilized soon after milking, is used, the diarrheas of the weaning period as well as summer diarrheas are hardly ever observed, provided, of course, that the number of the meals and the strength and quantity of the milk are made to correspond to the physiological needs of the infant. The completely artificial feeding of infants has likewise become very much easier to carry through nowadays, although indeed it has not yet reached an ideal stage. Were we satisfied with such observation and experience we could even at this point declare that clean methods of obtaining and preserving milk, together with pasteurization or sterilization, accompanied by proper attention to

physiological circumstances in each case, could protect us from summer diarrhea. But experience in other directions interferes with such conclusion at this stage.

The fact is that summer diarrhea has been observed even when pasteurized or sterilized milk has been used; it is to be added, however, that such cases have appeared in epidemics or under a certain combination of circumstances. Thus, I have not observed such cases in my own private practice when mothers prepared the food, using water and pasteurized cream from a dairy recommended to them, but I have seen them often enough in my consultation practice, when the milk of any dairy, or even the full milk of the dairy preferred by me, had been used. In my own patients such cases appeared in certain summer resorts where the farmers had no great respect for clean methods of handling milk, although I am sure that my patients prepared the food in the country in exactly the same way as in their city homes. From these facts I must conclude, what is indeed partly well known to us, that boiling, pasteurization, or the so-called sterilization of milk that has not been cleanly obtained or kept clean after milking, do not suffice to prevent summer diarrhea, either because the harmful agents are not surely destroyed by such methods, or because ample time has been allowed them to manufacture the poisonous products of their metabolism before such destruction.

At present we can only surmise the nature of these harmful bacteria, because we lack as yet evidence corroborative of the splendid research work of Brooker, the determination, namely, of the germs causing the various forms of summer diarrhea or of their toxins in the milk used by the patients. It is not yet decided whether Petruchky is right in tracing some of the cases to the streptococcus responsible for the mastitis of cattle; nor is the work so simple as in typhoid fever, for instance, where a well that has been responsible for an epidemic usually contains the contaminating organisms for some days afterward, for milk may to-day have been contaminated and have caused disease, yet on the morrow may be delivered again in a pure state. Moreover, the pathogenic properties of the suspected bacteria must at first be systematically tested on the young of animals, which has not been done as yet.

Accordingly, we are compelled to fall back upon statistical evidence in proof of our contention, just as statistics are used to show the efficiency of vaccination, of measures used to fight the spread of typhoid fever, and of diphtheria antitoxin. But up to the present time there is no such statistical material available; it should give us the number of cases of summer diarrhea where clean, pasteurized, or sterilized milk has been used, the number of such cases where plain milk has been used, and the mortality in the two classes of cases; the statistician, moreover, must not put too much faith in the fact that the milk used is sold under such names as "clean milk," and so on, for both German and American experience has shown that the name does not always correspond to the true condition of affairs in this case. Moreover, the cases diagnosed as summer diarrhea must be really proved to be such, for every possible disease may masquerade under this name, tuberculous affections of the intestinal canal for instance, which of course would render any useful statistics impossible. In Prague, for instance, I have proved to my own satisfaction by the use of Widal's test that typhoid fever is extremely frequent toward the end of the first year of life, and one cannot therefore hold the contamination of milk in the narrow sense of the word responsible for a great number of cases of diarrhea occurring in summer, as it is usually in Prague quite impossible to trace the source of the infection with the typhoid organisms.

We may now summarize what has been said above, in the following words: Summer diarrhea of infants is most probably traceable to the contamination of milk; at the same time, we are not sure how successfully the disease-producing agents can be combated by a later heating of contaminated milk. The reader sees, therefore, that I place the greatest stress upon clean methods of milking and of keeping milk, and the Dairy Show in Washington in the year 1906 has shown, among other things, that such methods are possible even on a very large scale. Accordingly, the testing of the purity of milk is of the greatest importance, and in the case of pasteurized and sterilized milk this is to be done by counting the dead and the living bacteria, and perhaps by estimating the amount of albumoses and of peptones present; these very methods, however, have not as yet been completely developed.

Without cleanliness any method of preserving milk, and especially the use of heat, may become dangerous. All such methods, including the cooling of milk at a low temperature, attack and destroy first of all the harmless acid-producing bacteria that indeed may even be useful to the digestive process, while the harmful germs, otherwise held in check by the first organisms, now grow only the more luxuriantly. According to Chester-Brown, the use of formaldehyde at room temperature proves to be an exception to this rule.

In addition, other disadvantages have been traced to the practice of heating milk, which, however, I consider of no great importance if no long-continued or repeated heating at a temperature above 75° C (167° F.) is used. The following are among such disadvantages: The destruction of enzymes favoring digestion; the loss of the gases of milk, especially of 90 per cent. of carbonic acid gas, which immediately renders a portion of the earthy phosphates insoluble; the latter, however, undergo splitting by the heat, even without the loss of carbonic acid gas, so that 5/12 per cent. of phosphoric acid and of calcium, as well as 4/32 per cent. of citric acid is precipitated. The soluble proteids—cow's milk contains about 0.3 per cent. of lactalbumin and lactoglobulin— are changed in character, undergoing some coagulation with the loss of sulphureted hydrogen alone and in combination with alkalies. Caseinogen* is dissociated upon the surface of the milk and on the sides of the container into casein and its bases, while at the same time its colloidal nature is changed, thus accounting probably for the diminution of viscosity; in superheating (above 110° C. —230° F.) the casein is still further split into products containing nitrogen and phosphorus, that have not as yet been exactly analyzed, while at such temperatures the milk sugar, and with it the milk itself, turn brown. The fat of the milk—the milk globules—undergoes least change; the globules run together in part, while lecithin (0.06 per thousand parts of milk) probably loses its fatty acids.

The list of chemical sins committed by pasteurizing or sterilizing milk is indeed long, but almost all conclusions drawn from them have remained unproved. It is true only of cooked milk, as of all other food products, that it loses a trifle—some 5 per cent.—in assimilation when compared to the raw product, the reasons for such loss not being known.

*The term is used by C. Fisch, *St. Louis Courrier of Medicine*, February, 1900.

It is probable, however, that infantile scurvy, Barlow's disease, may be caused by the exclusive use of milk heated repeatedly or for too long a time, although we do not know at the present time whether the change in the phosphates and citrates or the decomposition of casein is responsible for this. It is a fact, on the other hand, that in France only six children out of the 21,000 that were fed on the highly sterilized milk of the "gouttes de lait" were affected with scurvy, and that the great majority of infants fed on milk prepared according to Soxhlet's method enjoyed good health, though perhaps not so good as most breast-fed infants. We have, moreover, the fine animal experiments of Brüning, showing that sucklings fed on boiled milk from a different species developed better than others fed on raw milk of the same kind, which fact may be explained by the destruction of the harmful bacteria in the milk of the first series of cases.

To recapitulate once more, I conclude that the disadvantage of using heat in the preservation of milk (pasteurization) lies chiefly in the fact that the beneficent bacteria are destroyed, while the harmful bacteria may be preserved and may later proliferate, the other disadvantages being easily avoided. A Board of Health should therefore allow the sale of commercially pasteurized milk only on the condition that an uninterrupted control of its purity has taken place.

SIXTEEN YEARS' EXPERIENCE WITH TUBERCULIN AND WITH OTHER PRODUCTS OF THE TUBERCLE BACILLUS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

By KARL VON RUCK, M.D.,
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During the sixteen years that have elapsed since the introduction of tuberculin by Professor Koch, this remedy or similar preparations have been used continuously in most cases of pulmonary tuberculosis treated by me in the Winyah Sanitarium, in conjunction with the usual hygienic and dietetic methods and such symptomatic measures as appeared of advantage in individual cases. The results of this combined method have been communicated from time to time in the reports of the institution.

Owing to the opposition to tuberculin which, after a short period of its popularity, led to its almost entire abandonment, the specific method of treatment of tuberculosis has, until the last few years, made but little progress, and, although there have been individual observers who, like the author, believed they derived material aid from the so-called combined method, their influence was inadequate to remove the early adverse judgment to a sufficient degree to reopen the subject for consideration.

It is not my purpose to examine in the present paper all of the causes which led to the abandonment of tuberculin in 1891, but a careful study of the early literature can leave but little doubt that, but for the pathological demonstration of Professor Virchow before the Berlin Medical Society in January and February of that year, the panic-like fear that followed the optimistic attitude prevalent before would never have taken possession of clinical observers who had tested its value and had expressed themselves on the whole in its favor.

I find that the early official reports of the directors of the German University Clinics and the reports from private sources prior to Virchow's demonstrations, were almost without exception indicative of a curative action of tuberculin in a majority of the cases in which it had been employed, and believe that I am conservative in stating that even at that time the favorable outnumbered adverse experiences in a proportion of five to one.

It was the influence of Virchow that for the time being decided the fate of tuberculin, and it is in my judgment another instance in which clinical judgment and observation deferred to the pathological anatomist to a degree unwarranted by the evidence. While Virchow admitted frequently that autopsies had shown nothing that could not have occurred in the course of the disease, apart from the influence of tuberculin, and stated repeatedly that he was not opposing the remedy, but that his demonstrations had no other object than to show that certain complications were found more frequently in cadavers of persons who had received tuberculin injections, and thereby that the remedy was capable of inducing most serious pathological alterations, he did not, as he well could have done, point out also that in the majority of these instances the autopsy showed far advanced lesions and complications which must have existed prior to the administration of tuberculin, and which in themselves would have precluded the expectation of a favorable influence from any remedy or method of treatment whatever.

Had Virchow opposed the selection of such hopelessly advanced cases, and had he further brought the acute pneumonic complications and other unusual findings into relation to the administration of the then customary large doses which caused the inflammatory reactions, much good could have resulted, for his findings were most valuable object lessons in showing that tuberculin, like other powerful remedies, was also capable of doing harm.

That curative effects were not likely to be shown in autopsies upon cases of advanced and complicated phthisis after a few weeks of treatment was pointed out by B. Fraenkel, in the discussion of whose paper these demonstrations were made; and many others who took part in it likewise called attention to this fact, and demonstrated patients showing unmistakably great improvement and apparent cures. Virchow, however, opposed all such clinical evidence, and on one occasion when the healing of tubercle in the larynx under the use of the remedy was claimed upon clinical grounds, he went so far as to reverse his previous teaching, by denying the possibility of the healing of tubercle without previous caseation and exfoliation, and he apparently paid no attention when, at a subsequent meeting, the microscopical specimens of the excised tissue were demonstrated for the purpose of showing the fact in the case in question.

When this prolonged discussion was finished, the supporters of the remedy had been reduced to a very few, even in the society where it occurred, and the lay and medical press had spread doubt and fear throughout the civilized world to a degree that practically eliminated the further favorable consideration of tuberculin.

In the foregoing reference to Professor Virchow, I would not be understood as underestimating the great services of this illustrious man to medical science, including the subject of tuberculosis. Although this was the second time in which his attitude and influence became obstructive to progress of the study of tuberculosis, there was in either instance an element of truth for his support. As with the question of the relation of caseous processes and of scrofula to tuberculosis, and its final settlement by the discovery of the tubercle bacillus by Pro-

fessor Koch, by which Lannec's teachings were practically restored, so in the present instance it required the discovery of specific immune substances in the blood of treated patients to rehabilitate tuberculin in the treatment of tuberculous disease. Having myself profited from Virchow's personal instruction, and sharing in the general admiration and love for the man as well as for the teacher, I detract nothing from his fame by showing that even a great man like him could fail to see all the truth when the subject was examined from a limited point of view.

During the years since passed, specific treatment of tuberculosis has, however, not been entirely abandoned, although those who have adhered to it from the beginning are few in number. The method made occasional new friends and their number has grown more rapidly of late. The literature now is again growing voluminous with contributions, this time almost without exception favorable to a combined method of treatment, in which the specific part with products of the tubercle bacillus is given an important place. In the meanwhile improvements in preparations and in the method of administration have also been made, and a better understanding of their action and of the selection of suitable cases has enabled those who have availed themselves of their use to improve their clinical results to a degree that speaks unmistakably in favor of their value.

The present renewed interest may perhaps justify a general review of my own work, which in years of observation and in point of number of cases treated is sufficiently ample to compensate for variation of clinical material and natural statistical differences.

The total of 1,893 cases treated and reported to January 1, 1907, represents all stages. Only such cases were excluded in which the prognosis had become practically hopeless by reason of the advanced stage of the lung affection or of its acute character, or of complications which precluded the prospect of a therapeutic result. Cases treated for less than one month were not reported.

The total results obtained with the various preparations as they appeared at the time of the patient's discharge were: Apparently cured, 904, or 47.8 per cent.; improved,* 718, or 37.9 per cent.; failed, 271, or 14.3 per cent.

A division of the cases according to the particular preparation employed shows for the original tuberculin in 379 cases:† Apparently cured, 135, or 35.5 per cent; improved, 142, or 37.5 per cent.; failed, 102, or 27 per cent.

Modifications of tuberculin in 348 cases: Apparently cured, 132, or 38 per cent.; improved, 107, or 48 per cent.; failed, 49, or 14 per cent.

Watery extract of tubercle bacilli in 1,166 cases: Apparently cured, 637, or 54.6 per cent.; improved, 409, or 35.1 per cent.; failed, 120, or 10.3 per cent.

The cases of the last series were treated and discharged since 1897, and to show better the character of the clinical material with the respective results in the different stages, their separate statement may be of interest, the more so, as this preparation is derived from the bodies of tubercle bacilli, whereas tuberculin and its modifications are made from the liquid media upon which they had grown, the bacilli having been removed by filtration.

*Under improved cases are included all such in which a complete cure was not attained, but in which the disease had become arrested or the local condition materially ameliorated, and the general condition, including subjective symptoms, had become decidedly better.

†An additional number of about 150 cases treated with the original tuberculin cannot be included, the records having been destroyed by fire.

	First Stage, 214 *Cases*	*Second Stage,* 484 *Cases*	*Third Stage,* 468 *Cases*	*All Stages,* 1166 *Cases*
App. recover'd	201 or 93.0%	305 or 63.9%	131 or 28%	637 or 54.6%
Dis. arr'st'd or greatly imp'd	9 or 4.2%	125 or 25.8%	117 or 25%	251 or 21.5%
Improved.....	4 or 1.9%	51 or 10.5%	103 or 22%	158 or 13.6%
Failed.....	None	3 or 0.7%	117 or 25%	120 or 10.3%

For the purpose of comparison with this last series of 1,166 cases there are available through the courtesy of a large number of other physicians the results obtained by them in a total of 2,183 cases, all of which had been treated with the same preparation and during the same period of time.

Since none of these cases have been published independently, and as I can here deal only with the general results, I beg to refer the reader to a fuller consideration and tabulation under the names of individual observers, which appeared in a separate publication.*

The results in the 2,183 cases of pulmonary tuberculosis referred to were stated as follows:

	First Stage, 748 *Cases*	*Second Stage,* 680 *Cases*	*Third Stage,* 746 *Cases*	*All Stages* 2183 *Cases*
Recovered..	625 or 83.5%	363 or 52.7%	110 or 14.8%	1098 or 50.3%
Dis. arrested.	43 or 5.6%	91 or 13.2%	93 or 12.5%	227 or 10.4%
Gr'tly imp'd..	49 or 6.5%	71 or 10.3%	113 or 15.1%	233 or 10.8%
Improved....	25 or 3.3%	59 or 8.6%	95 or 12.7%	179 or 8.2%
Failed.....	6 or 0.8%	105 or 15.2%	335 or 44.9%	446 or 20.3%

Among these cases were 921 in which the treatment was applied in special institutions and hospitals, the results of which it may be of interest to state separately, to show the difference between them and those obtained in private practice.

Results in 921 cases treated in special institutions and hospitals:

	First Stage, 300 *Cases*	*Second Stage,* 279 *Cases*	*Third Stage,* 342 *Cases*	*All Stages,* 921 *Cases*
Recovered...	285 or 95.0%	186 or 66.7%	64 or 18 7%	535 or 58.0%
Dis arr'st'd or greatly imp'd	11 or 3.6%	32 or 11.4%	98 or 28.6%	142 or 15.4%
Improved....	4 or 1.4%	8 or 2.9%	25 or 7.3%	37 or 4 0%
Failed	None	53 or 19.0%	155 or 45.4%	208 or 22 6%

Results in 423 cases treated in general practice at the patients' homes:

	First Stage. 153 *Cases*	*Second Stage,* 124 *Cases*	*Third Stage,* 146 *Cases*	*All Stages,* 423 *Cases*
Recovered....	130 or 85.0%	56 or 45.1%	19 or 13.0%	205 or 48.5%
Dis. arrested..	14 or 9.2%	24 or 19.4%	14 or 9.6%	52 or 12.3%
Greatly imp'd.	7 or 4.6%	25 or 20.1%	21 or 14.4%	53 or 12 5%
Improved.....	2 or 1.2%	3 or 2.4%	21 or 14.4%	26 or 6.1%
Failed.....	None	16 or 13.0%	71 or 48.6%	87 or 20 6%

Of special interest appear the results obtained in the last series of 423 cases treated by the family physicians in the patients' own homes, and therefore without otherwise desirable climatic or institutional advantages. The specific treatment was applied by 68 general practitioners who were, as a rule, without previous experience, and who, as far as I know, make no claim to more than ordinary skill in tuberculosis work. That the results are remarkable and of the greatest encouragement is at once evident, and if further substantiated by others and eventually by greater numbers of cases, we may hope that we are approaching a time when the mortality from phthisis will be reduced in an appreciable degree.

I am not unmindful that in the statistics so far considered the results were believed to have been accomplished when treatment was discontinued. The future course of discharged cases and the permanency of the results as a final measure, give, how-

*A Clinical Study of 203 Cases of Pulmonary Tuberculosis, etc., by Karl von Ruck and Silvio von Ruck, Asheville, N. C., 1897.

ever, also much encouragement to the view that the addition of specific methods to others of general value is of utmost importance.

The reports by the physicians who treated the 2,183 cases referred to are almost unanimous in the statement that in cases discharged as cured or arrested no relapses have been observed, and this statement by practitioners who treated their cases at home is particularly of value, since most, if not all, of their patients remained under their further observation after completion of a treatment to the date of their reports.

An inquiry as to the permanency of my own cases reported from 1897 to the close of 1904 was completed on December 31, 1906. It included all patients who had been dismissed from the institution with a clinical result of either apparent cure, arrestment, or material improvement.

Circular letters with detailed questions which were deemed essential to be answered were sent to 777 patients; from 602 replies were received, and the results are tabulated below:

without relapse was claimed by 414, or 68.8 per cent.

First stage.—Of 171 cases treated in the early stage were traced 139, or 81.2 per cent. Of the 139 had been dismissed as apparently cured 132. Six have since died, two from other causes than tuberculosis; six have relapsed but are still living; and 120 claimed to have continued in good health. Four cases had been discharged as greatly improved, and 3 as improved. All 7 cases were further treated at home and are living, claiming to be in good health.

This gives for this stage 127, or 91.4 per cent. without relapse, the patient living in good health for periods of from two to ten years.

Second stage.—Of 350 cases treated in the second stage were traced 265, or 75.7 per cent. Of 186 dismissed as apparently cured 15 have died; 4 deaths were from other causes than tuberculosis; 12 have relapsed but are still living; 159, or 85.4 per cent., continue in good health. Of 55 dismissed as greatly improved 6 have died of tuberculosis, 7 have re-

FINAL RESULTS IN 602 CASES OF PULMONARY TUBERCULOSIS DISCHARGED 2 TO 10 YEARS AGO

Stages	Years in which patients were discharged	No. originally reported	Failed to improve under treatment	Reeov'd or improved under treatment	Total No. traced	Reported as Cured: Were traced	Have died	Are living	Have relapsed	Are in good health	Reported Greatly Improved: Were traced	Have died	Are living	Have relapsed	Are in good health	Reported Improved: Were traced	Have died	Are living	Have relapsed	Permanent Result in: Are in good health	Cases reported as recovered	Cases reported as greatly improved	Cases reported as improved	Total number	Per cent.
Early: Class A	1897 1898	20	0	20	14	14	2	12	0	12	0	0	0	0	0	0	0	0	0	0	12	0	0	12	85.7
	1899 1900	53	0	53	37	34	0	34	0	34	2	0	2	0	2	1	0	1	0	1	34	2	1	37	100.0
	1901 1902	53	0	53	43	40	3	37	2	35	2	0	2	0	2	1	0	1	0	1	35	2	1	38	88.4
	1903 1904	45	0	45	45	44	1	43	4	39	0	0	0	0	0	1	0	1	0	1	39	0	1	40	88.9
	Totals.	171	0	171	139	132	6	126	6	120	4	0	4	0	4	3	0	3	0	3	120	4	3	127	91.4
Middle: Class B	1897 1898	37	0	37	24	19	2	17	3	14	4	0	4	1	3	1	0	1	0	1	14	3	1	18	75.2
	1899 1900	86	0	86	62	42	6	36	2	34	10	3	13	1	12	4	2	2	0	2	34	12	2	48	77.4
	1901 1902	130	0	130	102	60	5	55	4	51	28	3	25	4	21	14	4	10	1	0	51	21	0	81	79.4
	1903 1904	94	0	94	77	65	2	63	3	60	7	0	7	1	6	5	4	1	1	0	60	6	0	66	85.7
	Totals.	350	0	350	265	186	15	171	12	159	55	6	49	7	42	24	10	14	2	12	159	42	12	213	80.4
Advanced: Class C	1897 1898	21	2	10	13	2	1	1	0	1	6	3	3	1	2	5	4	1	0	1	1	2	1	4	30.8
	1899 1900	92	29	63	46	14	4	10	2	8	18	7	11	5	6	14	12	2	1	1	8	6	1	15	30.6
	1901 1902	117	29	88	70	36	10	26	7	19	18	8	10	4	6	16	12	4	3	1	19	6	1	26	37.1
	1903 1904	122	36	86	69	30	10	20	7	13	20	4	16	4	12	19	14	5	1	4	13	12	4	29	42.0
	Totals.	352	96	256	198	82	25	57	16	41	62	22	40	14	26	54	42	12	5	7	41	26	7	74	37.4
All Stages	Summary.	873	96	777	602	400	46	354	34	320	121	28	93	21	72	81	52	29	7	22	320	72	22	414	68 8

In regard to the final results in cases that had originally been reported as improved only, it should be stated that most of them were further treated by their family physicians under such directions as we deemed essential and which included the continuance of the specific remedy. A number of such patients returned once or oftener to the institution for a stay of a week or two for necessary examinations and further advice, and, although eventually brought to a more favorable state of health, I have not changed the classification of results originally reported since they were accomplished under the care of others; the fact that these patients have not grown worse since being all that I wish to show.

The table shows that of the original number of 873 patients, 96 failed to obtain improvement; all of them belonged to the far advanced and prognostically most unfavorable class. It was not a part of the inquiry to find out what become of them, because subsequent improvement, in case it should have occurred, could not be claimed for the treatment at my hands.

Of 602 cases traced, 476 were living, or 79 per cent. Relapse had occurred in 62, or 10.2 per cent., and 126, or 20.9 per cent had died. Good health lapsed, 42 are living and in good health. Of 24 cases discharged improved, 10 have died of tuberculosis, 2 have relapsed and are living; 12, or 50 per cent., continue in good health. We have, therefore, 213, or 80.4 per cent., of enduring results for the second stage.

Third stage.—Of 256 cases treated in the third stage, were traced 198, or 77.3 per cent. As apparently cured had been dismissed 82 patients; 22 have since died, 3 died of other causes; 16 relapsed and are living; 41, or 50 per cent., are living in good health. As greatly improved, were dismissed 62 cases; 22 have died of tuberculosis, 14 relapsed; 26, or 42 per cent., are living in good health. As improved, were dismissed 54 cases; 42 have died of tuberculosis, 5 have relapsed and are living; 7, or 13 per cent., are living in good health.

Thus, of 198 patients who came under treatment in the third stage and obtained a clinical result, 74, or 37.4 per cent., are still living in good health.

The favorable influence of specific remedies upon the tuberculous complications in the material of the Winyah Sanitarium has been pointed out from time to time in the several reports; and the influence observed by the physicians who personally reported to

me upon their cases is not at variance with that shown by myself.

Taking the entire clinical material here considered, we have a total of 4,076 cases in all stages treated by myself and over one hundred other physicians, which on their discharge had been classified as follows: Apparently cured, 2,002, or 49.1 per cent.; arrested, greatly improved or improved, 1,357, or 33.3 per cent.; failed, 717, or 17.6 per cent.

When we compare these results with such that are obtained by the hygienic and dietetic plan of treatment alone or in combination with climatic and sanatorium influences, the advantages in favor of the addition of specific remedies are so greatly emphasized that variations in clinical material and other coincidences are insufficient to account for the difference.

It was the observed difference in my own cases that caused me to adhere to the specific method from the period of its first introduction, and I may here remark that of my first series of 25 cases treated with tuberculin and reported 16 years ago, and of which only 5 cases belonged to the early stage, 10 patients are still living at the present time.

In the early part of this paper I have pointed out that tuberculin was abandoned in 1891 chiefly because of the danger that attended its use, and which with the mode of administration and bad selection of cases at that time was undoubtedly a matter for serious consideration. The question of danger has since been eliminated by improvement in clinical methods, by better preparations and by a more conservative selection of patients.

For myself I am able to say that I have for many years observed nothing of an adverse influence and have had no occasion to regret the administration of even a single dose. This appears to also be the experience of the physicians who reported their cases to me; in not a single instance was my question as to safety answered other than in the affirmative. The fact that among them were 68 general practitioners without previous experience in specific treatment, and that they likewise concur in this view, should remove any lingering fear of danger liable to be incurred, and in view of their clinical results it would seem that the method may with advantage be adopted by the profession at large.

It has of late been asserted that for the successful application of specific remedies in tuberculosis it is essential that each dose be controlled by observation of the so-called negative and positive phase of the opsonic index. Were this to be the case, the benefits of the treatment would have to remain limited to comparatively few patients, and the method would need to be confined to special institutions, hospitals, and experts, who command the necessary laboratory facilities. But the results obtained, as here shown and those reported by other observers, long before Prof. Wright introduced his method, indicate that fortunately this is not the case.

I nevertheless consider such studies and investigations as important and essential for the elucidation and improvement of the practical side of the subject. So far they have proved to me of service chiefly in demonstrating the action and the comparative value of different preparations. They have enabled others and myself to show that the products of the tubercle bacillus act in a truly specific manner by inducing active antibacterial or antitoxic immunity, the former occurring chiefly under the use of preparations which contain the tubercle bacillus substance, either in emulsion or in solution, and the latter under the use of the metabolic products of tubercle bacilli contained in the old tuberculin.

In active antibacterial immunization, specific amboceptor for tubercle bacilli can readily be demonstrated in the blood serum of treated patients by the hemolytic method of Gengou and its increase in relation to that of specific agglutinins and precipitins is now being observed and studied in my laboratory. While by these studies the specific treatment of tuberculosis has finally been established upon a scientific as well as a clinical basis, it is proper to call attention to its natural limitations, which at the same time account for the observation of only partial or negative results in its application to existing tuberculous disease.

The limitations arise chiefly from the degeneration of tuberculous tissues, and from associated exudative and productive inflammations, and but for these we could more readily dispense with a combination of dietetic, hygienic, and climatic methods which are the more important, the more marked, extensive, and advanced the degenerative and inflammatory processes have become, to which are attributable most of the active manifestations of phthisis.

The specific part of the treatment can be expected to arrest the tuberculous process, to prevent further degenerative changes in tuberculous tissue by favoring its vascularization and cicatrization, or its resolution and absorption; but unable to restore the more advanced changes, it cannot be expected to remove or restore necrotic tissue or the inflammatory products due to associated bacteria or the symptoms upon which they depend.

The more advanced the disease has become the more is the future determined by conditions beyond the control of specifics, and although the latter may have accomplished all that I have indicated as possible, and the organism have become immune to the action of the tubercle bacillus, the disease can, nevertheless, progress by softening, excavation, and suppuration of caseous tissue, and by incidental inflammation and complications which can occur in the course of these changes, and the patient may die from their effect. This being the case, we see not only the great importance of early specific treatment, but also of its combination with general measures, calculated to restore and to maintain the patient's nutrition and general resistance.

Bearing these limitations in mind, we can readily understand not only the frequently observed prompt recoveries of an enduring character following upon specific treatment, but also the partial or negative results as well as the relapses which others and I, myself, have observed.

Considerations of this kind will supply the answer to inquiries received by me frequently concerning the observed continued presence of tubercle bacilli in the sputum of patients who are presumably immunized against their action by showing that immunity, no matter how complete, would be powerless to remove the bacterial bodies from caseous tissue, softening or exfoliating from the walls of cavities, and from other open surfaces, although perfectly capable of protecting the living tissue against their pathogenic effect.

In practice the decision as to the degree of utility of specific medication in a particular case would offer less difficulty to the physician if he could always draw correct inferences from his examination of the histologic changes actually present, and the greater his ability is in this respect the more likely will he be preserved from error. If he believes that with their extent and nature and the symptoms present the patient can reasonably be hoped to have his disease arrested or cured, providing no further for-

mation and degeneration of tubercle would occur, and if the present phase of the disease is not an actively progressing one, and is not attended with acute inflammatory or exhausting complications, under which the nutrition is rapidly failing, and the latter is still fair, the case may be treated with the expectation of benefit and the degree of the latter would depend upon the stage which the tuberculous changes have actually attained and likewise upon the advantages of general care and management available especially for patients who have progressed to an advanced stage.

CONGENITAL OCCLUSION OF THE CHOANÆ.

WITH REPORT OF TWO CASES.*

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Few malformations have received so little attention as congenital occlusion of the posterior nares. The most recent pathological treatises speak very briefly of this condition. In the text-books of Zuckerkandl, Mackenzie, Moldenhauer, and Moure only summary descriptions are given, while in Bosworth, Brown, Lennox, and Lyons no mention of it is made whatever. References to it are very scattered in medical literature.

The first report of a case was by Emmert in 1853, a double occlusion. The next report of a case came in 1868. Voltolini in 1870 cites a unilateral case. Betts in 1876 relates a double bony occlusion in a newborn child. Solis-Cohen in 1880 reports a case of double occlusion in an infant with violent suffocation. Donaldson in 1880, having occasion to perform many autopsies on cases of asphyxia neonatorum, mentioned this condition as a cause of death, but gave no percentage of its frequency. Haag, in 1889, reviewing all the cases reported prior to that date, cites 53 verified and 15 unverified. Boulay in 1902 reviews 80 cases, and Texier in 1906 brings the number of verified and unverified cases up to 98, two of which he discovered dead of asphyxia in the newborn.

That these 100 cases give more than a fraction of the number of cases in actual occurrence, and that this deformity is the cause of a certain number of deaths from asphyxia neonatorum, and that the condition in infancy passes unrecognized, may, I think, be stated without controversy.

The explanation of this deformity is not easy, without invading the field of hypothesis. As I shall endeavor to point out later, this defect must have its origin at a very early period of fetal life. Opinions differ as to which bone or bones give origin to the occlusion. Kundrat and Schrötter attribute it to the vertical plate of the palate bone; Luschka to the horizontal plate of the same bone. Great thickening of the posterior end of the vomer has been observed, and in one case the deformity undoubtedly had its origin in the body of the sphenoid. True sutures have been observed uniting the occluding bone with the juxtaposed parts.

We know that these occlusions are in the true sense not pathological, since the bone in them shows the histological elements of bone, and they are covered by a true mucosa continuous with the pharyngeal mucosa behind, and with the nasal mucosa in front. They may be unilateral or bilateral, bony or membranous, or partly bony and partly membranous. They vary in thickness from a mere membrane up to 12 mm. Boulay in 65 cases found the occlusion to be: Bony in 51, membranous and bony in 7, membranous in 7.

In the combined bony and membranous type the central portion of the barrier is membranous, while the peripheral portion is composed of converging spicules of bone. The occlusion may lie even with or just anterior to the posterior end of the vomer. In adults, at least, unilateral occlusion is vastly more common than bilateral, and bony occlusion is more common than membranous. Just what the relative percentage at birth may be cannot be said, since a very large number of those with double occlusion must die in infancy.

That syphilis is a factor in the causation of congenital occlusion I am inclined to doubt, though it may cause a post-nasal atresia occurring before or after birth. Rault cites two cases of occlusion due to syphilis. The occlusion in these was membranous and the bony walls were normal.

Schwendt, in 1890, in an exhaustive study, states that in the majority of cases there is no other organic defect.

Arching of the hard palate, deviations and ecchondroses of the septum, atrophy of the occluded side, and hypertrophy of the open side may be present. In double occlusions extensive atrophy of the nasopharynx and pharynx is the rule. The eustachian orifices may show pathological changes, generally atrophy, and otitis media, sclerotic or purulent, is observed in a certain number of cases.

The only attempted explanation of this deformity found in the various published articles attributes it to local hypernutritive changes in embryonic life. As this deformity has a definite anatomical appearance in post-natal life, so it seems to me, it must have a likewise definite embryological cause.

Let us consider briefly the embryology of this subject. The septum is formed from the so-called midfrontal process, which is a prolongation downward and forward from the middle of the base of the skull. It is a thick, more or less shapeless mass of embryonic tissue. On either side and parallel to it, and springing also from the base of the skull, appear the so-called maxillary processes. These, descending, form the outer walls of the nasal fossæ. Thus two fossæ are formed on either side of the midfrontal process or septum. These fossæ and the space below them are at this time continuous with the buccal cavity. Extending from the inner surfaces of the above maxillary process, two new processes extend horizontally toward each other (so-called palatine processes) and fusing form the palate. This occurs about the fourth week. It must be noted that these processes (the midfrontal and maxillary) are thick masses of protoplasm lying in contact with each other, so that the nasal fossæ, at this time, are only potential cavities.

The ventral infolding of the lateral plates of the embryo, when they coalesce and fuse, forms the primitive gut. With the cephalic end of this gut we are here interested, since it enters into the formation of the pharynx and nasopharynx. At this period of fetal life the foregut is shut off from the buccal cavity, and only later becomes continuous with it by a process of absorption.

In these few embryological facts we have at least some basis for the hypothesis that at this time of fetal life may be laid the foundation of the future deformity. We see that the septum and external walls lie in contact, also that the buccal cavity is

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shut off from the parts behind. Undue embryological activity at the points of contact between the midfrontal process or septum and the maxillary processes, or external nasal walls, might easily result in the overproduction of new tissue in the posterior nasal openings, which subsequently, following the nature of its environment, becomes ossified.

Prior to the development of the palatine processes, we note that the nasal fossæ and buccal cavity form but one cavity in front of the closed foregut. May it not be possible that failure of this dividing wall to be absorbed at the proper time leaves this congenital occlusion?

The symptoms in any given case must depend necessarily upon the amount of occlusion present. In double occlusion the symptoms are marked from the beginning of life. The child is born in great asphyxia. The peculiar relation of the tongue and lower jaw to the palate make breathing for it more difficult through the mouth than for the adult, and unless the mouth is opened wide, and the tongue drawn away from the palate, fatal asphyxia may ensue. Nursing is impossible and vomiting the rule. The child is reared on the spoon, is underfed, and shows marked malnutrition in the early months of life. Frequent attacks of suffocation occur. If the child survive the nursing period, it becomes more accustomed to the lack of nasal breathing, and if it does not succumb to some acute pulmonary affection, such as bronchopneumonia, it may reach adolescence.

The majority of cases present themselves for treatment between the tenth and twentieth years. Here, again, the symptoms depend upon the amount of obstruction present, many unilateral cases being discovered by accident.

The adenoid facies may be marked, the voice lacks nasal resonance; smell is always absent on the obstructed side, nor does it as a rule develop after operation. Taste may be diminished, and in one case was absent on the affected side.

The nasal ala of the occluded side is immobile. The nasal mucosa may be unaltered, but generally shows atrophy. The turbinates are as a rule well developed, though in one of my cases were rudimentary on one side. The nose and nasopharynx on the affected side are filled with secretions and crusts, sometimes difficult of removal. Deafness, and consequent stupidity, is a marked feature in many of the bilateral cases. Frontal headache is usually complained of. Snoring and mouth breathing are present in proportion to the degree of obstruction. Anemia and lack of physical development are observed, as in all cases of serious impairment of nasal breathing.

The diagnosis in adults is easy, if a systematic examination be made and a careful history taken. The pharyngeal touch and mirror, in conjunction with the probe in the nasal fossæ, give exact information upon the character and position of the occlusion.

In infants the diagnosis is more difficult, requiring at times considerable ingenuity to demonstrate the condition present. A bent probe in the nasopharynx, and another passed through the nose, should touch each other if the choanæ are open. The obstetrician should keep this condition in mind in asphyxia neonatorum, and in defective nasal breathing in children it should be thought of as a possible cause.

Other conditions producing nasal obstruction (which may be confounded with this type) are: Adenoids (which it may be well to note may coexist), syphilitic rhinitis with atresia, congenital synechia, retropharyngeal tumors (osteomata, myomata, fibromata), high retropharyngeal abscess, intranasal tumors of all kinds, intranasal hypertrophies, foreign bodies in the nose. In syphilitic atresias true bone does not exist. The occlusion is not covered by a normal mucosa, but is made up of scar tissue.

Prognosis as to life, excepting in the newborn with complete occlusion, is good. Suffocation, inanition, and pulmonary infections must prove lethal in many of the double occlusions. The brunt of the affection in the more pronounced cases falls heavily upon the general health, as shown in lack of physical development, malnutrition, sclerotic and suppurative otitis media, and atrophy, which fail entirely to disappear even after nasal breathing has been restored.

Some of the methods of treatment I shall merely mention in order to condemn. Many men in the past seem to have been inordinately fond of the galvanocautery, electrocautery, elastic cannula, elastic hougie, the gouge and mallet, and many other clumsy devices for the relief of this deformity. Some, in order to make more room for these crude procedures, have not hesitated to remove *in toto* the inferior turbinate.

In the newborn it is essential to operate at once if the occlusion be double. An opening is here quite easy of accomplishment, as the obstruction is generally cartilaginous, or, if bony, quite soft. But, on account of the smallness of the choanæ, this opening is equally hard to maintain. A trocar is the instrument generally employed, but I would not hesitate to use a properly constructed dental drill. Mere puncture does not remove anything, and cannot be expected to leave a permanent opening.

In children with unilateral occlusion the urgency for operation is not so great, excepting for the prevention or diminution of the atrophies and of the ear complications which may form sequelæ.

Two conditions must be fulfilled in operating: (1) Remove the obstruction without injury to any important structures in the vicinity; (2) keep the opening patulous.

In children, general anesthesia is necessary. In adults, cocaine anesthesia is sufficient.

The structures which must not be injured are: the inferior turbinates, the removal of which is never justifiable for reasons too evident to require enumeration; the eustachian orifices, which may easily be wounded if care be not taken in using instruments on the outer wall.

Lying on the outer wall, and just anterior to the choanal opening, is the pterygopalatine canal for the transmission of the pterygopalatine vessels and the pharyngeal nerve. Just beside this is the posterior palatine canal, which transmits some of the descending branches from Meckel's ganglion, nerves of sensation to the nose, roof of the mouth, and pharynx and motor nerves to some of the pharyngeal muscles (the levator palati and azygos uvulæ).

From the foregoing we observe that all the important structures in this region lie upon the external nasal wall, and it is on this side, therefore, that care should be exercised.

The dental drill and the punch forceps of various forms, in my opinion, are all the instruments required in the performance of this operation. When possible the finger should be kept in the nasopharynx as a guide while the drill and forceps are being used.

As much as possible of the opening should be made upon the floor, inner wall, and root of the choanæ. When a sufficient enlargement cannot be made, I would strongly advise removal of the pos-

terior end of the vomer. This places the choanal openings more anterior and in a less contracted part of the nasal cavity.

Any procedure, such as packing with gauze or the use of elastic wedges, I believe to be entirely useless, and only a source of irritation. The principle is to make the choanal openings so large that they cannot close by granulation and cicatrization. This can always be done if need be by the removal of the posterior end of the vomer.

Case I. Double Complete Occlusion of the Choanæ.—J. R., aged 17, male, student, of Irish parentage, came under observation December 15, 1902. Complained of inability to breathe through the nose, and a discharging right ear with gradually increasing deafness in both ears. The mother stated that the patient was brought through his nursing period only by the greatest watchfulness. He could not take the breast or bottle, was fed with a spoon, had frequent attacks of asphyxia at night, and at the end of the first year was badly nourished and small. The boy was tall, slim, and anemic, with a poorly developed chest. The face was flat, external nose well developed, mouth receding, labionasal folds deep, due to sinking of antrum walls, malar bones prominent, upper jaw narrow in front, lower jaw well developed, head flat from before backwards and wide laterally, mastoids prominent, ears prominent. No marked asymmetry in the head or body. Nasal fossæ both filled with mucus and scabs. Septum slightly deviated to the right. Over the deviation, on right, great thickening extending from the floor to the middle turbinate region and from the anterior third of the triangular cartilage to within 12 mm. of the occluded choana. This mass obscured all view of the turbinates on that side. They were subsequently found to be rudimentary. The posterior opening was closed by a dense bony wall, which we later found to be 6 mm. in thickness. On the left side the nasal fossa was ample, the turbinates well developed. The posterior opening was obstructed by a bony rim with a membrane placed eccentrically in its upper and outer aspect. The nasopharynx was filled with dried secretions. On removing these the mucous membrane was found atrophied. The eustachian eminences were abnormally prominent and the mouths of the tubes were very pale and patulous. The nasopharynx was abnormally wide and deep, but much shortened in its perpendicular direction. Two indentations showed the position of the closed choanæ. A continuous smooth, mucous membrane covered these, showing no evidence of a former inflammatory process. The palate was arched and the front teeth crowded. The pharynx was atrophic. The larynx was large and well formed, the vocal cords dull, the arytenoids puffy and dark red.

There was considerable loss of hearing for the spoken and whispered voice. A watch could be heard at 30 cm. in the left and 5 cm. in the right ear. The right drum was destroyed, excepting a rim at the upper anterior portion. The tympanic wall was pale and glistening. A mucupurulent discharge, at times profuse, was constantly present. The left drum was pale and contracted and congested in its upper anterior portion. It responded to pneumatic vibration quite well. The right eustachian tube was very patulous. The left had a stricture 2½ cm. from its pharyngeal end.

Operation under cocaine. The occluding membrane on the left was incised and the bone removed with punch forceps and burr on a dental drill, going deep into the floor and inner wall, but avoiding the outer wall. At a second operation the bony exostosis on the right was removed, saving the mucous membrane. At a third sitting the right obstruction was drilled through and the opening enlarged, as on the other side. No packing or dilator was used to maintain the openings patulous. Enough bone was removed to insure this.

Result, four years later: Nasal breathing perfect. Nasal atrophy still present. Nasopharyngeal atrophy much improved. Hearing 60 cm. left ear, right ear unimproved. The patient gained 30 pounds in the year following operation.

Case II.—Unilateral Bony Occlusion of the Right Choana. A. D., aged 15, female, French; came under observation September, 1905. In early childhood no symptoms were observed by the mother. From the seventh to the twelfth year mouth breathing and snoring were complained of, and in her twelfth year an adenoid was removed, with considerable relief of the symptoms. Patient was small in stature, fairly well nourished, but anemic. About one year prior to the consultation she observed that breathing was impossible through the right side of the nose; the left was good. There was some asymmetry of face. The right side was smaller than the left. The right eye was smaller and on a slightly lower plane than the left and the malar eminence less pronounced. There was no other physical asymmetry. The external nose was well developed. Septum straight in its anterior two-thirds. Posterior one-third deviated to the right. Right fossa full of secretions and scabs. On removing these the turbinates showed somewhat atrophic. So narrow was the posterior third of the fossa that the occluding wall could not be seen. The left fossa was normal. The nasopharynx showed the vomer deviated to the right, and a slight dimpling marked the position of the right choana. Hearing normal. Taste normal. Smell on good side normal.

Operation under cocaine. Opening was drilled through a very dense bony wall 3 mm. thick. In enlarging this opening the posterior part of the vomer was drilled away. Even then the result was not satisfactory, and at a subsequent operation about 3 cm. of the posterior end of the vomer was resected.

Result, present time, perfect nasal breathing.

There are two opinions relative to the causation of arched palate. The one holds that arched palate is an accompanying part of a peculiar type of face called leptoprosopia, which means the long, narrow face. The other holds that it is due to defective nasal breathing at an age when the bones of the face are more or less plastic.

Measurements Case I.

Superior facial index	6.8	Height	=48.5
	14	Breadth	
Nasal index	2.5	Height	=50.0
	5	Breadth	
Palate index	2.7	Height	=62.7
	4.3	Breadth	

Measurements Case II.

Superficial facial index	7.5	Height	=57.7
	13	Breadth	
Nasal index	2.1	Height	=41.9
	5.2	Breadth	
Palate index	2.5	Height	=59.5
	4.2	Breadth	

The measurements taken in these two cases (in both of which the faces belong to the broad type of head) would go to prove that the arched palate is due to nasal obstruction, since all the measurements are fairly normal except those of the palate. Here we have, instead of a normal of 45 or 48, in one case 62.7 and the other 59.5.

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THE MISUSE OF THE VOICE AND ITS CURE.

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When in America last summer I was frequently asked to give a detailed explanation of the treatment which we use for throat diseases, caused by the inexperience of using and misuse of the voice. I am anxious to explain as clearly and as completely as possible the treatment by which so many speakers and singers have been cured and enabled to continue in the profession of their art. But I encounter a great difficulty; I can explain which muscles are used for speaking and singing, how we must best use them, and how the different groups of muscles must cooperate together to produce a normal and easy way of speaking and singing; I can also explain where the sound or vibrating air must strike the hard palate in the mouth to make the voice carry far, but I cannot give a definition of the part of the work which is done by the ear. The teacher relies for a great part, and even often entirely, on the ear to distinguish a faulty voice production from a good one, while the pupil must be practised to distinguish through the ear a wrong tone from a good one, which latter he must try to imitate from his teacher. The great part which the ear takes in the teaching of the method seems also to me the reason why there does not yet exist a good and complete manual of the method, which has now been taught for about twenty years in Holland.

I have been asked in which cases of throat diseases the treatment can be used with success. In my article entitled "Throat Diseases Caused by the Misuse of the Voice," published in the Medical Record of January 5, 1907, I gave a description of the throat disease caused directly by the misuse of the voice and wherein this misuse consists. In this special case the treatment has always been employed with good results. Sometimes in chronic cases the recovery comes only after a long time, but it never fails to come. There are no relapses.

When enlarged tonsils, adenoids, nasal polypi, deformations of the tongue, or tumors in the larynx are the cause of the aphonia or of the speech impediment, the treatment may be necessary for the muscles weakened by the disease, or when, which is often the case, the patient fails for lack of energy to break himself of an impediment to which he has become accustomed and which was caused by the local defect.

In paralysis of the vocal chords resulting from diphtheria the treatment combined with electric massage is applied with success.

Not only do patients make use of the treatment nowadays, but many of those whose profession demands constant use of the voice go through it to learn how to use their voice properly and how to strengthen it so as to resist the most fatiguing labor.

As speech and singing are effected by the combined action of the breathing, articulating, and vocal muscles, the action of each of those groups of muscles will be considered. The breathing being the motor element, and therefore the principal element of speech, the breath and breath-practice must be considered in the first place. The questions of articulation, of the use of the vocal muscles, and of resonance will be treated of later.

Breathing.—As the breath is the chief element for producing voice and speech, the patient has to learn in the first place the right way of breathing, and how he may make the best use of the breath in the production of the voice; in short, he must learn "breath practice." The right way of breathing means inspiring and expiring a large volume of air in a way which does not hinder the larynx in its movements and does not occasion a pressure on the arterial and venous vessels and the tissues of the throat.

We make the best use of the breath in voice production only when we know how to control it properly and how to direct it consciously.

We breathe by enlarging and contracting the chest or thorax. We can do this in different ways; either we enlarge the chest by raising the upper part of it, or we extend it sideways, or we elongate it by contraction of the diaphragm. In the first case we speak of clavicular breathing, in the second of costal breathing, in the third of diaphragmatic or abdominal breathing. Those three forms of breathing are of course not totally independent one of the other: the contraction of the diaphragm cannot take place without occasioning a lateral extension of the ribs, while the full clavicular breathing will also be united with some lateral inflation of the chest.

We will consider those three forms of breathing and see which form we must reject and which offers us the most advantages to meet our purpose.

In the case of clavicular breathing we enlarge for inspiration the upper part of the chest. To execute this movement we must raise the collar bones (and with them the arms), the shoulder blades, and the upper ribs which are attached behind to the spine and in front to the sternum, all hard and unyielding parts. It is clear that this cannot be done without a great effort, the result of which is that the upper part of the chest walls is pressed against the root of the neck and its large vessels, forming an obstacle to the free movement of the larynx and causing congestion of its vessels, while the amount of breath we get through this way of breathing can be but small, because the apices of the lungs, that is, the narrowest part of them, only will be able to swell to their full extent and be inflated with air.

By this mode of breathing it is also impossible properly to control the exhalation. After having raised with great effort those hard and unyielding parts of the chest, a much greater effort, which a singer or speaker is hardly capable of, must be car-

ried out to keep the thorax a moment in this attitude, and then contract it slowly, as is required for a properly managed exhalation. We usually observe in this case that, for want of strength to execute this forced movement, the singer or speaker gives way and loses all control over his breath. It is unnecessary to say that, by this way of expelling the air, the voice, for want of proper support, is unsteady and fails to carry far. Thus in every respect we must condemn clavicular breathing, and even carefully avoid it, as it certainly is one of the causes of the throat disease already described.

By lateral extension of the thorax, or costal breathing, the clavicles remaining at rest, there is no pressure on the root of the neck nor on its great vessels, and the lungs are inflated where they are largest and can contain a large amount of air. So far this way of breathing thus is better than the first named; however, when comparing costal breathing with diaphragmatic breathing, we must decide in favor of the latter. By experiments made with the spirometer on a great number of individuals, it has been proved that the amount of air, we can inhale, is less by costal breathing than by diaphragmatic breathing.

In regard to control over the breath when exhaling, costal breathing is also inferior to diaphragmatic breathing. To extend the walls of the chest sideways for inhaling we lift up the lower ribs by contraction of the outer-intercostal muscles. In exhalation the ribs are lowered by relaxation of the outer-intercostal muscles and contraction of the inner-intercostal muscles. Only those two groups of muscles work during the process of costal respiration. During diaphragmatic breathing, in expiration the action of the outer-intercostal muscles resists that of the abdominal muscles and hinders the contraction of the diaphragm. It is this resistance, which is wanting in costal breathing, that enables us to exercise a better control over the breath. In the case also in which all the labor must be performed by two groups of muscles, fatigue will sooner appear than when the same amount of labor is divided over more groups of muscles. So we come to the conclusion that costal breathing, though satisfactory in many respects, does not equal diaphragmatic breathing. In some cases of abdominal diseases it may be necessary to avoid abdominal respiration. In those cases costal breathing must be taught, and when well exercised good results can be obtained.

The lower part of the chest is formed by the floating ribs and, at the base, by the diaphragm, all soft and easily yielding parts, which can be contracted and relaxed for a great length of time without causing much fatigue. The lungs being largest at their base, we obtain the greatest possible amount of air by enabling these organs to expand downwards.

In inhalation, by diaphragmatic breathing, the abdomen is pushed forward, the center of the vaulted midriff flattens, and its outer edge, which is attached to the lower ribs, slightly rises, causing a lateral and upward extension of those ribs. In exhalation, when speaking or singing, the abdomen is pressed against the flattened midriff by the contraction of the foremost section of the outer-oblique muscles, and the diaphragm relaxes. This relaxation, however, is opposed to by the action of the outer-intercostal muscles, which try to keep the ribs in their position of extension. The opposition between those different groups of muscles stems exhalation more or less, and gives us the opportunity of exercising a good control over expiration.

Thus in all respects the diaphragmatic breathing is the best of the three forms, and is that which we generally teach for speaking and singing to our pupils and patients. I will try to explain briefly how we proceed in doing this.

As we have seen before, in diaphragmatic breathing the abdomen is pushed forward in inspiration, and in expiration, during speaking and singing, the abdomen is pressed against the diaphragm. Thus the first exercise will consist in: pushing forward the abdomen and contracting it. To make it easier, and to prevent false movements, we exclude the idea of breathing by this first exercise, and see to it only that in contraction of the abdomen the foremost section of the *musculi obliqui externi* is used, and not, as sometimes is the case, the *musculi transversi*.

For the second exercise the same movements are made, but combined with inhaling and exhaling through the nostrils.

The first day those exercises must be made for only a few minutes three or four times a day. Every day, however, they may be continued a little longer and done oftener, until the pupil gets accustomed to this mode of breath practice and adopts it as his natural way of breathing. In the beginning the pupil must lie flat on the back when exercising; he may afterwards try to exercise in every position—sitting, standing, and even walking.

No tight garments must incommode the thorax or the abdomen in their movements.

When diaphragmatic breathing offers no more difficulties to the pupil, the breathing as used for speaking and singing must be learned.

When we breathe solely for the maintenance of life we inhale, exhale, and then rest a moment before we inhale again. The inhalation is an active movement, the exhalation and the rest or pause are passive. When using the breath for voice production, in speaking and singing, we inspire, retain the breath a moment, and then expel the air gradually. This retaining and this expelling of the breath are active movements just like inspiration. Everyone of these movements must be equally developed in strength.

The third exercise is as follows:

1. Inhale slowly through the mouth, the underlip leaning against the upper teeth, as when saying *f*, count five mentally.

2. Hold the breath, count three (this holding of the breath must be governed entirely by the abdominal and costal muscles, and not by the shutting of the glottis, which must be open as well as the mouth).

3. Exhale pronouncing a prolonged *s* finishing in *t*, count ten. Thus inspiration, 5, on *f*: pause, 3; expiration, 10, *s-t*.

The *f* in inhaling and the *s* in exhaling are used as tell-tales by which we assure ourselves that the inhalation and exhalation are done evenly, without shaking or interruptions.

Gradually the time in which the three actions are executed is increased, but never so far that, after inspiration, the lungs are overdistended with air, and the expiration is unsteady because of the breath being held too long.

As the breathing power differs with each individual, and at every age, a fixed limit cannot be adopted for this third exercise. The experienced teacher has to decide here how far the pupil may increase it. If the chest expansion remains insufficient after having exercised some ten days, or if it appears that some of the groups of muscles are particularly weak, special exercises (which I cannot mention here) must be prescribed and continued till a normal respiratory power is attained. The aim of

the next exercise is to teach the pupil to inhale quickly, hold his breath a moment, and exhale as slowly as possible, as must be done when speaking or singing.

1. Full inspiration through the nostrils.
2. Pause, 1.
3. Expiration, 40 or more on *s-t*.

These latter two exercises are exclusively meant to teach the pupil how to control the breath. The next thing to be done is to teach him how to direct the breath consciously and how to make the breathing muscles cooperate harmoniously with the articulation and vocal muscles.

The most serious and most general fault of speakers is that the breath or vibrating air strikes the soft palate instead of the front wall of the mouth, formed by the upper teeth, the alveolus, and the hard palate, which constitute our natural sounding board. A faulty articulation will not do the harm which the breath directed in this way does, and every teacher must be careful to correct this fault thoroughly.

The first exercise to learn how to direct the breath is as follows: Inhale through the nostrils, exhale through the mouth; then inhale through the mouth and exhale through the nostrils and make the pupil notice the different directions in which the breath is led.

To make the vibrating air or sound strike the front wall of the mouth we use the following exercise: Take a full inspiration, counting 3 mentally, hold the breath counting 2, say *ha* contracting suddenly and with energy the abdominal muscles (the *musculi obliqui externi*). By this energetic exhalation the air is projected with force against the front wall of the mouth, where the tone can resound clearly. Repeat the same exercise, but instead of *ha* say *lah*! When pronouncing the *l* we lean the tip of the tongue against the upper alveolus; exactly at that same place the sound must strike our sounding-board while we are speaking. The letter *l* is used as a guide to the breath. It is here that the pupil must try to imitate the examples of his teacher, who can judge only by hearing if the tone is well placed. If it is well placed it will be clear and resound through the room.

When the *lah* is well done, try the same exercise, but instead of *lah* say *lah, leh, lai, lee*. Pronounce each syllable separately, taking before each a full inspiration and expulsing the air energetically by the contraction of the abdominal muscles. Immediately afterwards, this same *lah, leh, lai, lee* must be pronounced, but now binding the syllables and in one exhalation contracting slowly the abdomen. While doing this the pupil must try to imitate the clear sounds, which he has just produced by the sudden energetic expulsion of the breath. The same exercises must be made with the other series of sounds (to be considered when treating of articulation) and bye-and-bye in combination with all the voiced consonants, then also with the breath consonants.

These exercises, of which the purpose is in the first place to learn how to direct the sound forward, are at the same time an excellent help to reestablish the harmonious cooperation of the different groups of muscles, which is nearly always disturbed by the catarrh. We have seen, in the former article, that paresis of the vocal chords is one of the symptoms of the throat disease in question, and the injudiciously used breath passes the weakened vocal cords without being able to make them vibrate. With a well-controlled, energetic exhalation, supported by an exact articulation of one of the voiced consonants, the vocal cords are stimulated and will produce a sound perhaps not altogether clear in the beginning, but which will improve daily, while at the same time the closure of the vocal cords will be improved.

When the above mentioned exercises have been practised with all the sounds and consonants, the pupil must try to pronounce short words in the same way, at first each word separately, then again binding three or four words together. Little phrases may be practised then, which soon can be followed by the narration of a short story and some specially chosen easy reading. More difficult materials can be used as soon as the pupil has become accustomed to his new mode of speaking and can watch over it with less exertion.

The pupil must be careful that, when pronouncing the words combined in one breath, the outer-oblique abdominal muscles are contracted slowly, but distinctly and consciously. (The teacher will explain to the pupil how he can control himself by placing the hand laterally on the abdomen.) This will teach him to govern his speaking by the breath which is required for a normal speech.

In the beginning the exercises must be carried out but a few minutes, three or four times a day. The teacher has to decide when and how long they can be prolonged; this depends on the condition of the throat and on the effect produced by the exercises on the voice.

At the beginning of the treatment, the patient must not speak at all; bye-and-bye he may be allowed to speak a little, but only using the new way of breathing (and also of articulating). As this will be difficult and fatiguing for him at first he will easily avoid speaking much.

As the intention of this article is to give a general notion of the treatment, I have mentioned only the principal exercises used. Of course there are a great number of other exercises which have in view the normal use of the breath as the motor power for speech and singing.

PLAATS, 10A.

IMPACTION OF FECES.*

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THIS subject has not been presented before the Society for some time; therefore, as I have had recently under observation several such cases, the topic seems worthy of consideration in order to invite discussion and obtain the present views of the Fellows.

The result of obstipation, or an attack of constipation, may be an accumulation of clayey feces, formed in the cecum or in any part of the colon; but the term impaction is generally employed when such accumulation occurs in the pouch or ampulla of the rectum or in the sigmoid flexure, and will be so considered in this article.

The ampulla of the rectum or the sigmoid is the most favored site for such a collection of feces, and the deposit may attain very large proportions, being more or less globular in form.

As pointed out by Allingham,[1] there is a marked difference between an ordinary persistent constipation and the disease under consideration, for an

*Read before the American Proctological Society at the ninth annual meeting, held at Atlantic City, N. J., June 3 and 4, 1907.

impaction may follow from a single attack of constipation, whereas obstinate constipation may never, or only after a long period, cause an impaction. Furthermore, the symptoms of the two conditions are very different; impaction being generally marked by a diarrhea, whereas in chronic constipation the prominent symptom is constipation.

The impaction may be due to several causes, but is usually a symptom either of intestinal atony in old people or of some paralytic affection, such as locomotor ataxia, etc. It may arise from a catarrhal condition of the bowel or from undue distention of the coats of the bowel, as from fermentative changes in the contents of the intestinal track, etc. It not unfrequently occurs as a result of the prolonged pressure of the fetus and is most apt to follow confinement.

Foreign bodies in the intestinal canal, such as seeds, fruit-stones, enteroliths, and worms, may likewise occasion this malady. Several cases are recorded by T. B. Curling[2] in which a plum-stone has been found in the center of the fecal mass, forming a sort of nucleus.

The quantity and quality of food taken is sometimes an etiological factor in impaction. I have seen this occur several times following an attack of typhoid fever, due to the prolonged use of a milk diet.

Harrison Cripps[3] states that rectal concretions were a marked feature during the Irish famine of 1846 and calls attention to an interesting paper published at the time by Dr. Popham,[4] who was one of the physicians of the Cork North Infirmary. During the famine many cases of intestinal obstruction, the result of enormous concretions, were admitted into the infirmary. After the obstruction was removed it was found to consist of decayed portions of potato mixed with the undigested peel, which had been consumed by the half-famished people.

Fissure in ano and any congenital or acquired narrowing of the lumen of the anus or the rectum as well as an abnormal condition of the rectal valves may occasion the disease under consideration.

The malady is generally one to which old age is heir, and especially does it seem to have a predilection for the female sex. I have personally never seen the condition occur in the male, but that it does affect all ages and sexes is amply shown by the recorded literature.

Dr. Jos. M. Mathews[5] states that he has met with this condition in persons of middle life, in the aged, and in the young, and attributes most of the trouble to obstinate constipation, due to the modern rush and the consequent neglect of all the essential rules of health. Continuing, this author states that he has been called repeatedly to attend young girls who have never been instructed in the ordinary health rules, and who scarcely know that they possess a rectum, and are not aware of the fact that their bowels should be evacuated at stated intervals. Personally, I am convinced that women are most careless in this respect and seem to justify the definition of a prominent gynecologist, now deceased, who defined them as "constipated bipeds."

The symptoms to which impacted feces give rise are generally sufficiently well marked to enable the wideawake practitioner to reach a correct diagnosis. The only characteristic symptom present, however, is diarrhea, which is of the most annoying and persistent kind, resembling markedly the condition of the bladder obstructed with an enlarged prostate, in which the so-called incontinence is not a sign that the viscus cannot hold any quantity of fluid, but on the contrary is due to retention of urine and an inability to empty it. In some cases the movements of the bowels have a peculiarly offensive odor. The stools are usually liquid, but may contain solid particles; sometimes blood and mucus may be passed either alone or with a fecal movement. This condition of the bowels finally leads to a catarrhal dysentery produced by the irritation of the arrested mass.

Extensive ulceration may supervene as a consequence. Sir Chas. B. Ball[6] cites a very remarkable case of this character seen by him in consultation with Dr. Wright of Dalkey, in 1884. The patient was a widow, aged sixty-five. A rectal examination revealed the fact that the entire lower bowel was blocked with feces. Prior to the examination the cutaneous surface of the right buttock, which had been greatly inflamed, gave way and permitted the escape of a considerable quantity of feces. By carefully breaking up the fecal mass and the administration of copious enemas, Dr. Wright succeeded in evacuating what the nurse described as a "bucketful" of feces. When Mr. Ball saw the patient the wall of the rectum had sloughed upon the right side of the bowel, about one and a half inches from the anus, leaving an opening as large as a half-crown piece. There existed a considerable quantity of feces in the areolar space external to the rectum, and pressure made with the finger externally caused the extrusion of lumps of hard feces as big as walnuts through the large fistulous opening in the right buttock. Eventually, the patient made a good recovery without a stricture following or any other inconvenience.

Associated with the symptoms already mentioned, impaction may be and often is accompanied by tenesmus, colicky pain, flatulence, distention, and signs of collapse, especially after straining efforts at evacuation.

Hypochondriacal symptoms, more or less pronounced, are often present, especially when auto-intoxication exists, as shown by a furred tongue, bad breath, etc. Dr. Jas. P. Tuttler[7] refers to two cases of mental derangement occurring in his experience due to the retention of fecal material in the intestine; and also cites a case which he had seen of epileptoid convulsions apparently due to the arrest of a mass of plum-stones in the sigmoid flexure of a child.

In addition to these symptoms patients sometimes suffer from swelling of the lower limbs and feet due to pressure on the pelvic and abdominal veins, varicose veins of the limbs, varicocele, shooting pains in the lower extremities, groins, and loins caused by pressure of the impacted mass upon the sacral plexus of nerves, etc.

On examination there is apt to be dulness over the iliac fossa and more or less prominence, and a tumor may even be felt if the accumulation extends from the rectum into the sigmoid or is situated within that flexure. On passing the finger into the rectum a solid mass is felt, sometimes apparently fixed, but more often movable, and frequently associated with the presence of fluids, the product of the catarrhal condition induced by the presence of the fecal mass. Sometimes the impaction may be partially covered by mucous membrane which it has pushed down in front of it, as mentioned by Dr. S. G. Gant,[8] when it may be mistaken for malignant disease.

The symptoms of fecal impaction alone are often in themselves sufficient to lead to a mistaken diagnosis of cancer, and more than once I have been led to infer from the description given by the medical attendant in advance of my seeing the patient that a case of carcinoma was being referred. When the mass is not within reach of the finger, instru-

mental examination may be required, but considerable care must be exercised in the introduction and use of instruments for fear of rupturing the bowel, which in its inflamed state is more susceptible to injury than when in a normal condition.

The treatment of impaction consists primarily in the removal of the mass, and secondarily in the relief of the inflammation of the mucous membrane occasioned by the irritating presence of the fecal matter, as well as the removal of all causes which contribute to the constipated habit, which is undoubtedly the prime factor in producing an impaction; such are improper diet, irregularity of attending to the calls of nature, and often an utter lack of outdoor exercise.

The best manner of breaking up the fecal mass is to put the patient under an anesthetic and then forcibly to divulse the sphincters, after which the mass may be disintegrated by means of the finger, a lithotomy scoop, or an old-fashioned iron spoon. In women considerable assistance may be rendered by passing a couple of fingers into the vagina and by this means steadying the mass so that it may be the more readily broken. In some instances I have been able to break up an impaction without resorting to anesthesia, simply by using the finger and sometimes by the additional use of a bivalve speculum and a rectal scoop or spoon.

Previous to resorting to instrumental aid in the removal of the impaction, the fecal mass may be softened and its passage facilitated by the use of enemas. Especially is this so in cases in which the sigmoid is the part affected, in which situation material assistance cannot be gained by the employment of instruments. For the purpose of administering the injections a douche bag holding several quarts is to be preferred. The injection substance should be composed of soap and water, to which I have found the addition of glycerin of considerable benefit, a dessertspoonful to the quart. When the impaction is in the sigmoid the injection should be given through a Wales bougie, preferably the one modified by Dr. Dwight H. Murray of Syracuse, N. Y., which is stiffer than the ordinary article sold, which latter is frequently useless for the purposes intended, as it readily doubles on itself, and a high injection is impossible by its use. When this method is employed the patient should be placed in the knee-chest posture.

Tuttle[7] advises for use as an injection, in ordinary cases of impaction of the rectum as well as in those occurring in the sigmoid, the administration of an enema of about half a pint of warm water containing two drams of inspissated ox-gall and one dram of glycerin; this he directs should be retained as long as possible and repeated four times within twenty-four hours. When this method is employed he has frequently found that the fecal mass has softened so as to enable the patient to pass it without material assistance.

Tuttle[9] has found that impaction in the sigmoid may be dislodged by inserting gently as far as possible the pneumatic proctoscope, twenty-four hours after having injected the glycerin and ox-gall mixture, and then distending the flexure with air. By this procedure he has succeeded in relieving three obstinate cases of impaction, in one of which it was necessary to dilate the sphincters before the mass was passed.

In those cases in which a stricture of the bowel is the cause of an impaction any violent efforts to remove the fecal matter should be carefully avoided, as the gut may be easily ruptured under such circumstances. In this condition, when any doubt exists as to the wisdom of resorting to other expedients, an inguinal colostomy should be performed.

A word of caution should be given here as to the danger surrounding the unguarded use of drastic purgative drugs in cases of impaction. By their employment peristalsis is increased and the fecal mass softened, but the bowel in its inflamed and distended condition may be thereby the more easily ruptured, and if, in addition, a stricture is present, the caliber of the gut may be entirely occluded by forcing into it the hard fecal mass with the attendant symptoms and consequences of total obstruction of the intestines. So much for the treatment of the actual impaction.

In conclusion, a few words as to the attention required for the relief of the after-effects of the impaction itself, and likewise a word as to the avoidance of those factors which directly cause its formation.

Regarding the relief of the inflammation of the bowel due to the irritating presence of the impacted mass, I know of no better treatment than the use of enemas of flaxseed solution made in the same way as is done in the preparation of flaxseed tea. Sometimes I have this medicated with a teaspoonful of compound tincture of benzoin to each pint of water, in order to obtain the additional astringent and soothing qualities possessed by this remedy. These injections should be used once daily for several days. Three to five grains of ichthyol, in pill or capsule, taken by the mouth, every three hours, and continued for a week or ten days, in my opinion, is beneficial.

After the removal of the impaction a ten-grain pill of blue mass should be ordered to be taken at bedtime and followed by a saline the following morning. Remedies should be prescribed to stimulate the muscular activity of the bowel, such as contain physostigma being especially desirable. Glycerin suppositories are useful in regulating the habit of a fixed hour for the bowel movements. Used every day for a week at a set time and then every other day for another week, they have been found most efficient. Exercise in the open air and proper diet are both large factors in the prevention of the recurrence of impaction, and to these conditions careful attention should be given by the medical attendant.

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The Scientific Aspects of Cannibalism.—At the recent Congress on Alimentary Hygiene, held in Paris, vegetarianism was opposed by several physiologists, the principle being laid down that the digestion of meat is most easy when the meat eaten is of the same species as the individual eating it. The further the two species, the eating and the eaten, are apart one from the other the more different they are chemically, and therefore the greater the labor required for assimilation. One speaker blandly observed that the principle led to a justification of cannibalism, at least chemically.

INSTRUCTIONS TO THOSE HAVING SYPHILIS.

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Prof. Alfred Fournier in his valuable work, "Prophylaxis of Syphilis," in speaking of the defects of hospital treatment of syphilis in Paris states that at venereal clinics "printed instructions should be given to each patient," and gives a suggestive form of such circular of instruction. The following circular is not based on Prof. Fournier's and was indeed written three years before his was noted. There is no question in the writer's mind but that such circulars of instruction are of great value because they give to each patient in unmistakable terms the well recognized facts of the disease, which as its victim and its possible source to others he should indubitably know. It also saves a great deal of time to and many omissions by the busy physician. Any statements of such a circular which are not at first reading clear to the patient may readily be made so at a subsequeunt visit, upon his request. Only three of the New York venereal dispensaries issue such printed instruction to their patients.

Into the writer's hands was committed the duty of preparing the circular in use at the New York Hospital and no effort was spared to make it as complete as possible. Its value to the patients has been incalculable; its convenience to the staff of the highest. In publishing and discussing it it is hoped that the heads of other dispensaries in the United States will be induced to follow the same plan of informing the public as to what they should know about this and other venereal diseases, beyond the range of doubt, mistakes, or omissions.

The crusade against tuberculosis in the form of lectures and pamphlets issued by various societies, schools, labor, and charity organizations will shortly bring a rich return in a decrease in the disease. Our duty as physicians is not only to alleviate and cure any disease in the victim, but also to prevent its spread to others. Preventive medicine is the watchword of the age, and the writer thinks that no physician who is a genitourinary and venereal specialist does his full duty to the community or the patient unless he gives such instructions in a most painstaking and conscientious manner.

Such a circular of instruction to those having syphilis should cover four points: (1) A paragraph stating the nature of the disease. (2) Several paragraphs dealing with definite elements in the general management of the disease to prevent its ravages in the patient and its spread to others. (3) Definite instructions as to particular forms of treatment, especially that by inunction. (4) A few words as to general prognosis.

First. As to the few words bearing upon the importance of the disease none can be better than those of Prof. Fournier just referred to, which are quoted in full:

"(1) Syphilis is a disease which is curable, but is only cured by a long course of treatment lasting for several years, even when there is no external sign of the disease.

"(2) It is extremely contagious, especially by the sores and erosions, however small they may be, which generally occur on the genital organs and in the mouth, but which may be produced on any part of the body. A patient with syphilis must, therefore, abstain from any sexual intercouruse when he has the slightest lesion on the genital organs. He must also abstain from kissing when he has sores on the lips or tongue; for a kiss, even on the healthy skin, may be contagious. Contagion may also be transmitted through the medium of any object which has been in contact with the morbid secretions of the disease—glasses, spoons, forks, bottles, pipes, cigars, cigarettes, linen, towels, clothing, etc.

"(3) Syphilis is hereditarily transmitted to children (who generally die) when it has not been sufficiently treated. A syphilitic subject should not marry till after at least three or four years' methodical treatment and then only by permission of a doctor.

"(4) A child born of a syphilitic father or mother should never be confided to a wet-nurse, because it may transmit syphilis to this nurse.

"(5) When a syphilitic subject is affected with any other illness he should always inform his doctor of his former syphilis, for this declaration may be useful for the direction of treatment and the cure of the complaint."

To which might be added the following from the writer's pen, and embodied in the circular now in use at the New York Hospital: "Syphilis is a treacherous and dangerous disease of the entire system and requires for perfect cure at least two, better still, three years of faithful treatment, because it is 'in the blood.' Healing the chancre and taking medicine for a few weeks or months will not cure your blood of the syphilitic poison. It is, therefore, necessary that you follow the doctor's orders most carefully. If you do not you are in danger of having the disease appear in the future in some important part of the body, like the brain, spinal cord, bones, arteries, or other organs, as the liver. If you do not follow directions it is also possible that your wife and children will acquire the disease from you."

The second detail concerning special directions is covered in the writer's circular by the following points which one might discuss in turn: The patient should be told these directions are of particular importance during the first twelve or eighteen months, and whenever thereafter through neglect the symptoms may break out again. Liquors containing alcohol in any form must not be taken, because alcohol is a poison when it is taken in the manner in which most people use it, which poison being added to the poison of the syphilis makes the syphilis much less likely of perfect cure. The patient should be warned not to smoke or chew tobacco because the irritation of the tobacco fumes and juice increases the severity and duration of the sores of syphilis in the mouth and throat and may indeed cause a fresh outbreak of such sores long after they have previously disappeared. Sour, acid, peppery, and spicy foods and pickles should be avoided for the same reason, namely: because they irritate the lips, gums, tongue, and throat and thereby bring about the same results as the tobacco smoke or juice.

The patient should be taught that cleanliness of the teeth and mouth decreases the severity and the duration of the mouth symptoms of syphilis. For this reason the teeth should be brushed and the mouth should be washed every night and every morning. Warning should be given that no other person should be allowed to use the same tooth brush or mug, and that since decayed teeth by their sharp edges and corners and by the infectious ma-

terial their cavities contain may in themselves set up and prolong the mouth signs of syphilis, a dentist should be consulted to treat the teeth just as soon as the diagnosis of syphilis is made. Emphatic and unmistakable directions should be given to tell the dentist that the patient has syphilis, so that he may take precaution against catching the disease himself and against giving it to other persons by using in their mouths instruments infected by the patient's mouth.

In order to prevent giving the disease to the family, the friends, and associates of the patient he should be carefully told to observe the following rules strictly: He should always sleep alone, or, if this is impossible, he should always sleep on the same side of the bed, using the same pillow, so that the discharge from the mouth and other parts of the body during the first few months or year of the disease will not come into contact with a bedfellow. Toilet articles belonging to the patient should also be kept individually for his use. This rule applies in particular to towels, brushes, combs, shaving brushes, razors, soaps, etc.

It is in the majority of cases better probably to state, at least in the severer cases of syphilis, that the patient should not go to a barber to be shaved, because the blood of such an individual may infect a razor and the razor in turn transmit the disease to an innocent person.

The patient should be made to understand that the mucous patches of the mouth are particularly dangerous to other people, and, therefore, he should be most careful to preserve for his own use any article which has been in his mouth, such as tooth brushes, toothpicks, pencils, pipes, cigars, cigarettes, forks, spoons, cups, etc. The habit of kissing is in itself dangerous enough. It is particularly so during the active period, namely, the first two years of the disease. The innocent party can hardly escape if the patient has open sores in the mouth. It is probably particularly important not to kiss children for the reason that usually their mucous membranes are more tender than are those of adults.

While it is somewhat a matter of doubt as to how syphilis is transferred during sexual intercourse after the initial sore has healed, it is nevertheless absolutely certain that such transfer does occur. The patient should, therefore, be told that sexual intercourse must not be had during the first twelve or eighteen months or during any fresh outbreak of symptoms after a period of neglect of treatment, for the reason that he is then almost certain to bestow the disease upon the woman. To be the victim of syphilis is in itself a misfortune, but to transfer the disease to an innocent party is a base and cruel act.

The patient should be taught that all cotton, gauze, or other form of dressings which has been on an open sore may contain the poison of the disease in such a form as to transfer it to an innocent attendant or associate. Therefore all dressings which have been on open sores and wounds should be burned. Perhaps the best way to accomplish this is to drop the dressings into paper bags, close the bags in the usual manner, and throw them into the fire.

The patient should be told that, in general terms, syphilis is a parasitic disease and is, therefore, comparable in this particular with tuberculosis. He should also be informed that as in the case of tuberculosis the general strength of the patient must be kept up to the highest possible measure of good health by means of plenty of fresh air, regular habits of eating, sleeping, and exercise and abstinence from anything in life which tends to deteriorate the health. Explanation should also be given to the effect that, as in tuberculosis, the medicines prescribed partake almost of the nature of food-stuffs in combating the disease, and should, therefore, be taken with the greatest regularity and faithfulness, as is food itself.

It is also well to add that frequently, notwithstanding great watchfulness on the part of the physician, new developments or even complications may arise much as they do in the case of tuberculosis, and that it is the express duty of the patient to seek medical advice should any such seem to appear, and at the earliest possible moment.

The patient should also be told that disobedience to these general regulations in any particular will, on the whole, delay or even defeat his cure and may well be the means of spreading the disease to other people.

The fourth heading of the circular spoken of before is that the patient should understand that, although syphilis may be cured fully, it frequently leaves behind it certain tendencies, so that when later in life other diseases attack the system they are in turn affected by the fact that the patient has previously had syphilis. The victim of syphilis should, therefore, always tell any physician who is treating him for any other disease later in his life that he has had the syphilis, because this fact so often alters the treatment of the disease in question. It will, therefore, be entirely to his own benefit for the doctor to know all about his syphilis.

The third heading of such a circular mentioned above, namely, that concerning printed directions as to elements of treatment, such as inunctions, is discussed last for the reason that such directions had best be given in a separate circular, so that the patient will not be tempted to begin the treatment until the ripe moment under the doctor's directions, at which time he supplies the victim with this separate printed slip.

The following little circular has been found of much value at the author's clinics at the New York Hospital and the House of Relief for the purpose of preventing mistakes in giving inunctions. It is founded more or less upon a similar circular issued by the Vanderbilt Clinic:

Directions for Using the Ointment or Salve.—Always wash the skin and dry it carefully before beginning to rub.

Take only one measureful (a half-drachm or drachm measure should be supplied) of salve each night or every other night as directed by the doctor and change the part of the body for the rubbing from night to night as follows:

First Night.—Neck and head, excepting the scalp.

Second Night.—Right palms, forearm, upper arm, and armpits, avoiding the hairy part.

Third Night.—Left palms, forearm, upper arm, and armpits, avoiding the hairy part.

Fourth Night.—Right leg and foot, including the sole.

Fifth Night.—Left leg and foot, including the sole.

Sixth Night.—Right thigh with the groin.

Seventh Night.—Left thigh with the groin.

Eighth Night.—Chest.

Ninth Night.—Abdomen or belly.

Tenth Night.—Right side of back from the root of the neck to the lower part of the gluteal region.

Eleventh Night.—Left side of back from the root of the neck to the lower part of the gluteal region.

Syphilis is, fortunately, a curable disease if the

patient has no taint, such as tuberculosis and no vicious habits, such as alcoholism.

The reason why syphilis is so hard to cure in most patients is that they will not submit to regular, unbroken treatment for two or three years. Without such treatment a cure is not possible. When the outward or visible signs of syphilis which attract the attention of the patient have disappeared (as they always and quickly do under a few weeks' treatment in skilled hands) most victims of the disease cease treatment, fancying that they are cured. Later, however, the signs return invariably and then in more obstinate and intractable forms. Such relapses are the fault not of the doctor and his treatment, but of the patient in discontinuing the treatment of his own accord, and in ignorance of the dangers of these relapses and of their certainty to occur after neglected treatment.

If, as Prof. Fournier says, syphilis is probably on the increase in all walks of life, is it not high time that in syphilis, as in tuberculosis, the medical profession in its public and private practice spare no effort in time and labor to bring about such understanding among the laity as will itself minimize the dangers of this scourge of humanity, syphilis, to innocent persons, who, according to Fournier, so far as women are concerned, number 45 in 887 cases reported, which is more than 50 in 1,000?

In the experience of the writer in the past three or four years this circular has been a step in the right direction along these lines, and it is hoped that these brief comments thereon will induce others to try them and similarly to be benefited by them.

The following is the epitomized form of the above discussion, which occupies a sheet 5 inches by 10 inches.

This disease is called syphilis, syph., pox, great pox, lues, or "blood disease"—all these terms meaning the one and same thing. Syphilis is a treacherous and dangerous disease of the entire system and requires for perfect cure at least two, better still, three years of faithful treatment, because it is "in the blood." Healing the chancre and taking medicine for a *few weeks or months* will not cure your blood of the syphilitic poison. It is, therefore, necessary that you follow the doctor's orders most carefully. If you do not you are in danger of having the disease appear in the future in some important part of the body, like the brain, spinal cord, bones, arteries, or other organs, as the liver. If you do not follow directions it is also possible that your wife and children will acquire the disease from you.

The following directions are of particular importance during the first year and whenever, if you neglect yourself, the symptoms break out again:

Intoxicating liquors in all forms must not be taken, because alcohol is a poison which, added to the poison of the syphilis, makes the syphilis much less likely of perfect cure.

Do not smoke or chew tobacco, because the irritation of the tobacco increases the severity and duration of the mouth sores of syphilis.

Sour, acid, peppery, and spicy foods and pickles should be avoided for the same reason.

Brush your teeth and wash your mouth every night and morning. Cleanliness of the teeth and mouth decreases the severity and duration of the mouth sores of syphilis.

Allow no one else to use your tooth brush.

Have a dentist treat your teeth, if they are bad. Tell him at the first visit that you have syphilis, so that he may take precautions against catching the disease himself and giving it to other patients by instruments used for you.

To prevent giving the disease to your family, friends, and associates, observe the following rules strictly:

Always sleep alone.

Always use only your own toilet articles, such as towels, brushes, combs, shaving brushes, razors, soaps, etc.

Always keep only for your own use any article which has been in your mouth, such as tooth brushes, tookpicks, pencils, pipes, cigars, cigarettes, forks, spoons, cups, etc.

Always avoid kissing anyone, especially children.

Sexual intercourse must not be had during the first year and during any fresh outbreak after neglect of treatment, because you are then certain to give the disease to the woman.

Always burn dressings which have been on open sores or wounds.

If you disobey these directions you will certainly give the disease to innocent persons.

You should always tell any doctor who is treating you for any other disease in the future that you have had syphilis, because this fact often alters the treatment of the disease. It will, therefore, be entirely to your own benefit for the doctor to know about your syphilis.

Syphilis is, in persons who are otherwise strong and healthy, nearly always a fully curable disease, so that you may have good hopes of perfect cure, only provided, however, that you continue faithful and careful treatment in skilled hands for at the very least two years.

45 West Ninth Street

THE DETERMINATION OF SEX.

By ARTHUR H. JACKSON, M.D.,

LOS ANGELES, CAL.

Since the earliest dawn in the study of embryology, pertaining to the development of the human embryo, scientists have been confronted with the great question: "The cause of the sex."

With the advance of the microscope a great deal of investigating work has been done, which enables us to form a clearer perception of the development of the ovum in its various stages. But the vital question is still to be solved. A good many theories, however, have been brought forward. Some are based on careful research work, while others are merely idle dreams. To the latter belongs the method of Dr. Schenk, who advocated a certain diet for the mother as a means to control the sex of the fetus. This theory for a while gave considerable notoriety to the author, but proved a great disappointment to the dieting mothers, and the theory soon proved itself false in principle. Physiologists, however, have not yet abandoned hope. Investigation still goes on; the microscope is still in use, the ovum is being carefully observed, and we are still looking forward to the day when the sex of the child will be under the control of the parents.

Science has made wonderful strides in the last century, great problems have been solved. Bacteria have been grouped into different families and their mode of reproduction demonstrated. The individual human cell has been measured and chemically analyzed; physiologists know exactly its constituents, the size of the neuclei, the amount and color of its protoplasm; but the great factor which causes the cell to develop, to multiply, to change its shape, is as much of a mystery to us to-day as it was in the dark ages.

It is not my aim to deny the scientists the merit of their great achievements while they are trying to

solve the mysteries and forces which govern Nature's laws, and science needs no apology, for it has shown us the forces that are at work, and has opened up the way by which we may continue to study these great questions. So it is with the sex question. While we may not be able to control it, yet it seems to me that with all the investigations made by embryologists, which work is still, I may say, in its embryonic stage, we ought at least to be able to build up a theory which may guide us in our reasoning whereby we can watch the causes of the sex development as Nature sees fit to determine.

After all, a good plausible theory is considered almost a fact by the well-developed and enlightened minds of the present day. Where would the laws of chemistry stand if they would not have for their foundation the atomic theory? Ehrlich has recently revolutionized our conceptions of immunity by his masterful side-chain theory, which, while it is by no means demonstrable under the microscope, is accepted as most plausible.

The sex question is by no means devoid of its reasonable theories. However, as they stand now, there seems to be considerable inconsistency between them.

I shall not attempt to discuss all the theories concerning the sex question in this article, but it is my aim to elaborate on Minot's theory, which may eventually lead us to the right path of reasoning, and prove to us that the sex factor is beyond our control, even if we do know the processes the ovum undergoes during the various stages of development. But before we can deal with the ovum as the determining factor, we must discuss the rôle the spermatozoon plays in determining the sex of the offspring, as many still claim that the spermatozoon is a predominating factor. Among those who adhere to this theory are Hofacker and Sadler, who claim that the superiority, mental and physical, of the male will tend to reproduce its own sex. This is true enough as to reproducing itself, but this does not necessarily affect the sex individual, since the paternal traits evidence themselves in the female as well as in the male offspring. This alone would prove the theory unreasonable as to the tendency of the male to reproduce his own sex. From every-day observation we can further reason, and it is not necessary to quote statistics, that women may have children by more than one male, yet all to be of the same sex. This would lead us to reason that the male is not the determining factor. With all these facts and reasoning we have ample ground for abandoning the theory that the male is a factor in sex determination. However, it is proven that it is essential in the process of generation to have a spermatozoon which unites with the female pronucleus, and causes what we call life to begin.

Now, since we may reasonably exclude the male as a sex factor, we must return once more to the ovum for the determining factor in the sex question. The same view is held by a good many authorities on this subject. Lenhosseck attributes the sexual differences to the unfertilized ova. Prof. Schultz of Jena contends that the ova have definite sex, male and female. From this we would have to reason that the fate of the sex would depend on the ovum which becomes fertilized. This may sound plausible, but yet it seems that nature would decide the sex on a more definite basis, and from careful observation of the development of the ovum in its process of maturation, I am inclined to think that there is ground enough left to build up a more reasonable theory on a broader basis which will throw more light on the sex question.

It has been observed that two polar bodies are formed from the ovum during its processes of maturation. This takes place while the ovum is still in the graafian follicle. For this phenomenon a good many theories have been advanced. Hertwig says that maturation is a process of cell abortion and that the polar bodies are merely aborted cells. Minot claims that the polar bodies consist of the male element excluded from the ovum, which is at first in a hemophroditic state, containing both male and female elements, and fertilization can take place only when the male element is given off. We are forced to admit that Minot's theory is the most reasonable, for it is a fact that scientists have traced the highest form of animal life back to the hemophroditic state, in which both elements of regeneration were combined in one individual life. But in the constant struggle for the survival of the fittest, there came a division of the element forming the female and the male. Even at this late hour of evolution we can trace the analogy between the sexual elements of generation in which each became a different factor in the process of reproduction. Though they are analogous, each one is so shaped as to be able to perform the functions designated by Nature. Since they came from the same ovum, which has the same cell construction, we are led to believe that the ovum contains both elements. But since the division of the species into the two sexual elements is so definite, there must be a separation of the two elements in the ovum before it can become fertilized, for the spermatozoa, having an affinity for only one definite sex, cannot combine with both elements in the ovum. Hence the polar bodies excluded from the ovum can be reasonably accounted for as simply the element not destined for reproduction. It does not necessarily have to be the male element, as Minot claims, for why cannot the female be given off in the polar bodies, leaving the male element to become fertilized? The process by which the polar bodies are formed would favor this theory as to the division of the sexual elements, for it is not merely a division of the nuclei and the protoplasm of the ova, but is a distinct separation of the two elements gradually caused by direct cell division first forming one polar body, and then a second one completely separating the elements. If fertilization of the ovum could take place before the extrusion of the polar bodies, we would be inclined to reason that the spermatozoon is a factor in determining the element which should remain in the ovum, but since it is proven that fertilization takes place after maturation of the ovum, we must look for some other source for the factor which causes the elements to divide.

It would hardly be reasonable to think that the female has an influence in the division of the ovum, since it is known that her own will as to the sex of the future offspring cannot be gratified. This will exclude her nervous influence over the ovum, while her physical constitution can be seen in the offspring, independent of the sex which it may happen to be. Therefore, the mother as a factor will also be excluded. And now we must come to the ovum direct for the determining factor. In watching the forces which govern natural laws of evolution, we have observed that there is always a struggle for the survival of the fittest, from the highest to the lowest form of animal life. Why cannot the same struggle take place in the ovum, leaving only the fittest element to survive, while the weakest finds itself among the polar bodies, no matter what sex it may be, and the struggle for a future existence may as well begin in the individual cell as later in life.

Hereditary tendencies may play a prominent part which might influence the element. It can be seen that in some females the male element may predomi-

nate, while in others it is the female. Then we have females who reproduce nothing but females, no matter how many males may be the factors of fertilization of the ova, while others reproduce males. From this we can reason that in these instances one definite element is constantly predominating over the other, while in others the elements vary.

As to the ratio of births, statistics differ. Some claim that more females are born, while others claim the reverse. However, Nature never intended to put the birth rate on monogamistic laws, for monogamy is not the process of evolution but merely a factor in the history of the development of the human race. It has been proven that the female must predominate for the survival of the species, from the lowest to the highest form of animal life.

Natural laws can never be altered, no matter how we may try to shape the individual cell, no matter how we may try to oppose Nature's forces, the struggle for existence constantly goes on in spite of civilized methods and laws. Therefore, reproduction cannot be based or regulated by any set rules. It is Nature's own force. We can only study, reason, watch, and observe the forces as they are constantly shaping themselves so as to remain fittest in the survival of the great human race.

418 South Griffin Avenue

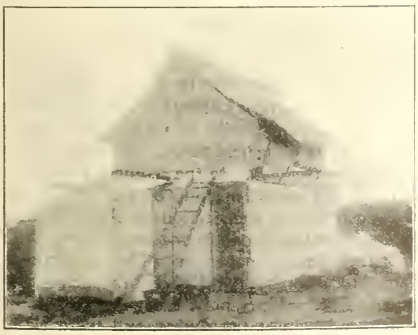
PHTHISIS TENT FOR OUTDOOR LIFE.

By NORBURNE B. JENKINS, M.D.,

NEW YORK.

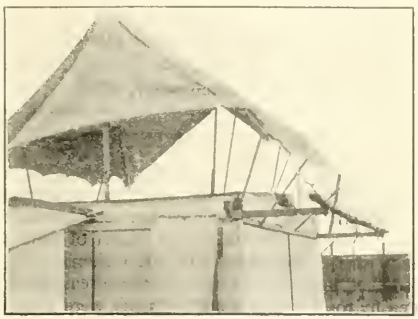
A TENT here illustrated may be useful for outdoor life and for the treatment of tuberculosis and other diseases. Owing to its elevation it is comfortable the hottest days and nights, for, with the walls and eaves propped up with sticks, only a large umbrella, as it were, is overhead. Air circulation is free, but within easy control. In rain the walls are lowered to overlap the top platform.

This tent consists of two platforms somewhat smaller than ten by twelve, a ten-by-twelve duck tent with a fly and three-foot wall, four eighteen-foot heavy upright posts planted eight feet, and some scantlings bolted to the posts to secure the platform and guy ropes. About eighteen inches is sawed off the tent poles.



The lower tent is made by encircling the upright posts with wide, heavy, unbleached sheeting secured by laths or furring, and here may be trunks, dressing room, and bath and toilet equipment. A stove below, with a pipe extending through the upper tent, can be used for heating. A kitchen may be annexed for modern oil stove and simplest cooking utensils. Such tent may be put up at a cost of thirty dollars and two days' work. Specifications are not given, for the carpenter, the fresh air advocate, and the consumptive, by mechanical ingenuity, may improve and simplify this crude affair.

On the top platform may be a fifty-pound mattress of goat's hair, sheets, pillows, and four or five heavy blankets—those made for race horses are recommended; they are the softest wool, sell for about



twenty-five dollars, and are of size to enwrap the patient, Indian fashion. Damp clothing and outdoor and downstairs' shoes are removed before climbing upstairs, where woolen shoes or one or more pairs of heavy wool hose are worn. Cool nights the head and neck may be protected by a wool bag or cap with an opening for breathing. At night may be worn a suit of wool of weight suitable to the temperature. It should be one or two sizes too large and made soft and comfortable by laundering. Cast-off suits may be used. Frosty nights some wear overcoats. Comfortable and protective clothing at the expense of fashion should be selected and adapted to the individual. Skin and circulation should be free and untrammeled.

Sleep may begin at dark and end at sunrise. Naps through the day are advisable if insomnia is not caused thereby.

Mouth breathing in the open air may be injurious. It may be controlled sometimes by a bridle, illustrated in the MEDICAL RECORD, September 10, 1898, page 394. Neither the tent nor bridle is patented.

Changing radically the environment of the consumptive is often serious, but a necessity, and is as much an art as changing the environment of plants or animals, or putting into camp city-bred recruits. Consumptives, soldiers, animals, and plants may perish if handled radically and unscientifically.

Localization and Method of Development of Myomata of the Human Uterus.—Keiffer presents various cuts explanatory of his researches. Most of these illustrations argue neither for nor against Cohnheim's theory. As to the method of dissemination of young myomata in the uterus, the writer has been impressed by the relationship which exists between the position of these tumors and the direction of the uterine vessels. From these preparations it would seem that myomata may develop in various parts of the uterus where they show the characteristics of simple myomata, of fibromyomata, of limited, encapsulated, or diffuse myomata, according to the special localization of the tumor, the method of evolution, whether this be by simple muscular proliferation, by reaction more or less intense of that part of the muscle layers surrounding the primary nucleus, or by the reactional development more or less intense of that part of the vessels which surround the primary nucleus. The development, increase, and nutrition of these tumors cannot go on without the formation of new capillaries depending upon preexisting vessels. The method of vascularization of young myomata has a very important influence upon them.—*La Gynécologie.*

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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THE ARMY CANTEEN.

THE perennial question of the army canteen is beginning its autumnal recrudescence with the reports of the commanding generals of the departments of the U. S. Army. In the annual report of General Greely of the Department of the Columbia, it is stated that fully 80 per cent. of the offenses committed by the soldiers in his command were directly traceable to the evil influence of the saloons grouped around the army posts. "It is beyond reasonable doubt," Gen. Greely says, "that the establishment of the canteen decreased drunkenness in the army and that its elimination has largely increased liquor drinking and dissipation among the enlisted men. Without exception, the company officers who have been habitually questioned on this subject state that the restoration of the canteen would benefit the army both morally and physically." Gen. Funston of the Department of California, Gen. Grant of the Department of the East, and the Judge Advocate General of the Army all bear testimony to the same fact that the canteen would, as it did, "promote discipline, discourage gaming and squandering, conserve health, and thus be to both the material and moral interests of the enlisted men."

But all this expert testimony, unimpeachable as it is, will probably have as little weight with Congress during the coming session as it has had in the past, and the dives outside the army posts will continue to thrive under the protection of the temperance women who have terrorized the national lawmakers. Senator Warren, chairman of the Military Affairs Committee of the Senate, is quoted as saying that he finds a steadily growing sentiment among the officers of the army, and the people at large, in favor of restoring the army canteen, but has nevertheless little hope that they can get such a measure through any time soon. "You see," he added, "the good women have got it into their pretty heads that the canteen is a thing of the devil and that it makes a gin mill out of every army post, and these good women have blown up such a wave of reform that representatives of the people are afraid to run counter to it."

The foolish suggestion has been made that the Government should compel the enlisted men to abstain from the use of alcohol at all times, just as the railroad companies demand total abstinence of their employees. The good but impractical persons with this bright idea ignore the vast difference that there is between the well-paid railway employees and the poorly-paid soldier, who would often welcome a discharge if he could get it. A locomotive engineer is content with his job, and willingly accepts the condition of abstention from alcohol which is associated with the responsible position he holds, but it is difficult, in time of peace, to secure men who are physically fit for the army. Those who are acquainted with the prevailing conditions say that it is becoming increasingly difficult to obtain enlistments and prevent desertions, and that one of the chief deterrents of those who think of enlisting is the belief they will be deprived of what they regard as one of their rights.

Another of the unanswerable arguments of the active opponents of the canteen is instanced by Senator Warren. "Some of the women ask me," he said, "if I want a boy to be brought up in a gin mill. When I reply that it is far better that they be allowed to buy and drink light beer in a decent, respectable place inside the lines under regulations than to frequent the dives on the outside, where the worst of vices prevail, they reply: 'Well, no well-brought up boy will go to those places, anyway.'" There is nothing to be said to that, and so the poor Congressman finds it easier to shrug his shoulders and promise to vote against beer in the post exchange, and incidentally for the perpetuation of the dives outside.

THE MILK SUPPLY OF ENGLISH TOWNS.

WHILE New York, with a comparatively good milk supply, has been clamoring for a purer one, London, with far more reason for complaint, has only begun to wake up to the dangers of bad milk. Although the lay journals of London have not been so conspicuous in their demands for radical changes in the control and management of the milk supply as the journals of New York, yet much has been written of late urging a close investigation of the London milk question. Among the British medical journals, the *Lancet* has been to the front in showing up the defects of the present system of supplying milk to London, and a series of convincing articles have been written in that journal dealing with various phases of the matter. Undoubtedly, nothing but good can come from the ventilation in the press of the situation as regards the milk supply in London, for once the general public becomes really interested in the matter, and demands a pure milk supply, such a supply will be forthcoming.

That there is a very intimate connection between infant mortality and milk is a point that requires no argument in a medical paper. What is needed is to drive this fact home to the mothers in the great cities. At the recent meeting of the British Medical Association, in the Section on State Medicine, Professor Kenwood, one of the best known British authorities, read a paper on "The Reduction of Infant Mortality by the Better Management and Control of the Milk Supply." He pointed out that the danger began at the source, and there was no doubt of the appalling ignorance which prevailed on dairy farms. To those who were acquainted with the methods pursued in Denmark, the conditions prevailing in England were absurd and horrible, and the milk reached the distributer in a state of absolute filthiness. Professor Kenwood said that the regulations controlling the milk supply of Great Britain were notoriously defective and

inadequate, but even these were not acted upon properly. It was, therefore, evident that some compelling statute was required and that proper Government supervision was quite as necessary as it was in the case of the adulteration of food and drugs. Milk shops should be licensed, not, as at present, simply registered. The systematic inspection of milch cows should be made at intervals of not less than three months by a veterinary inspector under the Board of Agriculture, and tuberculous animals should be segregated and slaughtered. Professor Kenwood, in discussing the pasteurization of milk and the compulsory sale of milk in bottles, said that by such means much of the home contamination of milk might be avoided, while the bottle was a guarantee of full measure and watering was rendered less easy. He considered that the dangers arising from feeding infants on sterilized milk had probably been exaggerated.

It has been pointed out on previous occasions in the MEDICAL RECORD that the conditions in London as regards the milk supply are far worse than those which prevail in New York, but that the conditions in New York are susceptible of much improvement. When the milk supply is good, infantile mortality is low, and *vice versa*.

INDIGOCARMINE IN THE DIAGNOSIS OF THE KIDNEY FUNCTION.

THE successful treatment of surgical diseases of the kidneys rests on an adequate determination of their structural and functional conditions. One must know exactly whether both kidneys are diseased, or whether one only is diseased, and, if so, which one. When one only is involved, we must know whether the function of the other is sufficiently good to permit the performance of a nephrectomy upon the diseased organ. It is therefore of great importance to obtain the excretion of each kidney separately and to ascertain the functional capacity of the healthy kidney. Various methods have been employed to ascertain the latter, some of which, such as the complete chemical examination of the blood and urine are too complicated for general use, while others, such as the microscopical examination of the urine and the estimation of the total amount of urine and urea excreted do not give us sufficient information. Cryoscopy is not always reliable, and requires considerable practice. Much simpler and quite reliable methods are those which depend upon the excretion of substances injected subcutaneously, such as phloridzin and indigocarmine; they are easily detected in the urine and are almost exclusively excreted by the kidneys.

In the *Correspondenz-Blatt für Schweizer Aerzte* of August 1, 1907, Dr. F. Suter reports thirty-seven cases of unilateral kidney disease, in which the indigocarmine test was employed before operation in order to ascertain which kidney was diseased and whether the functional capacity of the other was sufficient to carry on the vital functions. After an intramuscular injection of four c.c. of a four per cent. solution of indigocarmine, the bladder was washed with a solution of boric acid and a Luys segregator introduced. The urine from the kidneys was collected simultaneously for twenty or thirty minutes, this being necessary, as only comparative values have any significance. In individuals with healthy kidneys, ten to twelve minutes elapsed before the excretion of colored urine began. In Suter's series of thirty-seven cases he always found it safe to remove the one kidney when the indigocarmine had begun to be excreted in ten to twelve minutes by the other. The greater or less intensity of the blue was also found of value when the urines of the two sides were compared; a deep blue color was a sure sign that the kidney was healthy, but when the urine was of light blue color he depended more on the time which elapsed before any colored urine was excreted. In twenty patients no colored urine was secreted by the diseased kidneys, and these after removal showed no normal tissue. In thirteen patients colored urine was excreted by the diseased kidney anywhere from five to twenty minutes later than by the healthy one; this urine was also of a lighter blue. In three cases blue urine appeared simultaneously at both ureteral orifices, but that coming from the healthy organ was of a much deeper hue. As a rule, the longer the time before colored urine was excreted and the less intense the blue, the greater was the pathological change in the kidney. The majority of the diseased kidneys removed were tuberculous. In all, thirty-five nephrectomies and two nephrotomies were performed with no deaths, as a result of the operation, or soon after the latter, from insufficiency of the remaining kidney, a sure proof that the indigocarmine test is of value in estimating which kidney is diseased and whether the remaining kidney is able to maintain the vital functions. In eleven other patients renal insufficiency was diagnosed on both sides after the injection of indigocarmine, and consequently no operation was performed; eight of these died shortly afterward with uremic symptoms, another proof, the author maintains, that the method is reliable.

While Suter believes the indigocarmine test to be the simplest and most reliable of the various methods used in ascertaining the capacity of the kidney function, he does not underestimate the value of the other clinical methods, some of which he always employs in conjunction with the indigocarmine test.

VARICOCELE AS A SYMPTOM OF MALIGNANT KIDNEY TUMORS.

THAT malignant tumors of the kidney can cause a varicocele on the affected side has been known since the times of Guyon, who laid especial emphasis upon its diagnostic value, and his observations have been confirmed by Israel, Schede, and Küster. Recently, J. Hochenegg (*Zeitschrift für klinische Medizin*, Vol. 62, 1907) has again drawn attention to the diagnostic and prognostic value of a symptomatic varicocele, and has shown how it may be differentiated from the ordinary idiopathic variety. The latter usually occurs in young adults and causes greater pain. With the patient in the standing posture both present the same appearance, but when he assumes the dorsal position the idiopathic variety always disappears, while the symptomatic varicocele remains unchanged, and at times even becomes more prominent. Hochenegg explains this difference by the fact that in the former there is no hindrance to

the flow of blood from the spermatic vein, while there is in the latter variety.

In one patient the impediment to the flow was caused by an extension of the growth into the renal vein beyond the point where the spermatic empties into it; in another by the pressure of enlarged glands. Another time the tumor itself compressed the spermatic vein, the possibility of which occurrence explains the fact that the varicocele is sometimes made more prominent by placing the patient on his back. In a fourth patient the kidney had descended as a result of its increased weight, thus causing a kink in the vessels. When the varicocele was caused by a sharp curve in the vessels or by direct pressure of the tumor, it could be made to disappear by raising the tumor, or by placing the patient in the knee chest position; when due to an extension of the growth into the renal vein, or to pressure of glands, it could not be made to disappear. This differential point in regard to the etiology of symptomatic varicocele is of prognostic value, as cases with an extension of the growth into the renal vein, and those in which the glands have already become involved, are usually inoperable. Thus, too, the return of the varicocele after nephrectomy may be the first sign of secondary glandular involvement. As regards the frequency of this condition, older statistics on kidney tumors are of little value, as no attention was paid to the presence of a varicocele. Hochenegg observed it in six out of sixteen patients with malignant growths of the kidney. In one case a renal tumor was unsuspected, and the author's attention was drawn to it only after the symptomatic varicocele had been diagnosed.

Malignant growths of the kidney may be suspected when a solid tumor can be felt in the region of the kidney, when the urine contains blood and particles of tumor tissue, or when the patient complains of constant pain in the lumbar region; yet all these symptoms may be absent, even in inoperable tumors. The sudden development of a varicocele, occurring late in life, should, however, always lead one to suspect a renal tumor.

The Clinical Value of Serum Diagnosis in Syphilis.

The phenomenon of fixation of complement has been well known since Bordet and Gengou demonstrated that complement added to a mixture of inactivated bacteriolytic serum (antibody) and bacteria (antigen) would not produce hemolysis when sensitized erythrocytes were subsequently introduced. It remained for A. Wassermann to show that extracts of the infecting organism could be used instead of the pure culture of bacteria, which thus enabled us to investigate infectious diseases whose exciting organism could not be grown in pure culture, syphilis being foremost among these. The phenomenon is based upon the fact that the union of antigen and antibody has a great affinity for complement, and binds the latter to themselves. That is to say, if an extract of a luetic liver is brought together with syphilitic antibodies, such as are found in the milk, spinal fluid, and serum of syphilitic patients, complement will be bound to these two, while if the extract is added to the serum of a nonsyphilitic person complement will not be fixed. In other words, if complement is fixed we can say that the added serum contained syphilitic antibodies, and thus syphilis can be diagnosed according to some investigators. In order to ascertain whether complement is fixed or not, a hemolytic serum is used as an indicator. As hemolysis takes place only in the presence of complement, we can tell by its occurrence that complement is free and not fixed; in other words, when hemolysis sets in it shows that the serum contained no antibodies, while if there is no hemolysis complement has become fixed, this proving the presence of antibodies. In the *Deutsche medizinische Wochenschrift* of August 8, 1907, M. Wassermann and G. Meier report their results in a number of cases in which they tried to diagnose syphilis by the method of fixation of complement. They claim that these were entirely dependent upon the methods used in the test, and that certain conditions must be fulfilled before the results can be called reliable; these include the preparation of the antigen, complement, hemolytic serum, together with ten control tests, all of which they describe in detail. They examined thirty-nine cases, some of them clinically doubtful cases of syphilis, others clinically certain cases; twenty-seven positive and twelve negative reactions were obtained. The positive ones included cases of tabes, dementia, meningitis, and aortic aneurysm, three times the syphilitic antibodies were found in the milk of puerperal women, once in the serum of a fourteen-days'-old infant with all the clinical signs of congenital syphilis. Wassermann and Meier claim that their examinations show that in certain cases specific substances are found in the serum of syphilitic patients, but that it is still uncertain whether these are the immunizing bodies of syphilis. They furthermore believe that the diagnostic value of this reaction is uncertain, as the number of cases examined is still too small, but that it has a probable future in the diagnosis of syphilitic diseases of the central nervous system, circulatory system, liver, etc.

Another Theory of Appendicitis.

When appendicitis was first recognized in America it was regarded by most of our European confrères as a figment of the Yankee brain or as an invention for the despoiling of trust magnates and the gathering in of twice-tainted money. Writers on intestinal diseases treated it with about as much respect as Möbius did another American discovery when he dismissed eyestrain as a cause of headache with the remark that this was a cause which appeared to be epidemic in the United States. After a while, however, when royalty began to have it, foreign practitioners were forced to admit its existence, and the surgeons even began to operate for its relief. Now that it has been admitted to the list of recognized diseases, the question of the etiology of appendicitis is being discussed with interest. At first the chronological argument seemed to be the only one of importance, and one custom or habit after another which happened to originate about the time appendicitis began to be diagnosed has been credited with causing it; one writer in an English journal even hazarded the guess that cigarettes were at fault, since the habit of smoking them came into fashion along with appendicitis. Although it is comparatively seldom that foreign bodies are found in the inflamed appendix, some surgeons cannot disabuse their minds of the notion that there must be some extraneous substance to account for a catarrhal inflammation of the mucous membrane of the appendix. The most recent conjecture is one expressed in a clinical lecture delivered at St. Thomas' Hospital

by Mr. William Henry Battle, and published in the *Lancet* of August 24. This theory, which was regarded as so startling in its nature that it was at once cabled to this country, is credited by the lecturer to an American physician writing in an English paper. It is that appendicitis is due to the general use of American steel-rolled flour. Mr. Battle in accepting the theory is apparently also moved by the chronological argument. He says appendicitis first occurred in America just after steel and iron rollers had been introduced for grinding wheat. The increase in appendicitis occurred first, he says, in towns where rolled flour was first used. Then it spread to villages, and lastly to negroes, who earlier had escaped, and this spread corresponded with the spread in the use of rolled flour. An invasion of England followed. This, of course, explains why the disease was so long in gaining recognition in England and on the Continent, for of course it could not be recognized until it existed, and it could not exist until the metallic particles in American steel-rolled flour got into the appendix. The discovery of the cause will doubtless simplify the treatment, for all that will be necessary in the future will be to draw the steel out of the appendix by means of an electromagnet and so avoid a cutting operation.

News of the Week.

The Plague.—Since July 18 eleven cases of bubonic plague have been discovered in San Francisco, and eight deaths have occurred. One of these deaths was at Berkeley, across the bay from San Francisco. The Board of Health will fumigate the city and county hospitals, and a regular inspection is being made of all coasting vessels. The war against the disease is prosecuted with energy under the system adopted last week, by which the city is divided into twelve districts, each in charge of a physician, inspectors, and assistants. This and other precautionary measures will be pressed vigorously while the outbreak lasts. A case of the disease was found among the crew of the mail steamer *Sierra*, which arrived at Honolulu on August 31.

Typhoid Fever in Chicago.—The activity of typhoid fever in Chicago now appears to have reached its height. This is the season of the year when typhoid fever is most in evidence. The Bulletin of the Health Department says that in Chicago from 1890 to 1907 more deaths from typhoid fever occurred during the month of September, but for a period of forty-nine years September leads August in the number of deaths from this disease. The number of deaths from typhoid fever so far this month is 42. The total number of the entire month last year was 29. An investigation of the cases reported shows that fully 50 per cent. have been away from the city just previous to the attack either on vacations or business trips. Last year it was found one-third of all the cases came from outside the city.

Yellow Fever in Cuba.—The yellow fever situation at Cienfuegos has improved. The last soldier to have the disease was discharged cured on August 28, though there are still a few cases among civilians. A case of the disease has been discovered at a place across the bay from Havana.

The Cuban Sanitary Board established by a recent decree of Governor Magoon will consist of one chief and a national board of five members holding office for four years.

Cholera is spreading among the Chinese in the lower Yang Tse ports. About 200 deaths are reported daily at Wu Hu and Kiu Kiang.

Health Conditions on the Isthmus.—The report of Col. Gorgas, Health Commissioner of the Canal Zone, for July states that there were only 1,007 cases of illness among the 38,000 employees, and that the mortality rate showed a reduction of 50 per cent. below that of the corresponding month of last year.

Guarding against Typhoid Fever at Jamestown.—The Chief Surgeon of Camp Captain John Smith, at the Jamestown Exposition, has issued the following instructions for the guidance of the officers and soldiers: "The presence of typhoid infection, both in and around the Exposition grounds, and its entrance into both the cavalry and infantry camps, make it necessary to take extreme measures to guard the camp from sickness and death. (1) No soldiers will be permitted to enter the 'Pine Beach District,' *i.e.* west of Maryland avenue and north of Ninety-ninth street, and commanding officers will send patrols at proper intervals to compel obedience to this order. (2) Officers and soldiers will eat and drink only at their messes or clubs. This does not apply to dinner invitations outside the grounds and beyond this vicinity, but in such cases it is presumed extra care will be taken to avoid dangerous foods. (3) No fresh milk, cream, or ice cream will be introduced into camp. (4) Only cooked or sterilized foods will be served at messes, excepting such articles as fruits with rinds or skins, and such vegetables as can be scalded before serving. (5) The same routine as to scalding kitchen and table ware will be observed as in the presence of cholera."

First Aid Chests in Factories.—A new law went into effect on August 1 in Massachusetts, which requires that in every factory or shop, in which machinery is used for any manufacturing purpose, there shall be kept "free of expense to the employees such a medical and surgical chest as shall be required by the local Board of Health of any city or town where such machinery is used, containing plasters, absorbent cotton, gauze, and all other necessary medicines, instruments, and other appliances for the treatment of persons injured or taken ill upon the premises."

Cultivation of Fenugreek.—It is reported that the Secretary of Agriculture has decided to make an experiment with the cultivation of fenugreek in certain of the arid lands of Texas. The seeds of the plant are credited with the property of promoting the assimilation of fatty foods, and on this account have recently been recommended in the treatment of tuberculosis. It is little used in medicine here, but is an ingredient of most "condition powders" for horses and cattle. It is official in the German Pharmacopœia under the name, semen fœnugræci. It is said that the young women of Tunis resort to fenugreek to increase the fat, which is there regarded as an essential in the factors which make for beauty in the female sex.

Nut Poisoning.—There was recently an epidemic of gastric troubles among the children of South-East London, which was traced to the eating of "Kaloo" nuts, a quantity of which had been brought in a vessel from the East and had been distributed among the costermongers of that part of London. Those who ate the nuts were seized very shortly afterwards with violent vomiting comparatively free from pain; the vomiting persisted for an hour or two after ejection of the partly-digested nuts, and by next day the patients seemed quite well. The vomit itself was bile-stained, but contained no blood; intestinal symptoms were few or absent. As

soon as the cause of the trouble was known, the authorities seized all of the nuts they could find, and destroyed all but a few that were kept for analysis. It is not known what the principle was that caused the symptoms of poisoning. The nuts were from a species of *Aleurites*, the genus to which belong the candleberry tree and the Chinese varnish tree.

Medical Fees in Germany.—The High Court of Germany has decided that it is illegal for the physicians of any locality to band together and establish a definite code of fees for professional services. The court took the highly complimentary but unsatisfactory ground that physicians were actuated by a desire to benefit their fellows, and did not expect to be paid the full value of their services. They stood above the level of men in business pursuits, and the establishment of a fixed fee for their services would lower their dignity.

Automobile Accidents.—The *New York Times* has collected reports of 96 automobile accidents occurring during the months of June, July, and August. In these 50 persons were killed and 202 injured. Of the accidents, 29 were due to driving at reckless speed. The papers of September 2 reported six accidents in the vicinity of New York, in which 4 persons were killed and 10 seriously injured.

Dr. J. C. Wallace of Arkadelphia, Ark., has been appointed by the Governor to fill the vacancy on the State Medical Board caused by the resignation of Dr. R. A. Hilton of El Dorado.

International Tuberculosis Congress.—The United States Government has officially invited Professors Metchnikoff, Calmette, and Letulle of Paris to take part in the deliberations of the Tuberculosis Congress in Washington in 1908.

The Michigan State Tuberculosis Sanatorium at Howell was opened on August 19 with seven patients. The Board of Governors has accepted the buildings now completed, and arrangements are being made to erect another building at once.

New Isolation Hospital for Chicago.—Health Commissioner Evans has formulated a plan to build a new contagious hospital for Chicago which will accommodate 240 patients, and to cost approximately $25,000.

Chicago School Inspectors.—A Civil Service examination was recently held in Chicago for school medical inspectors, and of 412 applicants examined, only 58 made a passing grade. Only one woman physician passed.

The Illinois Medical College conferred the degree of Doctor of Medicine on nine graduates, August 29, at the thirteenth annual commencement exercises held at Handall Hall. The degrees were conferred by the president of the college, Dr. H. H. Brown. The doctorate address was delivered by the Right Rev. Samuel Fallows, who selected for his subject, "The Relation of Religious and Medical Science."

Gift to a Willimantic Hospital.—The new St. Joseph's Hospital in Willimantic, Conn., has received a gift of $5,000 from an anonymous donor.

Gifts to Charitable Institutions.—By the will of the late A. H. Houseman, $10,000 is given to Mt. Sinai Hospital, $5,000 to the Hebrew Benevolent Orphan Asylum, $2,500 to the Montefiore Home, and $2,500 to the Home for Aged and Infirm Hebrews.

Obituary Notes.—Dr. George Waldron of Rochester, N. Y., was instantly killed in an automobile accident on August 28. He was a graduate of the Medical Department of the University of Buffalo in the class of 1881.

Dr. George Willis Benedict, formerly a practising physician in South Norwalk, Conn., died suddenly of disease of the heart on August 23. He had been in poor health for about a year. He was born in South Norwalk in 1852, was graduated in arts from Yale College in the class of 1874, and in medicine from the University Medical College, New York, in 1877. For four years he was postmaster at South Norwalk.

Dr. Henry E. Cushing of Champaign, Ill., died August 11, of pneumonia, at the age of fifty-three years. He was born in Asburnham, Mass., and was graduated from the Medical Department of the Northwestern University, Chicago, in 1884.

Dr. Benjamin Kittleman of Des Moines, Ia., died August 19, of pulmonary tuberculosis, at the age of thirty-one years. He was a graduate of the Medical Department of Drake University in 1901, and a year later was appointed treasurer in pathology in the Dental Department of the University.

Dr. Harry Coons of St. Louis died at the City Hospital there on August 19. He was born at Harper's Ferry, Va., on October 20, 1840. He served in a Missouri regiment during the Civil War, and at its close took up the study of medicine, graduating from the Medical Department of Washington University in 1870.

Dr. Adolph Hess of Milwaukee died on August 20, at the age of 42 years. He was a graduate of Jefferson Medical College in 1903. He was prominent as a Zionist, and was a leader in all movements looking to the betterment of the condition of Hebrew immigrants in this country.

Dr. L. L. Jones, formerly of Kansas City, Mo., died on August 13, at the age of eighty years. He was born in North Carolina, and practised in Kansas City from 1858 to 1861, when he removed to Gallatin and afterward to Linden in Clay County, Mo. He was a charter member of the first medical college organized in Kansas City. For many successive years he was president of the Clay County Medical Society.

Dr. G. Parsons Clark, dean of the College of Medicine of Syracuse University, died suddenly of heart disease on September 1 at his residence in Syracuse. He was fifty years old, and was graduated from Williams College in 1877 and from the College of Medicine of Syracuse University in 1880. He had been connected with the College of Medicine since his graduation. Dr. Clark was a member of the American Physiological Society and of the American Microscopical Society.

Dr. Augustus Coe Van Duyn, ex-Surgeon in the United States Army, died at his home in Kansas City, Mo., on August 28, from Bright's disease, aged seventy-four years. He was born in Romolus, N. Y. He entered the army at Jefferson Barracks, Mo., in 1863, and was mustered out with the rank of brevet lieutenant colonel.

Dr. John Elliot Miller of Hagerstown, Md., died suddenly on August 25 from apoplexy. He was born in 1837, and was graduated from the University of Pennsylvania in 1860. He served as surgeon in a Pennsylvania regiment during the Civil War. He retired from practice some years ago.

Dr. Isaac W. Herron of Charlotte, N. C., died on August 23. He was about seventy-five years old and had retired from practice. His four children, one of whom is Dr. Q. M. Merron of Charlotte, survive him.

Dr. Lansing B. Winne of Albany, N. Y., died suddenly on September 2. He was a graduate of the College of Physicians and Surgeons, New York City, in 1878.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SCHOOL HYGIENE—MEDICAL INSPECTION—MUSEUM TEACHING—HOUSING AND OTHER INTERNATIONAL CONGRESSES—MEDICAL MISSIONS—OBITUARY.

LONDON, August 17, 1907.

SCHOOL hygiene, from the point of view of the Second International Congress just concluded in London, is a much more extensive subject than the phrase suggests. No less than eleven sections struggled daily all the week with the numerous papers submitted. Some of these sections overlapped and the necessity of some others may be questioned, but a good deal of work was done. The spheres of the architect and engineer might as well have been left to experts, for although the building of schools, their sites, drainage, and ventilation are of no little interest to educationists, they can scarcely be entrusted with the duties of other professions. A twelfth section would have been more practical to some, viz., financial, on which the ratepayers should have been represented; for not a few members had ideas to enforce the value of which was less certain than the cost.

That medical inspection will in time be adopted by the legislature may be considered certain, for, in the words of Lord Crewe, the King's representative, "there cannot be two opinions as to its importance." This is generally regarded as a satisfactory result. But in view of some of the discussions the question of how it is to be carried out will give rise to misgivings. The teachers or some of their spokesmen seemed to be actuated by a desire to limit the inspection to the narrowest sphere. They would admit the Medical Officer of Health of the district to come in now and then, after due notice, at hours convenient to the teachers, and offer suggestions, and could even tolerate referring to his advice the question of closing the schools in an epidemic. Of course the Medical Officer of Health would not agree to be hampered in his duty if inspection were entrusted to him as he considered it ought to be. Thus in one discussion, at least, though the question was raised in several, it appeared to the onlooker that the Health Officers desired control over the hygienic arrangements and condition of all schools, while the teachers were most anxious to prevent any interference with their own supremacy. The boasted cooperation of doctor and teacher thus resolved itself in some cases into a distinct rivalry. Quite a number of teachers seem convinced that they are quite competent authorities on hygiene, and need only call in the Medical Officer of Health as a consultant on difficult problems. Some consider that a nurse might very well take the place of a medical inspector, as, for instance, by looking at the children's throats when a number complain of soreness. It was well that one speaker pointed out the futility of such notions, and told the congress distinctly that medical inspection must not be a sham, and should be entrusted to qualified practitioners, that at every turn questions would arise which could best be answered by the local medical man. Referring to the question raised in one section about outbreaks of measles, which some teachers had been speaking of as trifling incidents occurring in every child's life, he pointed out the enormous mortality and the sad sequelæ of this so-called "trifling ailment," and further showed that the general practitioner was the person most familiar with everything relating to it, and therefore the most competent to advise concerning it. Moreover, he said that instead of crushing him between the teacher and the Medical Officer of Health, every ailing child should be sent home with advice to its parents to call in their own doctor.

The breadth of view of the organizers of the Congress is illustrated by the inclusion of papers on the life of the children out of school, their play time and their games. Some would convert these into lessons and make physical culture a sort of additional school with its drill, exercises, gymnastics, dancing, and even jiu-jitsu—leaving, it would seem, no sphere for parental supervision.

The great importance of practical instruction was insisted upon in all stages of the Congress. In this respect of extreme interest was the appearance of Mr. Jonathan Hutchinson to urge the value of object-lessons and museums—a plan which has occupied him for years, and which he has carried out in professional teaching. He carried a resolution that systematic arrangements should be made for teachers and pupils to have constant access to well developed museums and other sources of knowledge, and another that provision should be made in all school buildings for the formation of an educational museum in which there should be displayed maps, models, portraits, pictures, natural history specimens, and scientific apparatus for objective teaching.

Mr. Hutchinson, true to his own teaching, invited a party of the Congress to inspect his own museum at Haylemere, where he entertained them with luncheon and tea and his own instructive and interesting remarks on the specimens, those of natural history including, I think, everything noteworthy to be found in one of the most delightful districts of the country. Since his retirement he has collected these and others and built a museum in which he gives demonstrations to the residents.

Sir Lauder Brunton, as President of the Congress, surpassed himself and must have felt the strain, although to the last he betrayed no fatigue. At the closing meeting he expressed satisfaction at the work they had done for the welfare of children, towards which everyone had aimed. One of the chief results of the Congress is the decision to establish a permanent council to deal with all matters concerning future assemblies—a kind of a clearing house of subjects relating to school hygiene, statistics, laws, regulations, etc. This council will consist of the president of the congress just held, the president of the next congress, and nine other members, to be elected—a permanent international committee, so to say.

The Housing Congress, also international, was, of course, largely concerned with public health, and papers interesting to doctors were submitted, but time and space forbid me to dilate upon them. It is proposed to hold a further conference by health authorities. What with conferences, congresses, and associations we have had such a full "dead season" that the tradition of such a thing is in danger. It has proved encouraging to the Esperantists, who met for their congress at Cambridge to the number of 1,400 from the many countries where it appears to have "caught on." The meeting of the International Association of the Medical Press must not be passed over without reference, for it initiated a movement which promises to have far-reaching results, in regard to secret medicines, advertisements, and testimonials. These delicate questions were discussed and some disciplinary measures determined on.

Medical Missions have sustained a great loss by the death of Dr. Sydney Rupert Hodge of Hankow. Educated at the Leys and Richmond College, he decided to be a medical missionary and entered the London Hospital, where he was a diligent student, and took the double qualification in 1886, going out to China the same year. The Hankow mission hospital was in a ruinous state, but he soon succeeded in getting it rebuilt and there he labored, with brief furloughs, until a dispatch announced his decease on the 21st ult. It was a great shock to his English friends, especially those who, like the writer, had watched his career and enjoyed his esteem throughout. To the poor Chinese to whom he sacrificed his life his loss is also a poignant sorrow.

Mr. Walter H. T. Brown, Consulting Surgeon to the Leeds General Infirmary, died on the 12th inst., aged 50. Two years ago he contracted septic poisoning, from a wound while operating. He was F.R.C.S.I., 1887. He had taken the English membership nine years previously, and served as house surgeon at the West London Hospital. Then he went to Leeds in a similar capacity, and has served the infirmary ever since. He also held other offices, and was a contributor of valuable papers to the societies and journals.

Dr. Robt. S. Archer of Liverpool died on the 8th inst., of diabetic coma. He was a Trinity College, Dublin, graduate; B.C., 1870; M.B., 1872; M.D., 1887. He spent most of his life in Liverpool, where he was highly esteemed; became secretary and vice-president of the Medical Institute, and was attached to the City Hospital, the Fever Hospital and other charities. He was author of "Smallpox: An Historical Sketch," and of many contributions to the journals and societies. He is said to have attended 2,000 cases of smallpox, and he gave valuable evidence to the Vaccination Commission.

OUR PARIS LETTER.

(From Our Special Correspondent.)

RADIOSCOPIC EXAMINATION OF TUBERCULOUS MEAT—FINGER PRINT IDENTIFICATION—EARLY DIAGNOSIS OF TUBERCULOSIS—TRAUMATIC ORCHITIS—NERVOUS COMPLICATIONS OF MOVABLE KIDNEY.

PARIS, July 15, 1907

AT the Académie des Sciences Martel suggested the use of radioscopy and radiography for the inspection of tuberculous meat. The tuberculous lesions of both the ox and the pig are commonly infiltrated with lime salts, and Martel has made use of this peculiarity in order to detect tuberculous foci in the depths of the tissues by means of the Roentgen rays. While healthy glands give only a very faint shadow on the radiographic plate, those invaded by the tuberculous process are projected in the form of a

granular shadow of greater or less extent, according to the degree of the morbid process. This new method of examination is valuable because by its means it is possible to detect tuberculous foci that were previously unsuspected. Martel stated that in this way it was easy to discover localized lesions quickly and that fat did not oppose any obstacle. He was of the opinion that in the large abattoirs the necessary apparatus could easily be installed so as to permit of the routine use of the method.

Dastre has reported to the Ministry of Justice the results of an investigation of the value of dactyloscopy, which is the method of identifying individuals by means of finger prints. He presented the conclusion that dactyloscopy, and particularly the study of the papillary lines of the finger tips, was perfectly reliable provided that several fingers were examined.

Roux has made public a method for the early diagnosis of tuberculosis. It consists in scarifying the skin and rubbing the wound with a tampon to which a few drops of tuberculin have been applied. If the individual is free from tuberculosis the little incision heals without complications, but if the reverse is the case a small pustule forms. Vallée of Alfort has found that this reaction also occurs in animals. In healthy cattle scarification of the skin and rubbing in the tuberculin produces no reaction, but if the animals are tuberculous an inflammatory dermatitis is caused which lasts for four or five days and then gradually subsides. Arloing declared before the Société de Biologie, however, that he had tried this procedure on nineteen animals, including calves, goats, rabbits, and guinea pigs, without being able to obtain a definite cutaneous reaction. The lesion produced was always limited to redness and temporary thickening of the edges of the scarification and these manifestations were observed in both the tuberculous and the control animals. He concluded that the cutaneous tuberculin reaction was unreliable.

Prof. Delorme presented before the Société de Chirurgie an interesting communication on the surgical treatment of wounds of the lung. He expressed the conclusion that in cases of pulmonary injury accompanied by severe hemorrhage it was dangerous to wait and that the formal indication was to check the bleeding. Two observations which he reported and which had been made by Ombredanne and Pierre Duval demonstrated that the risk of intervention in penetrating wounds of the chest had been greatly reduced and need no longer terrify the surgeon. The general condition is not very useful in estimating the gravity of the situation in serious cases, for there are no definite relations between it and thoracic lesions. Only the physical signs enable one to form an approximate estimate of the amount of blood poured out into the pleural cavity. These include hemoptysis, hemothorax, and external hemorrhage. The necessity for operation is determined by the total amount of blood that has left the vessels, and therefore a moderate hemothorax with abundant hemoptysis is as serious as a more extensive hemothorax alone. In continuing the subject Nélaton said that in exceptional cases when the patient's life was jeopardized by the abundance or the frequent recurrence of the hemorrhage, it was necessary to intervene and check the bleeding from the pulmonary wound. Unfortunately it was difficult to formulate the indications for surgical operative procedure, for both the general and the local signs were deceptive. What was going on in the interior of the thorax could be ascertained only from the patient's progress. Mauclaire reported an interesting case which he used as an argument for expectant treatment in pulmonary wounds. Reynier emphasized the excellent results that might be obtained by the use of hemostatics, such as gelatin solution, calcium chloride, etc.

An interesting discussion followed on traumatic orchitis. Felizet believed that there were undeniable cases of true traumatic orchitis and he reported four cases occurring in fencers as the result of a blow from the foil on the scrotum. These patients had never had gonorrhea. Routier, drawing on his own experience and on those of Terrillon and Monod, said that it was impossible to induce orchitis in animals simply by traumatism of the testicle unless the urinary tract had previously been infected. In all the cases of so called traumatic orchitis that he had seen he had been able to discover evidences of more or less latent gonorrheal infection. Prof. Delorme said that in his experience as military surgeon he had often seen, particularly among the cavalry, contusions of the testicle accompanied by more or less voluminous hematomas, but he had never observed true traumatic orchitis induced by the traumatism. When inflammation of the testicle resulted it was always in individuals exhibiting immediate or remote evidences of gonorrhea. Tuffier also said that he had seen contusions of the testicle simulating orchitis, but never a true traumatic orchitis. He considered that the existence of orchitis always indicated a previous manifest or latent infection of the posterior urethra.

In the Académie de Médecine Lucas-Championnière discussed the nervous complications of movable kidney. He said that these were very common and that they did not appear to result from disturbances of the urinary function due to ureteral kinking nor from displacement of viscera or enteroptosis. They seemed rather to depend on the traction on and stimulation of the suprarenal gland, whose functional importance had been emphasized by the advances of modern physiology. This new theory explains the extraordinary frequency of the nervous disorders accompanying displacements of the kidneys. These complications are, as a matter of fact, out of all proportion to the lesion itself, and it is well known that they may run the gamut from the most serious disturbance of nutrition, such as vomiting, weakness, and emaciation, to the gravest types of neurasthenia. The operation of nephropexy seems to be of service less because it raises up the kidney than because it fixes it and renders it immovable. The operation is therefore especially indicated when there are serious disturbances of nutrition and of the nervous system.

Progress of Medical Science.

Boston Medical and Surgical Journal, August 22, 1907.

Torticollis: The Results of the Treatment of Cases of Acquired and Congenital Muscular Torticollis at the Boston Children's Hospital Since 1879.—E. H. Bradford and James Warren Sever write that, in view of the study of this large number of cases (90), covering such a long period of time, they think that the following conclusions may be stated, namely: (a) That congenital or acquired muscular torticollis may be cured; (b) that an open incision, with complete division of the two heads of origin of the sternocleidomastoid muscle, is all that is necessary, except in unusual cases; (c) that the horizontal incision below the clavicle in the line of the skin cleavage is the best to use, in that it gives adequate room and also gives the best cosmetic results; (d) the plaster-of-Paris is the easiest applied, holds the head in the corrected position, and allows ambulatory treatment, and is, therefore, the best immediate dressing; (e) that the plaster cuirass should be worn not longer than two months; (f) that the Buckminster-Brown brace, Thomas collar, or wire collar should be worn for an average of four months following the removal of the cuirass; (g) that it is best to operate on cases between the ages of two and twelve years, to insure a good result and prevent permanent bony deformity of the face and head.

New York Medical Journal, August 24, 1907.

The Questionable Influence of So-called Diathetic Conditions in Diseases of Throat and Nose in Children.—Charles Gilmore Kerley devotes his attention to enlargement of the tonsils and the presence of adenoids in the nasopharyngeal vault, and records the following observations: (1) The frequency with which these conditions are seen. (2) The distribution of the disorder geographically. The patients are found in large cities, small cities, country villages, in the open country, practically an equal number of children being affected in proportion of the population, regardless of their residence. (3) The distribution of the disorder socially. Hypertrophied tonsils and adenoids are found among all classes, among the very poor and the very rich, and those occupying intermediate positions; among those who live well, and those who live wretchedly. (4) The distribution of the condition among different physical types. The strong and robust, the weakly and those occupying intermediate positions in development and resistance show the growths with practical equal frequency. He believes that the three factors, the sucking habit, the free use of cane sugar, inducing colds, and the tendency to lymphoid tissue involvement, a condition peculiar to all children, contribute largely to the production of adenoids.

The Two Forms of Gastroduodenal Dilatation.—Byron Robinson concludes as follows: In general gastroenterostomy, a grave and unphysiological operation is performed with excessive frequency for unjustifiable causes and nonacceptable clinical data. Gastroenterostomy damages the physiology of digestion, and causes remote troubles. The motor, sensory, absorptive, and secretive functions of the gastrium (as well as those of the duodenum) are disordered. Gastroenterostomy excludes from dietetic circulation unnecessary segments and excessive lengths of the gastroenteron,

which will remotely interfere with nutrition. In gastroenterostomy the prevention of rapid evacuation of the stomach conveys immediately to the jejunum acid foods nonneutralized by the biliary and pancreatic fluids. Also the hydrochloric acid in the duodenum, which stimulates and enhances biliary and pancreatic secretions, is diminished or absent. Gastroenterostomy does not correspond with the clinical data, which in general points to a clamping of the duodenum by the mesenteric vessels, and, if necessary, should be relieved by a limited and definitely localized operation—duodenojejunostomy. Gastroenterostomy may be a justifiable operation in a limited field to-day, but to-morrow it will occupy a still more limited field, with established, recognizable, clinical data.

Absence and Marked Diminution of the Hydrochloric Acid of the Gastric Contents in Cancer Involving Organs Other than the Stomach.—Julius Friedenwald and L. J. Rosenthal examined the acidity of the gastric contents of twenty-nine patients. Nine had cancer of the breast, five of the uterus, seven of the rectum, two of the tongue, four of the face, one of the intestines, and one of the pancreas. In conclusion, they call attention to the fact that Moore has already pointed out—that in doubtful cases of cancer, no matter where the situation of the growth may be, the absence or diminution of the hydrochloric acid of the gastric secretion may at times be a valuable aid in diagnosis. In nineteen of the twenty-nine cases examined there was either an entire absence or diminution of free hydrochloric acid.

Blood Pressure Studies in Typhoid Fever.—Joseph H. Barach offers the following conclusions: 1. It has been shown that the blood pressure falls from the normal after the patient has taken to bed, stays down until convalescence is established, and then returns toward the normal. 2. That typhoid fever is a disease with a blood pressure below 100 (accepting at present the Stanton instrument as a standard). 3. That the blood pressure is governed by factors of its own, and bears no constant relation to pulse rate or temperature. 4. That in diagnosis, blood pressure studies may be of value in differentiating this disease from others, after we know the behavior of other diseases in this respect. In the diagnosis of the complications it has value. 5. That in prognosis the blood pressure chart is of value; a steadily falling pressure means grave danger; so long as the blood pressure keeps up at a reasonable level, we may feel that there is reserve power to work with. 6. That in the treatment of the disease, study of blood pressure will probably be found of the greatest value. It may teach us that the way to combat circulatory failure in typhoid fever is to increase peripheral resistance; or, when to direct our efforts at the heart, and when at the blood-vessels—when it is well to increase, and when it is well to diminish the amount of fluid in the vessels.

Journal of the American Medical Association, August 31, 1907.

Urine Formation.—T. Sollmann summarizes his conclusions as follows: 1. The modifications of Nussbaum's experiment (ligation of the renal artery to exclude the glomeruli from the circulation) prove that in the frog all the normal urinary constituents can be excreted vicariously by either glomeruli or tubules, but the elimination of water, and probably of most other ordinary constituents, occurs normally only by the glomeruli. Certain pigments, on the other hand, are excreted exclusively by the tubercles. It is probable, though not proved, that similar conditions exist in mammals. There is no conclusive evidence that urea is secreted differently from the salts. 2. As stated, the tubular epithelium can secrete all the urinary constituents in the frog. It is highly probable that it secretes pigments in mammals. It is proved that it secretes sugar under the influence of phloridzin, and doubtless it can secrete other substances, but there is no definite evidence that in health it secretes any of the normal constituents. Reabsorption under normal conditions is neither proved nor disproved; its acceptance, however, explains many phenomena. If it occurs it must be selective. 3. Filtration through the glomeruli is physically possible, as it occurs in dead kidneys. The effects, moreover, of saline diuretics correspond closely in both living and dead kidneys, indicating that filtration is an important factor in urine formation, though there is no direct proof. Filtration, however, cannot explain the composition of the urine. 4. It is probable, though not proved, that glomerular urine may, at times, have a much lower concentration than the plasma. The formation of such a fluid would probably require more than the ordinary filtration pressure—in other words, would be a secretory process. 5. It is probable also, though not proved, that the urine ordinarily becomes more concentrated as it passes through the tubules. In any case, the formation of a urine of greater concentration than the plasma requires an unknown force—whether secretory or absorbing—which must be classed as vital. 6. There is no satisfactory explanation of the adaptation of the urine to the needs of the body, none of the proposed theories resting on conclusive proof. 7. There is no binding evidence as to the mechanism of any of the diuretics, but it is highly probable that salts act mainly physically and mainly on the glomeruli, and that phloridzin acts on the tubules. The diuretic action of water, urea and caffein is even more obscure.

Treatment of Acne and Chronic Eczema.—R. H. Boggs reports his experience of the *x*-ray treatment of acne and eczema. He uses the rays in mild cases of acne, after a faithful trial of local and constitutional measures. In pustular and indurated acne he asserts that time is usually lost by waiting. Medication will remove comedones and produce desquamation, but it has little effect on the overactive sebaceous glands as has the *x*-ray; in pustular acne the rays seem to have a fourth action on the staphylococci by rendering the soil inert. Care must be taken to avoid undesirable results, and Boggs has been in the habit of using a very low vacuum tube with the anode at eight inches from the skin, one and a half milliamperes of current and from five to ten minutes' exposure, according to the condition of the patient. He keeps this up for nine treatments; by that time he is usually able to determine how much more will be required, and what variations of the treatment are needed. Acne rosacea, while more resistant, has yielded the best results when glandular inflammation predominates. A majority of cases of eczema require only local treatment and the rays are probably the most efficient form. They are not indicated in the acute forms and are most effective in the squamous type. In papular eczema more intense radiation is required to relieve the pruritus and relapses are more frequent. In chronic squamous eczema the skin is in poor condition, nutrition and vitality are depressed, and more than a mild dosage is liable to result in a severe dermatitis. He uses a low tube, ten inches from the surfaces, with one and a half milliamperes current, provided that the patient is in good physical condition; a safe rule is to start with ten minutes' exposure three times a week. He finds eight or ten such treatments will clear up many cases of squamous eczema, but a second trial may sometimes be required.

Excision of Carcinoma of the Breast.—M. F. Porter describes his technique in the operation for mammary cancer, and points out its apparent advantages. The superficial incision varies to suit the case, but the one he finds most generally useful begins at the humeral insertion of the pectoralis major and follows its lower border till the breast is reached, then surrounding the gland in a somewhat elliptical fashion so that when coapted the line of coaptation will occupy about the position of the lower border of the normal pectoral muscle, save that it extends more downward and inward. All the pectoralis major, except the clavicular portion, and the abdominal portion when present, should be removed, together with the whole of the pectoralis minor, the axillary fat and glands, and the breast with its coverings. Complete closure of the wound is important and can generally be secured, and drainage dispensed with, if due attention is given to making the right incision, the securing of hemostasis and the use of tension sutures. Venous stasis in the arm and lack of motion in the shoulder, as postoperative results, can usually be avoided by guarding against infection and keeping the wound surfaces in close apposition until healing is complete. For this, he states that the best means is the use of a few buried sutures in the apex of the axilla and a properly adjusted compressive dressing kept in place by adhesive plaster. Porter specially advises against continuing the superficial incision into the axilla on account of the greater risk of infection here and the interference with arm motion by the resulting scar. He claims for his method, which is given in full detail and illustrated, that it is simpler and easier than other methods, more comfortable to the patient, and gives a more rapid recovery and greater certainty of good results.

Plastic Radiography.—W. G. Stern and E. Rosenberg describe a provisional modification of the method or-

iginated by Bela Alexander of producing *x*-ray photographs giving relief effects with shadows and high lights. They use two plates: First, a double-coated, specially prepared plate with a double exposure to two tubes, first a soft, then a hard tube. The first exposure is longest, and after the development a positive plate is made; the two are fastened back to back and prints made from the positive, on bromide paper with artificial light furnishing parallel rays striking the plate at an oblique angle. They do not attempt to explain how the plastic effect is produced by this procedure.

Frontal Sinus Operation.—R. H. Good describes an operation as performed by him for frontal sinusitis by the intranasal route. The instruments used are figured; they are comparatively inexpensive, including two frontal sinus rasps, two tapering curved chisels and three brass protectors capable of being bent into various shapes on the flat, but not sideways. They are used when operating with the chisels, which are tapering as well as blunt on the edges, so that if the edge should strike a bony surface it would glide off instead of penetrating. The rasps are made on the principle of the old-fashioned coarse horseshoe rasp, slightly curved to fit into the frontal sinus and with the teeth on the longitudinally concave surface, pointing toward the handle. The different steps of the operation are described in detail. Good thinks his rasp is preferable to the mechanical burr, being cheaper and more under control, therefore less dangerous, and that a large proportion of frontal sinusitis cases can be cured by his method, which can be safely used instead of the external disfiguring operation.

The Quality of Public Water Supplies.—W. S. Johnson, as an engineer, accustomed to exact methods, says it is exasperating to find so much uncertainty existing as to the true relations of defective water supply and disease. Fortunately, however, the engineer, in dealing with water-supply problems, is working for something beyond the public health, namely, public comfort. The demand now is, at least in many parts of the country, for a water that will not merely not produce typhoid, but water from undefiled sources, not too hard, or objectionable in appearance, taste, or odor. The only source in Nature of such a supply is the ground water, and a good ground water is clear, colorless, odorless, and practically free from any organic contamination. Any community, he says, which is favored with large areas of sandy or gravelly subsoil from which water can be obtained has little excuse for a poor supply. This does not mean artesian wells, but shallow wells from thirty to fifty feet deep. When the sandy or gravelly area is not extensive, much can be done by infiltration from neighboring surfaces if the wells or filter galleries are properly placed. The water-supply problem could often be greatly simplified if the proper utilization of ground water were understood. When ground waters are unavailable, the most satisfactory substitute is a filtered surface water. Nevertheless, Johnson deprecates the tendency to depend too exclusively on filtration, as liable to lead to dangerous conditions, if anything should happen to prevent the proper working of the filtering apparatus. Surface waters can be greatly improved by storage under suitable conditions and for sufficient time, as is shown by the experience of large cities like Boston and New York, where typhoid epidemics attributable to the water supply do not occur, although these cities draw their water from reservoirs, the feeders of which are known to be polluted. The weak points of such supplies are the possibility of contamination near the outlets of the reservoirs and bad taste due to the growth of organisms. Running streams are the least desirable sources of water supply; it is practically impossible to insure them against contamination. Experience is teaching us that the nearer we can get to Nature's methods of disposal of sewage or purification of water, the better.

The Lancet, August 17, 1907.

Notes on a Case of Carcinoma of Both Ovaries.—M. P. Kerrawalla reports the case of a woman, forty-seven years old, married, who had had three children, the last twenty years ago. She had no miscarriages. Her mother died of cancer of both breasts when fifty-two years old, as also had her mother's two sisters. Her own sister was healthy, as also was her daughter. Three weeks before admission to the hospital she first noticed an abdominal swelling, which was only up to the level of the symphysis pubis. In about ten days more the swelling rose up to about two inches from the umbilicus. At operation a large ovarian cyst was discovered and tapped, letting out about forty ounces of what looked like ordinary ovarian fluid. The cyst wall was adherent to the posterior surface of the uterus and the left broad ligament and had to be separated, leaving a raw, oozing surface. The inner surface of the cyst wall showed large warty growths. The pedicle was soft and friable. The uterus felt normal. The right ovary was enlarged to the size of a Tangerine orange and was hard with papillomatous growths on its surface. No secondary deposits were discovered. A fortnight after the operation the cervix and the uterus felt normal and freely movable per vaginam and the patient left the hospital greatly improved. The pathologist reported the growths to be carcinomatous.

On the Continuous Administration of Fluids by the Rectum in the Treatment of Acute General Peritonitis.—B. G. A. Moynihan comes to the conclusion, after a fairly large experience, that there are few recent therapeutic measures which are in value equal to the continuous administration of fluids by the rectum in the treatment of general peritonitis. He has treated nineteen consecutive cases of acute general peritonitis due to appendicitis, with two deaths, and the recovery of several of these patients is, he believes, largely, if not solely, due to the continuous administration by the rectum of saline solution over a period of two to four days after the operation. In two recent cases of partial gastrectomy and one case of complete gastrectomy the recovery of the patients was undoubtedly helped by this abundant supply of fluid to them. This method he considers safe; it is easily borne by the patient; it effects a very remarkable change in the appearance and in the prospects of recovery after serious abdominal operations; the quantities which can be retained by a patient without discomfort do not throw a strain upon the kidneys which they find difficult to bear.

A Note on Hypopharyngoscopy.—Harold S. Barwell reports a case of extensive involvement of the pharynx in which operation was contraindicated, and in which Van Eicken's method was of great use in showing at once the extent of the pharyngeal involvement and therefore proving the case to be inoperable. This new method, devised by van Eicken, for the examination of the hypopharynx, or that part of the pharynx which lies below the aperture of the larynx, was described in *The Lancet* of May 25, 1907, by Dr. P. Tetens Hald of Copenhagen.

Tuberculosis Among School Children.—T. N. Kelynack says that it is estimated that in the United Kingdom more than one-third of all deaths between fifteen and thirty-five years of age are due to pulmonary tuberculosis. Of the 1,200,000 new lives added annually to the population, one-fourth to one-third are born in homes where conditions exist strongly predisposing to tuberculosis. Taking all cases on which post-mortem examinations are made under fifteen years of age, Harbitz of Christiania finds tuberculous lesions in 42.5 per cent.; Hamburger and Sluka, in Vienna, 40 per cent.; and Comby, in Paris, 38.5 per cent. According to statistics at present available for England and Scotland tuberculosis is said to be present in from less than 0.5 per cent. to over 6.0 per cent. of school-going children. Tuberculosis, more particularly of the lungs, exists among many teachers. In considering the subject of tuberculosis among children of school age, it is very necessary to break away from all restricting conceptions and to view the school and its scholars from the broadest hygienic standpoint. He believes that most of the cases occurring among children of all ages are home-born and home-grown. School sanatoriums are badly needed. Tuberculous children should not be sent to a sanatorium with consumptive adults. Much good would come from forming an International Association for the Study, Prevention and Treatment of Tuberculosis Among Children.

British Medical Journal, August 17, 1907.

The Prodromal Period of Some of the Acute Infectious Diseases.—E. W. Goodall deals chiefly with cases in which the initial symptoms are either unusual or not sufficiently emphasized in textbooks. The prodromal stage is that which intervenes between the first symptoms of illness and the rash or some other characteristic sign. In the majority of the cases of scarlet fever the prodromal period is short. Usually the rash comes out within forty-eight hours of the onset, and very often it is discovered as soon as any other symptom; occasionally it is delayed until the third or fourth day, and even longer. As a rule, when the appearance of the rash is delayed, the case is one in which the throat symptoms are marked; these latter cases are frequently diagnosed as diphtheria. Vomiting is a very common early symptom of scarlet fever. Prodromal rashes are extremely rare, if they ever occur. The only sign of an attack of scarlet fever may be a punctate eruption. Diphtheria is so insidious in its onset that it is

often well advanced before it betrays any sign of its presence. Croup may be the first sign of diphtheria. In rubella the rash appears synchronously with any other symptom. Prodromal rashes in measles are common, the most frequent being a punctate erythema; these cases are often mistaken for scarlet fever. The next most frequent rash in measles is an erythema consisting of small discrete papules, with blotches and irregular patches of confluent papules. Another prodromal rash is urticaria, which is usually universal. One may also meet with an ill-defined erythematous mottling, especially noticeable on the trunk. Remissions are fairly frequent and may last from twelve hours to four days, when the constitutional symptoms recur and the rash comes out. An early laryngitis is by no means uncommon and usually passes off when the rash comes out. Koplik's spots usually come out early, on the first or second day; sparse at first, they increase in number daily till the rash appears, when they rapidly vanish. The spots are pathognomonic, and it is their presence which enables one confidently to diagnose the disease in cases where the prodromal rash, the remissions, or the laryngitis are doing their best to lead us astray. Usually there is no prodromal period in varicella, and the eruption is the first or among the first signs. Typhoid fever is the most protean in its mode of onset of all the acute infectious diseases.

Bottle-makers' Cataract.—William Robinson gives summaries of cases of cataract observed in three factories in the Sunderland District, where 400 men are employed. The number of men known to have cataract is 40, 37 of which occurred in bottle finishers. These figures he believes to be unparalleled in any other trade. Sight began to fail in the large number of the cases between the ages of 41 and 50. Both eyes are almost always affected. He also gives statistics obtained from the glass bottle makers of the Yorkshire United-Trade Protection Society, whose members number 2,623; but of these only 1,341 were employed in December last. Of 114 superannuated members 37, or 32.4 per cent., had cataract. The average age of disablement was 57.3 years. In addition to the 37 with cataract, 11 others had eye affections, making a total with eye disease of 48 men, or 42 per cent. of the whole family. He gives statements that lend support to the belief that the excessive heat of the gas furnaces is the cause of the disease.

Acquired Syphilis in an Infant, with Transmission to Mother.—J. A. Nixon reports a case in which there seems to be no doubt that the mother had acquired syphilis, and that the breast had been the site of the chancre, which was derived from a similar and earlier lesion on the child's lip. The origin of the latter remains unexplained.

Berliner klinische Wochenschrift, August 12, 1907.

Concerning the Specific Action of Amboceptors.—Eysbroek endeavors to show that the claim of several investigators, to be able to distinguish between various species of bacteria of the same class by means of the method of fixation of complement, is wrong. He used an antistreptococcus serum derived from a horse which had been injected with various kinds of streptococci, and found that the serum (amboceptor) was not only active for the five different kinds of streptococci which were used to immunize the horse, but that fixation of complement also occurred with various other pathogenic streptococci. The latter included streptococci from angina, scarlatina, cholecystitis, and puerperal patients, both those which had been successfully and unsuccessfully treated with the serum. The serum was even active to meningococci and pneumococci. He, therefore, concludes that the method of fixation of complement cannot be applied to identify various bacteria and that amboceptors are not absolutely specific.

Münchener medizinische Wochenschrift, August 6, 1907.

Results of Alcohol Injections in Neuritis and Neuralgia.—Fischler tried this method of treatment in obstinate sciatica and trigeminal cases. One to one and a half c.c. of a 70 per cent. solution of alcohol was injected into the nerve at intervals of two to eight days. In sciatica cases the hypodermic needle was inserted and the nerve felt for, at the point of greatest local tenderness or where the nerve emerged from the pelvis, between greater trochanter and ischium, its finding being signalized by a severe pain down the legs. After the nerve was found the needle was slightly withdrawn, to make certain it was not in a vessel; the fluid was then injected slowly and the patient carefully watched. The latter at first experienced a severe pain down the entire leg, or a burning or tingling sensation, or a feeling of numbness, which disappeared in a few moments or hours, and with it the sciatica pain as well. Of twelve cases, four were absolutely cured, four unimproved, and the remainder partly improved. The fact that they were not all cured he attributes to insufficient treatment, and treatment not properly carried out. Six cases of supra- and infraorbital neuralgia were entirely cured. In the last sciatica patient subjected to treatment, a paralysis of the perineal region set in after the fifth injection, which was made with the perineal nerve, it took one year to recover. This case and three of Erb's, one of facial and two of tibial toxic neuritis, caused by alcohol injections, induced Fischler to abandon this mode of treatment in diseases of nerves containing motor fibers, while he continues it in diseases of nerves containing only sensory fibers. The degeneration which the alcohol sometimes causes of the nerve into which it is injected makes its use ideal in sensory nerve affections. Fischler does not advise against alcohol injections, but warns against their dangers which, after further experience in regard to method and indication, may possibly be avoided.

Generalized Vaccina.—Danziger reports a small epidemic of this disease. A six months' old boy was admitted to the children's ward of a hospital with the diagnosis of generalized vaccina; the infant had never been vaccinated, but fifteen days previous to its admission its sister had been vaccinated. Eight to twelve days after his admission, five out of six non-vaccinated children in the ward—three of whom were being treated for eczema, one for congenital syphilis, and one for impetigo contagiosum—had also developed generalized vaccina, while none of the vaccinated children contracted the disease. Danziger believes that it is still a matter of discussion whether this disease is a result of accidental or autoinoculation, or whether it is a general infection through the digestive, circulatory, or respiratory system. In this epidemic he thinks the balance of evidence is in favor of a generalization from within, for all but one patient had a cough at the onset which in his mind speaks for an infection through the respiratory tract. The fact that the first patient had no skin lesion speaks against the inoculation theory, and yet he holds that children with a skin disease are more prone to become infected. As regards the effect of the generalized vaccina on the preexisting skin lesion, the epidemic proves nothing, as the skin condition got worse in two patients and healed readily in two others. The prognosis he holds to be good, as the syphilitic child only, died. In conclusion he says that generalized vaccina is contagious, can occur in epidemics, and that the patient afflicted with it should be isolated from non-vaccinated children, especially if these have an eczema or other skin disease. The infrequency of the disease he attributes to the fact that as a rule eczematous children are not vaccinated.

A Case of Congenital Syphilis of the Small Intestine and the Etiological Significance of Spirochæta Pallida.—Fränkel relates the history of a case of congenital syphilis of the small intestine, describing in detail the relation of the *Spirochæta pallida* to the intestinal lesion. The patient was a premature child, forty-seven centimeters long, which died of acute peritonitis when five days old. At autopsy several coils of the upper portion of the ileum were found closely bound together by adhesions; these and other loops of small intestine were covered with pus, while about 100 c.c. of a reddish cloudy fluid was found free in the peritoneal cavity. On opening the gut it was found to contain numerous ulcers, extending through the entire thickness of the wall up to the serosa, as well as circumscribed areas which were raised above the level of the mucous membrane. The duodenum, jejunum, lower portion of ileum, and large intestine were found to be normal. The firm adhesions between the loops of ileum were more than five days old, so that this chronic peritonitis began during the child's intrauterine life, while the acute purulent peritonitis was recent, both having as the underlying cause the pathological changes in the intestinal wall. Spleen, suprarenals, pancreas, lungs, heart, and kidneys were normal, while the liver contained small adenomata and the ribs were the seat of a syphilitic osteochondritis, which was, however, detected only on microscopical examination. On the strength of the raised areas on the inner surface of the intestine and the osteochondritis, he made the diagnosis of syphilis, and then tried to substantiate it by staining for spirochete. The latter were found in the borders of the raised areas and ulcers, as well as in the immediately surrounding tissue; while they were absent

even a short distance from the diseased tissue, and also in the necrotic floors of the ulcers. The vast majority of spirochete surrounded the crypts of Lieberkuhn and the vessels of the submucosa, a few only being present in the muscularis and upper layers of the mucosa; an occasional one was seen in the lumen of the glands and between their lining epithelium. From his findings he feels justified in stating that the so-called *Spirochæta pallida* is of parasitic origin, and is not a neurofibril, as has been claimed by some, for neurofibrils are not found in such large quantities around Lieberkuhn's glands or inside of the latter. Furthermore, the fact that the child lived five days and was not macerated speaks against the argument of those who claim that maceration only is necessary to get bodies like the spirochete when the tissue is stained with the silver method. Histologically the ulcers consisted of serosa, subserosa, and small portions of muscularis; the mucosa and submucosa were entirely missing. The raised areas were caused by a swollen submucosa, muscularis, and subserosa. While the mucosa was destroyed, in the center of the swollen portion necrosis had begun. He points out that it was a simple process quite different from the one usually found in syphilis, there having been no preceding vessel changes which caused eschemia with following necrosis. The anatomical process which led to the formation of an ulcer shows nothing characteristic for syphilis; of so much greater importance therefore was the finding of the spirochete.

Deutsche medizinische Wochenschrift, August 8, 1907.

Purulent Inflammation of the Labyrinth.—Heine contributes an account of this disease, confining himself, however, to such inflammation as is caused by middle ear disease, as he considers this kind of the greatest practical importance. He says the pus usually enters the labyrinth through points of least resistance, *i.e.* through the fenestra ovalis, through the fenestra rotunda, and through the attic into the ampulla of the horizontal semicircular canal, exceptionally the pus breaks into the vertical semicircular canal and into the tip of the cochlea. The disease may be circumscribed or diffuse; if the latter, the canal for the facial nerve is usually involved and the carotid may become eroded. The disease may heal spontaneously, when the sequestra are expelled and connective tissue or new bone takes their place, or it may go on to involve the brain; when it advances by way of the equeducts, the cochlea, or along the arachnoid coverings of the nerves or breaks directly through the wall of the labyrinth into the brain, thus causing a localized abscess or meningitis. Any insult to the labyrinth may cause dizziness, nausea, vomiting, ringing in the ears, disturbances of hearing, and nystagmus, but their presence does not necessarily mean involvement of the labyrinth, though if middle ear disease exists, dizziness and nystagmus usually point to labyrinth trouble. The cases which are difficult to diagnose are those with no symptoms, no signs during operations, but which afterward suddenly develop meningitis and show total destruction of the labyrinth at autopsy. The labyrinth contains two sets of nerve endings, the one concerned with hearing being situated in the cochlea, the other concerned with equilibrium being situated in the vestibule. The symptoms depend upon which nerve endings are affected, and whether the latter are just irritated by the diseased process or totally destroyed by it. An irritation of the nerve endings manifests itself by subjective noises when confined to the cochlea, and by nystagmus and dizziness when confined to the vestibule. On the other hand, if destruction of the nerve endings takes place, deafness sets in when the cochlea is involved, but when the vestibule nerve endings are destroyed the condition is not so easily diagnosed. Heine goes on to describe Stein's and Wanner's test for the "equilibrium sense," but found by experience that the former is complex and dangerous, while the latter is unreliable. He believes that the method of Barany is simple and usually reliable; it consists in throwing water below body temperature into the external auditory canal, when in individuals whose vestibule is healthy a rotary nystagmus takes place towards the opposite side, while if water warmer than body temperature is used the nystagmus will take place towards the injected side. This is true whether the drum membrane be intact or not and the phenomenon does not take place in persons whose vestibular apparatus is destroyed. When nystagmus, dizziness, nausea, and vomiting are caused by pressure due to a middle ear disease with pus, a paracentesis will relieve the condition; if due to the pressure of a brain abscess the differential diagnosis is more difficult; if caused by abscess the nystagmus may first be directed to the healthy side, but later is turned towards the diseased side and is always more marked than in labyrinth disease. Subjective noises, too, may be caused by conditions other than an irritated nerve apparatus in the cochlea; but if they occur suddenly in connection with other symptoms during the course of middle ear disease, they point toward involvement of the cochlea. No matter what the symptoms, the findings during operation are his guides as to how the labyrinth should be treated. If the symptoms before operation point to destruction of the vestibular apparatus and during operation he finds a labyrinth fistula or a large crater-like defect in the ampulla of the horizontal semicircular canal or pus coming out of the vestibule, the latter is cleaned out. Whether or not the cochlea is to be opened depends on whether deafness was present before operation or whether it looks affected during operation. With or without symptoms due to irritation before operation, he cleans out the labyrinth, if the above changes are found during operation. On the other hand, even if nystagmus and dizziness existed before operation, and during the latter a small defect is noticed in the horizontal semicircular canal, he leaves this alone, as such defects usually heal spontaneously, and any disturbance during operation might only change a circumscribed condition into a diffuse purulent inflammation of the labyrinth. If, however, labyrinth symptoms persist, become more intense, or only appear after operation, the labyrinth must be cleaned out, even though the portal of infection of the labyrinth cannot be seen.

Etiology of Trachoma.—Halberstaedter and Prowazek found peculiar bodies enclosed in the conjunctival epithelium of trachoma patients, which they believe play a rôle in the etiology of the disease. They stained smears taken from the conjunctiva of such patients according to the Giemsa method, and found round and oval dark blue and violet bodies near the nucleus of the epithelial cells, the latter appearing normal in every other respect. These masses were not quite homogenous and contained small bodies staining red. Later the blue masses were found to break up, while the red bodies had greatly increased in number; in still later stages the blue masses separated into small islands, which went to the periphery of the entire mass, now chiefly consisting of red bodies. They hold that the blue masses are reaction products of the cells and that the small red bodies are microorganisms, for (1) they were always present in the same way; (2) they multiplied; (3) when epithelial cells containing them were placed into the eyes of an orang-outang they caused trachoma and were found there in great numbers. These two observers furthermore believe that trachoma primarily affects the conjunctival epithelium, and that the swelling of follicles is only secondary, as these bodies are found in the epithelial cells only, and as follicles are also found in chronic blenorrhea, in infections with the diplococcus and pneumococcus, etc. During their experiments they made control tests and never found any such red bodies in the conjunctiva of healthy individuals nor in eyes afflicted with keratitis, carcinoma, blenorrhea, etc.

French and Italian Journals.

Independence of Cerebral Development in Hypertrophic Infants.—G. Variot points out the fact that in healthy children the brain develops according to fixed rules of growth. At the age of two, while the child is not nearly arrived at its final growth, the brain development has nearly reached its adult form. This rapid growth accounts for the frequent location of the bacillus of tuberculosis in the brain. In hypertrophic children the brain growth corresponds rather to the age than to the size of the child, and in cases that are much stunted in size and weight it is found by weighing the brain and measuring the skull after death that the brain development is far in advance of that of the rest of the body. It is also to be seen by the expression of the infant's face that it understands and recognizes far more than children of its size ordinarily do. This relative independence of cerebral development accounts for the frequency of psychomotor disturbances in hypertrophic children.—*Annales de Médecine et de Chirurgie Infantiles*, April 1, 1907.

Goiter in the New-Born.—Planchu and Richard say that goiter may be congenital and hereditary in new-born infants, and is a very grave disease. The symptoms are cyanosis, dyspnea from compression of the trachea, cough, and difficulty in deglutition from pressure on the esophagus. The dyspnea may be so severe as to require inversion of the child to relieve it, or tracheotomy. The tumor extends across the neck, or forms two pyramids with the apices upward and backward. There are three forms. The parenchymatous is rare, there being only one autopsy recorded. The vascular is most common. It consists of much dilated veins which form large sinuses, with a small amount of tissue surrounding them. This form is generally gradually absorbed. The cystic also occur. Treatment in severe forms is operative, exothyropexy being preferred. Thyroidectomy is too severe an operation to perform in the infant.—*Gazette des Hôpitaux*, May 11, 1907.

Book Reviews.

THE NURSLING. The Feeding and Hygiene of Premature and Full-Term Infants. By PIERRE BUDIN, Professor of Obstetrics, University of Paris, etc. Authorized Translation by WILLIAM MALONEY, M.B., Ch.B., Fellow of The Obstetrical Society of Edinburgh, etc. With an Introduction by Sir A. R. SIMPSON, M.D., LL.D., etc. London: The Caxton Publishing Co., 1907.

PROF. BUDIN is perhaps the man in France best qualified to discuss a subject which has been recognized in his country to be of such extreme importance that it has received recognition by the national government. The birth rate of France has been steadily decreasing, and the means taken to overcome this calamity has been accorded governmental recognition. The question has been studied from two standpoints, that with regard to the conditions which foster and favor antenatal life and that which is concerned with the methods which preserve and promote the growth of the infant. In this volume Prof. Budin explains in ten lectures the methods which he has found successful in nourishing the young child, whether normal or feeble or premature. Prof. Budin's efforts in organizing the "consultations de nourissons" in various French cities have been the means of reducing the infant mortality of that country to a marked degree. The author seems to favor pasteurized milk as the only rational substitute for breast feeding, and considers it superior to refrigerated milk. He believes that with few exceptions undiluted milk may be given to all infants, and he uses diluents, such as water or gruels, only in certain cases. Pasteurization is claimed to render the milk fit for infant digestion without the addition of other substances. This statement will be disputed in this country without doubt, as it is a view but rarely held here. Aside from such a difference of opinion, however, the book will certainly meet with a favorable reception for its other interesting qualities.

THE ELEMENTS OF THE SCIENCE OF NUTRITION. By GRAHAM LUSK, Ph.D., M.A., F.R.S. (Edin.), Professor of Physiology at the University and Bellevue Hospital Medical College, New York City. Illustrated. Philadelphia and London: W. B. Saunders Company, 1906.

IN presenting this volume to medical readers Professor Lusk has done much to remedy the deficiency of American textbook literature on the subject. The treatment of the so-called diseases of metabolism has become so largely a matter of diet that their management, according to modern views, absolutely requires thorough familiarity with the principles of nutrition; but there is hardly a medical or surgical condition of any sort that cannot be better understood or treated by one who has devoted thought and study to this subject. The ability to think of diets in terms of calories is most useful to the practitioner and is not very difficult of acquirement, and the present volume is well adapted to convince the most sceptical of the practical importance of such knowledge. The first 160 pages comprise eight chapters on the general principles of metabolism investigations and the subject of nutrition as influenced by starvation, temperature, mechanical work, etc. Then follow two chapters on the normal diet and on the food requirements during the period of growth, and the last third of the volume is made up of a series of discussions of what might be termed the pathology of metabolism. Anemia, gout, diabetes, fever, myxedema, etc., are taken up and their relation to the processes of nutrition is set forth. The book closes with an appendix consisting of tables relating to food values and equivalents. The author's facile style renders the perusal of the volume doubly interesting, and the book may be commended to the attention of all medical readers.

HYGIENE OF NERVES AND MIND IN HEALTH AND DISEASE. By AUGUST FOREL, M.D., Formerly Professor of Psychiatry in the University of Zurich. Authorized Translation from the Second German Edition. By HERBERT AUSTIN AIKINS, Ph.D., Professor in Western Reserve University. New York and London: G. P. Putnam's Sons, 1907.

THE author's conception of popular hygiene is that it enables an intelligent layman with a fair education to govern his life in such a way as to avoid diseases and abnormalities as far as possible for himself, his fellow men, and his offspring, and to promote the health and strength of them all in every respect. Further on he lays down as a fundamental proposition that "Public, or rather social, hygiene, should everywhere be superior to individual hygiene when there is a conflict between them; and there are many conflicts." Hence there can and should be no conflict between hygiene and ethics. The book is divided into three parts: the first dealing with the mind, brain, and nerves in their normal condition; the second, with the pathology of the nervous life; and the third, with the hygiene of the mental life and of the nervous system. The book is a good one and will appeal not only to the practitioner, but also to many of his patients. The third part of the book, particularly, contains much information that the laity might absorb with profit to themselves and to their neighbors.

A LABORATORY MANUAL OF INVERTEBRATE ZOOLOGY. By GILMAN A. DREW, Ph.D., Professor of Biology at the University of Maine; in charge of Zoological Instruction at the Marine Biological Laboratory, Woods Holl, Massachusetts. With the Aid of Members of the Zoological Staff of Instructors of the Marine Biological Laboratory, Woods Holl, Mass. Philadelphia and London: W. B. Saunders Company, 1907.

THIS laboratory manual is based on the directions prepared by members of the staff of instructors to meet the needs of the class in general zoology at the Marine Biological Laboratory of Woods Holl. The ground is covered very thoroughly, and the volume contains "directions" concerning quite a large number of accessible types of all the chief groups of animals. The book has stood the test of six years' practical work, and so can be confidently recommended to teachers and students of biology.

A TEXTBOOK OF EMBRYOLOGY for Students of Medicine. By JOHN CLEMENT HEISLER, M.D., Professor of Anatomy in the Medico-Chirurgical College, Philadelphia. With 212 illustrations, 32 of them in colors. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907.

IN this new edition many of the sections have been either rewritten, altered, or enlarged, so as to bring the book up to the level of recent investigations in the field of embryology. These changes are chiefly noticeable in the paragraphs dealing with the ovum, the spermatozoon, the blastodermic vesicle, the amnion, the vascular system, the pancreas, the spleen, the larynx, the thyroid, the parathyroid, the thymus, the kidney, the suprarenals, the spinal cord, the vitreous, the muscular system, and the vertebral column. The present volume makes an interesting and connected story of the development of the human body; at the same time each chapter is fairly complete in itself, thus facilitating reference to any special topic.

A TEXTBOOK OF MATERIA MEDICA FOR NURSES, Including Therapeutics and Toxicology. By GEORGE P. PAUL, M.D., Attending Physician and Adjunct Radiographer to the Samaritan Hospital at Troy, N. Y.; Author of "Nursing in the Acute Infectious Fevers." Philadelphia and London: W. B. Saunders Company, 1907.

THE subject matter of this book is arranged in six parts. Part I contains general considerations, definitions, preparations, actions, administration, and classification of drugs. Part II deals with general materia medica, and constitutes the main part of the volume. The drugs are here arranged alphabetically, and are discussed under the various headings: derivation, synonyms, constituents, dosage, preparations, physiological action, therapeutic indications, administration, pre-toxic signs, and toxicology. Parts III and IV mention drugs of minor importance and newer remedies. Part V is on practical therapeutics and discusses: hydrotherapy, hypodermic medication, antiseptics, and disinfectants, disinfection, topical medication, application of heat, rectal alimentation and medication, antitoxins and serums. Part VI contains a list of synonyms, tables of weights and measures, and strength of drug preparations. This volume will be of real help to nurses; the material is well selected and well arranged; and the book is as readable as it is useful.

PSYCHOLOGY APPLIED TO MEDICINE. Introductory Studies by DAVID W. WELLS, M.D., Lecturer on Mental Physiology and Assistant in Ophthalmology, Boston University Medical School; Ophthalmic Surgeon, Massachusetts Homeopathic Hospital, Boston; Oculist, Newton (Mass.) Hospital. Philadelphia: F. A. Davis Company, 1907.

THIS volume is an attempt to bridge over the gap between psychology and medicine. It is written chiefly for two classes of readers: (1) the medical student who has had no previous training in "psychic matters," and (2) lay readers who know little or nothing of medical technicalities. The nine chapters discuss, in order: Reason and Instinct, Habit, Sensation, Experimental Psychology, Hypnotism (History, Phenomena, and Theories), Psychotherapeutics, and the Psychic Element in Medicine; a brief bibliography is appended. The greater part of the book is taken up with hypnotism and mental healing; as a first book on these subjects it can be recommended to those interested.

Society Reports.

AMERICAN THERAPEUTICAL SOCIETY.

Eighth Annual Meeting, Held in Washington, D. C., May 4, 6, and 7, 1907.

(Special Report to the MEDICAL RECORD.)

ROBERT REYBURN OF WASHINGTON, PRESIDENT, IN THE CHAIR.

THE address of welcome was delivered by Hon. Henry B. F. McFarland, President of the Board of Commissioners for the District of Columbia. Dr. Reynold Webb Wilcox, New York, responded for the visiting members.

Fifty Years in the Practice of Medicine.—Dr. ROBERT REYBURN of Washington, D. C., took this as the title of his presidential address. After speaking of his early medical career, he described the methods of treatment used in the period following the year of his graduation, 1856. Vaccination was performed by pulverizing vaccine crusts and inserting the moistened powder into the arm. The antiphlogistic method of treating inflammation was still in vogue—bleeding, blistering, purging. While no one would wish to revive bleeding after the old methods, yet he had seen cases in which prompt venesection had saved life. In eclampsia, threatened apoplexy, and even acute pneumonia he had seen prompt relief afforded in this way. The antiphlogistic method was followed by a reaction, and in 1860 and 1862 stimulants were given in inflammatory conditions. After describing surgical methods in vogue prior to the Civil War, he contrasted the high mortality from gunshot wounds in the Civil War with the low mortality in the Spanish-American war. In the latter the universal use of first-aid by antiseptic dressings did more than anything else to lessen the mortality. Also, the rifles used were more humane, in that they carried a small bullet of high velocity, which penetrated the tissues more readily and caused less shattering than did those of the Civil War. The paper then dealt with personal recollections of President Lincoln and of the scenes following his assassination. The address closed with an account of the assassination, illness, and death of President Garfield, Dr. Reyburn having been one of the physicians in attendance.

Pure Drugs.—Dr. HARVEY W. WILEY of Washington, after referring to the different classes of therapeutic agents, discussed the attempts that had been made to control the purity of drugs used as medicines. Dr. Wiley was unable to say how far the new food and drugs act would be applied to the inspection of drugs. The question was now before the Attorney-General for decision. If he adopted the common principle of construction, inspection by the Treasury Department would continue as before, with an additional inspection as required by the act of June 30, 1906. It was probable that at least 20 per cent. of the drug trade would be affected by the provisions of the new law. He suggested that no one should be allowed to advertise or offer for sale to the public any remedy who had not passed an examination before a medical examining board and received a license to dispense medicines and prescribe for patients in the locality mentioned. Thus the patent medicine trade would be much restricted.

Dr. REYNOLD WEBB WILCOX of New York spoke of the standards set forth in the Pharmacopœia. Seven years ago he was appointed a member of the Revision Committee. The aim of the committee had always been to maintain the necessary efficiency and purity of drugs, without making the standards so high that manufacturers could not come up to them. They were established after careful study and conferences with manufacturers.

Dr. E. H. LONG of Buffalo said that the profession could well rejoice that it had the aid of the Government in the matter of drug control. He commented upon the prevailing neglect of medical schools to furnish adequate instruction in the art of prescribing and the use of reliable and well-known remedies.

Dr. OLIVER T. OSBORNE of New Haven said that now was the time to let the label tell. He related a recent experience at Hartford in an effort to get poison labels on bottles. There was much opposition from pharmacists and others, and finally two strenuous bills were brought before the Legislature. Much to his satisfaction, however, the business men agreed at the preliminary hearing that they preferred the provisions of the new food and drug act. He expressed regret that young physicians in the hospitals were prone to prescribe compounds which were kept upon the shelves, ready-mixed, for the sake of convenience. Thus they soon lost their ability to write their own prescriptions.

Dr. F. E. STEWART of East Orange commended Dr. Wiley's work. The medical profession and the public could not be too grateful for Government aid. He commended Dr. Wiley's suggestion as to license requirement. Dr. Gould had said that any one can practice medicine without a license except a physician or a pharmacist.

Some Criticisms of the United States Pharmacopeia. Dr. REYNOLD WEBB WILCOX of New York answered some of the criticisms that had appeared since the last revision became official, in 1905. 1. "Many agents have been retained that are not in general use, while others much used have been omitted." As a matter of fact, the changes were made only after the committee had consulted manufacturers, wholesale and retail druggists, and the members of the medical profession throughout the land. Every suggestion, no matter how humble its origin, was considered. 2. "More frequent revisions of the pharmacopeia are necessary." A greater frequency would not be possible, because time was needed for definite knowledge of medicinal substances. Active work for nearly five years was required for the present revision, and this represented about the shortest time in which the work could be done. 3. "The time had come when the American Medical Association should take a hand in this work." Dr. Wilcox answered this criticism at some length, calling attention to the make-up of the Revision Committee. The medical profession was represented by twelve out of twenty-six members. The unfortunate showing which the Council on Pharmacy and Chemistry had made also demonstrated the utter unfitness of the American Medical Association to undertake the far more serious work of revising the Pharmacopœia.

L. F. KEBLER of Washington agreed with Dr. Wilcox as to the status of the U. S. Pharmacopœia. He knew of none equal to our own. It unquestionably had faults, but they would be remedied as rapidly as practicable. He expressed regret that Dr. Wilcox had so severely criticised the Council. It had accomplished something; for this it deserved credit.

Dr. S. L. DAWES of Albany referred to the nomenclature used in the Pharmacopeia. The names of remedies were in many instances too long and complex. They could be simplified to good advantage. Students who were taught long and complex names for drugs soon discarded them, after graduation, for simpler terms.

Dr. E. H. LONG of Buffalo said that the Council on Pharmacy and Chemistry of the American Medical Association was young; nevertheless it had done some good.

Dr. OLIVER T. OSBORNE of New Haven said he hardly found his prescription blanks long enough for some of the terms he had to use. He suggested that accent marks be used in the next Pharmacopeia in order to secure uniformity in pronunciation. He commended the work of the Council.

Dr. WILCOX, in closing, said that perhaps his criticism of the Council had been rather too severe. He fully appreciated the magnitude of the task before the Council. It had simply undertaken to do more than it could.

Legal Control Necessary in the Treatment of Drug Habits.—Dr. FREDERICK H. GERRISH of Portland, Me., emphasized the futility of depending upon the victim's will-power. Physical restraint was necessary in almost every

case. And yet if the physician interfered with the freedom of action of the victim, even with his consent, he made himself liable to a subsequent suit for false imprisonment. The only way to reconcile the conflicting interests of physician and patient was by the enactment of a law by which the victim could relinquish his freedom long enough to ensure a cure. Such a law was enacted in Maine in 1905. Dr. Gerrish had heard no complaints that its workings were other than salutary. The paper closes with a statement of the law.

The Value of Physical Training in the Treatment of Neurotic Patients.—Dr. B. E. McKenzie of Toronto said that the first step was to make a positive diagnosis to determine whether organic disease was present. In the management of the neurotic there must be no vacillation on the part of the physician. He must separate his patient from all harmful surroundings, and subject her to a kindly but firm discipline. She must be turned from introspection and egotism and taught to be cheerful, self-reliant, active, and altruistic. The ordinary "rest-cure" fell short in that it was merely negative. For discipline, encouragement, and development, physical training in the gymnasium and on the playground was a most effective agency. It required the assistance of a thoroughly trained and tactful director.

Principles Underlying the Treatment of Tuberculosis. Dr. Francis M. Pottenger of Los Angeles classified the measures employed in combating tuberculosis under six heads: (1) Those which aided in bringing about immunity by endeavoring to restore as far as possible the normal resisting power of the patient—fresh air, hygienic measures, proper diet, hydrotherapy, favorable climate, and suitable tonics; (2) those which aided in bringing about immunity by artificially stimulating the body cells to the production of specific protective substances—vaccination, or treatment with such products as tuberculin; (3) those which aided in establishing immunity by supplying specific protective substances which were produced by vaccinating some animal, such as the horse or cow—antitoxic sera; (4) those measures which caused an increased flow of blood, or lymph, to the seat of infection—Bier's hyperemia, Finsen light, poulticing, local congestive action of tuberculin; (5) remedies and measures which relieved symptoms; (6) measures which relieved secondary infection.

Internal Use of Pyroligneous Acid in Arthritis Deformans.—Dr. Louis Kolipinski of Washington characterized pyroligneous acid as a forgotten drug which, however, well deserved recognition as a therapeutic agent. He described it and explained its chemical composition. It was a dark-red liquid, turning black on exposure. It had been called "liquid smoke." After discussing its physiological action and toxicology, he cited cases in which it had proved efficacious in his hands in the treatment of arthritis deformans. The restoration of function was well shown in the use of the hand and fingers. The claw-like posture, the extended position in which the member was held, the constant watchfulness to protect it from contact, were no longer seen. Flexion and extension returned, and the hand resumed its duties. The patient ceased to complain, unless this continued from habit.

Dr. Arthur H. Hall of Washington related a case of joint disease in which he had used pyroligneous acid with marked success, after the usual methods had failed. The joints affected were those of the jaw and right shoulder. Two drachms of the acid in water were given every three hours. Before eight ounces had been taken the patient demonstrated that pain had disappeared, and after a time motion in the affected joints was satisfactorily restored.

Dr. H. C. Wood of Philadelphia said that undeservedly disused medicines should be revived, and he who revived them deserved credit. But he objected to pyroligneous acid for pharmacological reasons, since it was a complex substance, containing components some good, some indifferent, and some harmful. The tendency of to-day is toward the use of simple drugs.

Dr. A. D. Blackader of Montreal expressed doubt whether valid conclusions as to the value of the agent in such a resistant affection as arthritis deformans could be drawn from a few isolated cases. Sometimes the disease got well spontaneously, and at others it became quiescent and later broke out again.

Dr. Oliver T. Osborne of New Haven suggested that some of the good might have been due to disinfection of the bowel. He discussed the subject of bowel disinfection. He believed that something could be done in this line, and the beneficial action of such remedies as pyroligneous acid in joint pain might in some degree be due to this effect. He did not see how it could do any good in arthritis deformans after bone had been deposited. Some of these patients got well, and no one could tell why or how.

Dr. Kolipinski, in closing, said that in the light of his experience he could not do otherwise than believe in the efficacy of the remedy. He appreciated the force of Dr. Wood's criticism, however, and intended to make the individual components of the acid a subject of further study.

The Value of Chemical Substances Used Hypodermatically to Antagonize Morbific Processes.—Dr. John Blake White of New York read this paper. Hypodermic medication was introduced by Wood of Edinburgh as a strictly local measure. Hunter of London first recognized that it could be used for systemic effect, and now it was universally believed that localization of the injection was not necessary. There was little certainty about the dose given by the stomach. Quinine had been given hypodermically in malarial fever in one-fifth of the dose given per os, with much better effect. It was possible that some morbific processes were combated by antitoxin produced by substances injected hypodermically. The results achieved by him in fifteen years had convinced him of the superiority of the hypodermic method. Remedies given thus were not changed by the gastrointestinal juices; they could be given to those unable to swallow, and when irritability of the stomach existed. The remedies selected should be soluble and unirritating. One should be prepared for idiosyncrasy. Dr. White exhibited a syringe which could be kept aseptic more easily than those in general use.

Dr. S. L. Dawes of Albany said that quicker and more satisfactory results could be obtained if the solution was injected at the temperature of the body. Also, the drug used should be in perfect solution.

The Importance of a Knowledge of the Natural Course of Disease in Estimating the Effect of Therapeutic Measures.—Dr. Alexander McPhedran of Toronto said the universal tendency was to regard the phenomena following a cause as resulting from that cause. In nothing did this apply more fully than in therapeutics. The wish was too often father to the thought. The masses were still imbued with the ancient belief in the mythical power of drugs, and relatively the profession often showed quite as blind a faith. Dr. McPhedran urged that in estimating the effect of our therapeutic measures we should more carefully consider the natural or uninfluenced course of disease. He called attention to the many variations which might occur in the natural course of all diseases, and how readily these could be erroneously ascribed to the administration of drugs. He emphasized this by references to pernicious anemia and its treatment by arsenious acid; to typhoid fever, diseases of the heart, neuropathic affections, and tuberculosis. It was essential that a careful record of the patient's condition be made, with variations in the course of the illness, in order to enable us to direct intelligently the treatment and estimate accurately its effect. With the advent of the laboratory the tendency had been to rely upon it, to the neglect of the proper study of the patient himself.

Dr. B. E. McKenzie of Toronto emphasized the importance of accurate observation of the patient in order that the physician may know the causes which produce definite results.

Dr. Thomas E. Satterthwaite of New York spoke first of intestinal antisepsis. We must distinguish between drugs that killed and those that inhibited the development of bacteria in the intestine. He believed that Dr. McPhedran would agree with him that certain drugs, like mercurials, did exert an inhibitive action, and to this extent they were intestinal antiseptics. Speaking of tuberculosis, he said that when the specific bacillus was discovered the pathologists believed that the cure of the disease was at hand. The claims made then had not been realized, and now the laity was trying to force the profession into the unnatural position of producing a cure when it could not do so. It was true that medicine was not an exact science; neither was chemistry.

Dr. Oliver T. Osborne of New Haven said he believed we could secure some degree of asepsis of the upper intestinal tract. What disease could we treat without first cleaning out the bowel to see what symptoms were left? Cleanliness was next to asepsis; but we could do more than secure mere cleanliness.

Dr. Francis M. Pottenger of Los Angeles said it was true that we were losing sight of the importance of accurate observation of the patient, and improved laboratory methods had tended to bring about this result. Too often we drew our conclusions wholly from the results of examination of the blood, urine, or stomach contents. No class of patients had suffered more in this way than tuberberculous patients.

Dr. A. D. Blackader of Montreal said that the early physicians were too optimistic, their followers were oversceptical, and now we were upon the middle ground.

The Treatment of Postpartum Puerperal Eclampsia.—Dr. D. Olin Leech of Washington read this paper. Postpartum eclampsia differed from the antepartum form. The mortality in the former is less. Treatment consists in the arrest of convulsions and elimination of the poison. Morphine in one-half grain doses was the best remedy to stop the convulsions. Chloroform might be administered, and chloral per rectum was helpful. He highly commended tincture of veratrum viride in 10 to 20 minim doses until the pulse rate fell to 60. It acted like venesection. The poison should be eliminated through the kidneys, bowels, and skin. The bowels should be emptied by repeated enemata, and this followed by a pint of salt solution. Hypodermoclysis might be employed if necessary. Six ounces of milk should be given every two hours, and plenty of water. The potassium diuretics were not advisable. Activity of the skin should be promoted by the use of hot-air baths, or hot packs. He had used the former to good advantage. Pilocarpine was not a safe drug to use. Magnesium sulphate or croton oil may be used as cathartics. Basham's mixture and strychnine were the best remedies in the after treatment.

Dr. H. C. Wood of Philadelphia spoke of the physiological action of veratrum viride. Recent studies had shown that it was not a vasodilator, but the reduction in blood pressure was due to the slowing of the pulse rate. Jervine was formerly believed to be its dominant alkaloid, but it was now known that it played but a subordinate part. The chief constituent, protoveratrine, was a heart stimulant. Thus veratrum viride was a stimulant rather than a sedative. If it did good in eclampsia, it was by bleeding the patient into his own vessels.

Dr. W. M. Sprigg of Washington said the presence or absence of albumin in the urine was not so important a guide as the quantity of urea eliminated. In many cases of eclampsia little or no albumin was present, but deficient elimination of urea was always a danger signal. He believed that the same toxic conditions were present in eclampsia after as before delivery, and the treatment was practically the same, except that in the postpartum form the uterus has got rid of the placenta, the source of the toxins.

Dr. Robert Reyburn of Washington agreed with Dr. Sprigg as to the importance of urea elimination as a guide. He advocated venesection in certain cases, and cited an instance in which the removal of sixteen ounces of blood from a plethoric woman was followed by almost marvelous results. The convulsions ceased immediately.

Dr. Philip King Brown of San Francisco said that the work of Folin had shown that the urea elimination had nothing to do with eclampsia. In a recent article he showed that no matter how great the retention of urea, eclampsia did not necessarily follow. Experiments on patients who had previously suffered from eclampsia pointed to the same conclusion. The only significance was that something else was retained if urea was. He believed that eclampsia was not due to any one cause. For one thing, it was probably due to toxins from the placenta. The thyroids might also play a part.

Dr. W. A. Campbell of Colorado Springs said that he had seen two cases of eclampsia within six months. In both cases the removal of clots from the uterus was followed by cessation of the convulsions.

Physiological Action, Elimination, and Therapeutic Application of Sodium Cacodylate Used Hypodermically.—Drs. Spencer L. Dawes and Holmes C. Jackson of Albany presented this paper. Sodium cacodylate was introduced by Gautier in 1899. During the next four years it was hailed as a desirable substitute for arsenic. In 1903, however, Fraser gave it its *coup de grace*, and, with one or two exceptions, all English and American textbooks deny the possibility of its having either physiological effects or therapeutic value when given hypodermically. The studies of Dawes and Jackson showed that the drug had a distinct pharmacological action (being decomposed and eliminated as arsenates in the urine, feces, and probably the sweat and breath), and had a toxic effect; the urine of the patients yielded arsenates, and reacted to Marsh's test. It also produced many of the therapeutic effects common to the arsenic compounds. The authors set forth the experiments used to sustain this contention. Cases were also cited illustrating its therapeutic value. These included lichen ruber, psoriasis, eczema, anemia, Hodgkin's disease, cholera, gastralgia, and various neuroses.

Dr. H. Van Rensselaer of Albany commended the paper as being thoroughly scientific. He was inclined to take a middle ground as to the value of the remedy. He thought it wise to try ordinary arsenic first, and if that failed to resort to sodium cacodylate.

A Résumé of the Physiology of the Kidney with a View to Therapeutics.—Dr. V. E. Henderson of Toronto read this paper. He concluded that Brown-Séquard's contention, that the kidney had an internal secretion, had lost rather than gained weight. The cells of the tubules undoubtedly excreted urates, hippurates, pigments, and, possibly, creatinin. They were permeable, and in man might excrete water, chlorides, phosphates, sulphates under stimulus, and, under more abnormal circumstances, dextrose. The urine leaving the tubules, though usually more concentrated than the plasma in salts and urea, under a rapid flow more nearly approximated it in salt composition, and might even become more dilute than the plasma. Filtration did not occur; it was rather a diffusion under pressure. He suggested that the term secretion, as applied to the kidney, be dropped. A theory might be advanced in the future based on the following facts: Between the membrane and the substance passing through it some chemical affinity must exist; for instance, a membrane may exist such that water and salt may pass through it, but not such a crystalloid as sugar; when the affinity is slight, in case of a dilute solution, though none of the dissolved substance may pass through, yet with a higher pressure it may do so; the osmotic pressure does not vary with the substance present, or with the temperature; different membranes may allow different crystalloids to pass through, but not the same crystalloids.

Dr. Oliver T. Osborne of New Haven said we could not determine the pathological condition of the kidney by

chemical means. Patients did not necessarily die of kidney disease when albumin was present in the urine, and yet they might do so when none was present. We should make a more careful examination as to salt excretion in order to determine if possible what portion of the kidney was diseased. As to whether the kidney had an internal secretion, the affirmative position must be disproved. It was possible that the kidney formed an antitoxin. This was indicated by the fact that in nonfunctional disease suppression had existed as long as four days without uremic symptoms, whereas the latter almost invariably occurred in organic disease within twenty-four or thirty-six hours.

Dr. Solomon Solis-Cohen of Philadelphia said that in a case of his early practice suppression existed for seventy-two hours without any other symptom than dilatation of the pupil. Dr. Osler confirmed the diagnosis of contracted kidney. The patient died twenty years later of pulmonary tuberculosis.

The Therapeutics of Bright's Disease Based upon Its Etiology.—Dr. William H. Porter of New York read this paper. He drew the following conclusions: 1. All therapeutics, to be successful, must have for the primary object the removal of the causative factors of disease. 2. Hemorrhagic nephritis as such does not exist. It is an occasional modification of the chronic parenchymatous change. 3. Most renal lesions are non-inflammatory processes. The one exception is the exudative class. Most renal lesions are due to overwork of the glands at a time when nutrition is impaired. 4. Both the overuse and defective supply of the starches, sugars, and fats are important factors in the production, maintenance, and cure of renal lesions. 5. Nervous overstrain is also an important factor. 6. Treatment is to be directed both to prevent and cure. 7. It consists chiefly in the removal of causative factors. 8. It calls for a thorough knowledge of chemicopathology and dietetics. 9. Drugs, while not curative, may indirectly produce wonderful results. 10. These renal lesions, when studied from the histological standard only, are incurable. Considered from the physiological and chemical standpoint, a large per cent. are curable. 11. It is difficult to see how surgery can be made to remove the underlying factors. Hence such means cannot be classed as scientific.

Indications for the Radical Mastoid Operation and Its Results.—Dr. W. Sohier Bryant of New York said the indications might be placed in two categories: 1. Those cases of acute mastoid involvement with extensive infection or destruction of the temporal bone, requiring the complete evacuation of all the cellular structures connected with the middle ear and mastoid. 2. Certain cases of chronic suppuration of the middle ear. The results are three: cessation of suppuration, complete lack of external deformity, and greatly improved hearing. After citing cases in illustration, Dr. Bryant concluded as follows: 1. The radical mastoid operation assures cessation of the purulent otitis. 2. It is an operation for the immediate relief of this condition. 3. It may be the operation of final recourse. 4. The hearing is much improved, since in a number of cases the auditory function of the middle ear can be almost completely restored. In a small number of cases there is no improvement in hearing. 5. The cosmetic results are very satisfactory. 6. Paralysis of the facial nerve is a very rare accident in skilful hands. 7. The results are uniformly satisfactory when the best technique is employed.

Dr. Frederick H. Gerrish of Portland, Me., spoke of sinus thrombosis in connection with disease of the ear. A radical operation was necessary to save the patient's life. He cited the case of a child twelve years old, seen two years ago. The temperature rose to 108°. He performed a radical operation, removing the clots, and the child recovered. The general practitioner should remember the possibility of this complication as a result of extension of infection.

Dr. Solomon Solis-Cohen of Philadelphia said that most of the cases he had seen were in children. The patients are in much danger, and we incurred a great responsibility in advising delay. Hearing was a secondary matter. In a number of instances he had known meningitis, brain abscess, and other serious complications to follow neglected mastoid disease. It was worse than appendicitis, so far as danger was concerned. He always advised immediate consultation with a skilled aurist. He cited a case illustrating the danger of delay.

The Non-Surgical Treatment of Exophthalmic Goiter.—Dr. Solomon Solis-Cohen of Philadelphia read this paper. He had recently heard a paper on the surgical treatment in which a mortality of thirty to fifty per cent. was considered a good result; ten per cent. was considered phenomenal. He would be ashamed of a mortality of ten per cent. from medical treatment. He related three cases in which he used the new serum treatment. In early cases it was not necessary to use the serum. Ordinarily the old treatment was efficient, viz., rest, hygienic measures, and drugs, such as ergot, picrotoxin, strophanthus, and thymus and adrenal gland. He tried adrenal first, and generally it proved efficient; if not, he gave thymus, and, if necessary, both together. These failing, he went back to ergot and picrotoxin.

Dr. Philip King Brown of San Francisco asked why relapses were so apt to occur after the serum treatment. They were not characteristic of the disease. His results from medical treatment were about the same as those of Solis-Cohen. *X*-rays were very efficient in reducing the size of the gland; Mayo used them for this purpose before operating. They also reduced the pulse rate. The results from operation in this country, so far as mortality was concerned, were good. He knew of but one death, and that was caused by cutting through the gland and liberating too much secretion in the system.

The Importance of Early Recognition of Nasal Obstruction with Relation to Disease in Other Regions.—Charles H. Knight of New York presented this paper, which was read by title.

The Treatment of Chronic Valvular Diseases of the Heart.—Dr. Thomas E. Satterthwaite of New York read this paper. He first spoke of treatment by baths and exercises, particularly the Nauheim method, the value of which was now generally recognized. The Oertel method was helpful in mild cases. The Nauheim system was adapted to a much larger class of cases, and even when a complete course of baths and exercises was contraindicated it could generally be used to advantage. The particular muscles to be exercised, the duration of each movement, and the interval between them depended upon the views of the physician. It was well for the physician to be present at the treatments in person. The Nauheim method did good by driving the blood into the capillaries, thus relieving the heart and lowering arterial pressure; the improved condition of the circulation promoted metabolism and nutrition; the skin became softer and the urine increased in quantity and specific gravity, showing that the system was more rapidly getting rid of waste products. The method was applicable to any form of heart weakness or valvular disease, whether due to loss of compensation or not, especially when there were high arterial tension, dilatation, and muscular degeneration, provided the muscular relaxation had not gone too far. After discussing massage and baths, the writer turned to treatment by drugs. Strophanthus was becoming better known and was producing better results. It acted quicker than digitalis and slower than the nitrites. Suprarenal extract was being used more and more; it was probably the most powerful heart stimulant we had, contracting both the heart and arterioles. He had found no ill-effects from as much as one-fiftieth grain of nitroglycerin every five minutes in alarming cases. The dose should be increased cautiously in arteriosclerosis. Camphor acted in

a few minutes and was a perfectly safe stimulant. Convallaria has had its day; it was unreliable. Sparteine had come into favor. Caffeine was a mild but rapid stimulant. Digitalis was the most effective remedy in cardiac weakness.

Dr. F. E. Stewart of East Orange said that the varying effects of adrenalin might in part be ascribed to the difference in strength in the preparations employed. Unquestionably some of the tinctures deteriorated on standing; this subject was being investigated in New York, and it was possible that in the future labels might be dated, indicating the age of the preparation. He had used the baths in uric acid diathesis to good advantage.

Dr. Eli H. Long of Buffalo said that the keynote in treatment was heart nutrition. He highly commended the Schott baths. They rested the heart by lessening peripheral resistance, and thus promoted metabolism and nutrition. Even when there was lack of compensation and the case was hopeless as to cure the baths rested the heart and prolonged life.

Dr. Beaumont Small of Ottawa said that the acute and chronic forms of heart disease required different methods of treatment. The chronic forms were particularly troublesome. He asked Dr. Satterthwaite how soon after acute onset he ordered the baths. He thought it well to allow a period of rest before beginning the exercises. The chief value of the baths was in the temperature, although the saline and other ingredients might have some small value. The patients were best treated at institutions, where there were adequate facilities and trained assistants. The main point was the relief of the peripheral circulation when it was congested. He commended camphor as a stimulant. The tincture was the most trustworthy of the preparations of digitalis.

Dr. Oliver T. Osborne of New Haven agreed that institutions were the best places for these patients. The *régime* and willingness of the patients were strong factors. Digitalis was a heart tonic rather than a stimulant; it was an error to give it in acute cardiac failure, or at frequent intervals. Thus it might do harm in typhoid fever, pneumonia, and other acute conditions. There was much poor digitalis on the market. Strophanthus deteriorated rapidly; it should not be diluted with water. He commended the use of nitroglycerin. Adrenalin was being a little overworked; it was not well in these cases to increase the tone of the arterioles too much. It should be remembered that the heart was only a small part of the circulatory system.

Dr. John Madison Taylor of Philadelphia spoke of the influence which could be exerted upon the circulation through vasomotor control by means of gymnastic exercises. The importance of these mechanical measures was often overlooked by those who dealt with heart affections. There was prevalent a woeful lack of knowledge as to the vasomotor system. He had hoped that Dr. Satterthwaite would say more as to the value of mechanical measures.

Dr. Spencer L. Dawes of Albany added his testimony as to the value of strophanthus and its glucoside. It is almost a heresy to speak against digitalis, but there were cases with adequate compensation when it was not applicable. The preparations of adrenalin changed on exposure, notwithstanding the claims of manufacturers to the contrary. He emphasized the value of chloralamid as a hypnotic in heart affections. It was particularly useful in cardiac asthma.

Dr. Howard Van Rensselaer of Albany expressed the belief that the salts in the waters of the baths had no efficacy. It had been proved that salts in aqueous solution were not absorbed by the skin. Shipwrecked sailors soon became insane if they drank salt water; but if they threw over an arm or leg a cloth wet with sea water their thirst was in a measure assuaged; the water was absorbed, but the salts were not. The same thing had been scientifically proved by experiments with potassium iodide and lithium. The good done by the baths was mainly due to the water pressure and temperature.

Dr. Robert Reyburn of Washington said that his experience with the baths had been unfavorable. He had seen no therapeutic effect of long duration. What benefit there was resulted from friction and temperature.

Dr. Satterthwaite, in closing, agreed with Dr. Osborne that the patients could best be treated at an institution. They could not be properly controlled at home. We must distinguish between acute and chronic heart affections. The Nauheim method was applicable only to the chronic forms. Mild cases of arteriosclerosis were suitable for treatment, but when there was a possibility of apoplexy the treatment was dangerous. The baths were given for ten minutes or less every other day, their number depending on whether the patient remained four or six weeks. The temperature was undoubtedly an important factor. Pulmonary gymnastics formed a valuable auxiliary to treatment.

Restoration of Tissue Tonus in the Abdominal Supports.—Dr. John Madison Taylor of Philadelphia said that between the diaphragm and pelvis the body was anatomically and physiologically weak. There was a tendency to inefficiency of the natural abdominal supports, and this tendency was accentuated by weakness of the abdominal muscles from disuse. This inefficiency was greater in some individuals than in others, and it often reached a point where the abdominal viscera were not properly supported. When the supports were adequate there was a relatively slim waist in man and woman alike. When they were inadequate there was a dropped chest and protruding abdomen, and the lower organs were in a state of hyperemia with insufficient drainage; there was a tendency to ptosis and functional incompetence. Ordinary exercises did not reach this part of the body. The Nauheim treatment did good, but it was not sufficient. After a study of thirty years he had come to place reliance on certain exercises which were directed solely to the strengthening of the abdominal supports. He employed artificial supports, belts, etc., until the natural supports had to some degree recovered their tone. Visceroptosis was a serious condition and one that is not to be remedied by the surgeon. His methods had enabled him to restore displaced viscera with marked local and systemic benefit. Time was necessary for a cure. Surprisingly satisfactory results could be obtained after months, or even years.

A Study of the Modern Drug Business in Its Relation to Medical Practice.—Dr. F. E. Stewart of East Orange emphasized the following points: 1. Medicine and pharmacy cannot be practised as disassociated and independent professions, as they are mutually dependent. 2. The practice of pharmacy should be carried on as a subordinate profession to medicine, and the pharmacists should be subjected to the same professional censorship as physicians by membership in societies that are in affiliation with the medical societies. 3. The proper practice of the pharmacological art requires a free materia medica and common standards, jointly established and maintained by the medical and pharmaceutical professions and the manufacturing houses engaged in the materia medica supply business. 4. The practice of pharmacy and drug therapeutics should be limited to qualified and licensed practitioners, and the field of practice should be protected from invasion by unlicensed practitioners who set up as manufacturers and conduct their business in unfair competition. 5. Inventors of new and useful processes and apparatus for the manufacture of materia medica products, who are duly qualified by education, training, and license, and who are members of regularly constituted professional societies in good standing, should be rewarded for their inventions and discoveries by patent protection.

H. C. Wood of Philadelphia did not believe that the science of pharmacology would be advanced by giving it over into the hands of the manufacturers. Their chemists had introduced a few useful drugs, but they were few. The world would be better off to-day had the coal tar drugs never been discovered.

Dr. L. F. Kebler of Washington said that manufacturing chemists were not always given due credit for their work. He was a chemist in a manufacturing house for ten years, and he knew the sentiment without and within. His work there was as honest and sincere as that which he was now doing for the Government. Something should be done to control the sale of drugs by manufacturers directly to the public. The problem as to the matter of trademarks was working out nicely. He referred to the case of a preparation which was claimed to cure all nervous affections, including locomotor ataxia; the decision was that with such claims the preparation had no standing before the court. Finding this out, some of the manufacturers had asked the authorities how they could make their preparations creditable before the new law. This was significant, as it showed that they could be kept in check and that they were inclined to obey the law.

Comparative Clinical Observations of the Results of Different Iron Preparations.—Dr. Eli H. Long of Buffalo reported the results of fourteen tests which were made upon nine patients suffering from chlorosis, or mild grades of anemia, or combined forms. The results were decidedly in favor of the official preparations, as the following summary showed: Iron peptonates, used in 8 observations, produced no improvement in 4 cases, very slight improvement in 2, evident improvement in 1, and marked improvement in 1. The official forms of iron, used in 6 observations, produced no improvement in 1 case, evident improvement in 1, and marked improvement in 4.

Dr. H. C. Wood of Philadelphia said that the system required one-sixtieth grain of iron each day. With every meal we ate more iron than was necessary for the whole twenty-four hours. The iron we gave as a medicine acted not as a food, but as a stimulant to the blood-making organs. True organic, or food, iron had not this property, and therefore could do no good in chlorosis. The iron must enter the system in inorganic form in order to do good.

Dr. Oliver T. Osborne of New Haven said there are too many preparations of iron. He preferred the simpler ones and used the tincture, reduced iron, and sugar of iron.

Dr. D. Olin Leech of Washington said that he preferred the tincture in small doses. He got better results from it than from the more complex preparations.

Dr. Beaumont Small of Ottawa said that he relied mainly upon the tincture, reduced iron, and Blaud's pill. He believed the tincture to be the most efficient preparation.

Dr. L. F. Kebler of Washington commended the unbiased character of the paper.

Dr. James C. Wilson of Philadelphia said that, speaking as a clinician and not as a laboratory investigator or chemist, he believed we could afford to give up entirely the use of the organic preparations of iron, some of which had value, and he was obliged to give them credit. On the other hand, he valued most highly the official preparations. He had had phenomenal success with the syrup of the iodide in diseases of children. In gonorrheal arthritis it had given him better results than any other method of treatment. He could not treat chlorosis satisfactorily without Blaud's pill.

Officers.—The following officers were elected to serve during the coming year: *President*, Dr. John V. Shoemaker of Philadelphia; *First Vice-President*, Dr. Joseph E. Janvrin of New York; *Second Vice-President*, Dr. Frederick H. Gerrish of Portland, Me.; *Third Vice-President*, Dr. Howard Van Rensselaer of Albany; *Secretary*, Dr. Noble P. Barnes of Washington; *Treasurer*, Dr. John S. McLain of Washington.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Held April 11, 1907.

DR. GODFREY R. PISEK IN THE CHAIR.

A Case of Latent Hereditary Syphilis.—Dr. John Howland presented a boy, twelve years old, who was very sickly as a young child, did not walk until he was three years old, but who never gave any early lesions of hereditary syphilis. Up to December last he was well. He then began to complain of pain in his knees and difficulty in walking, with some stiffness in the joints. No other joints than the knee were affected. Three weeks ago he developed typical interstitial keratitis, which could be due only to syphilis or tuberculosis. The knee joints were very painful, stiff, and contained accumulations of fluid. This child undoubtedly had syphilitic disease of the knee joints; there was not only an involvement of the synovial membranes, but also of the head of the tibia; there was some tenderness over the head of the fibula as well. Dr. Howland thought that it was well to recognize the fact that, in spite of parental evidence to the contrary, many joints in which they failed to make out other evidences of the disease, might possibly be instances of hereditary syphilis, and they should be given the benefit of the doubt and treated as such. This case improved markedly under antisyphilitic treatment.

Dr. Louis Fischer believed that, as a therapeutic measure, the joints should be aspirated, and he cited an instance showing the improvement that followed such a procedure.

Dr. Herman Schwarz thought the *x*-ray would be of value in making the diagnosis; it would show the enlargement of the periosteum. He did not believe in aspirating joints unless one was prepared to go ahead and institute drainage.

Dr. Louis C. Ager, Dr. Charles Herrman, and Dr. Godfrey R. Pisek discussed the case.

Case of Diabetes Insipidus.—Dr. Eli Long presented this boy, eleven years old, whom he had already shown at the section meeting in January (see Medical Record, Vol. 71, page 331). The boy's condition had not changed to any appreciable extent.

A Case of Diabetes Mellitus.—Dr. Eli Long presented this case at the January meeting of the section (see Medical Record, Vol. 71, page 331). No satisfactory progress had been made under his treatment, and the patient passed from his care. He looked her up the other day and found that she had lived just three and a half months after she fell and struck the back of her head. She was up and about on the day of her death, which occurred very suddenly.

Dr. Louis C. Ager said he had a similar case under his care. The child was over four years old, weighed 34¾ pounds, and passed from ten to fourteen pints of urine, with a record of nineteen pints a day. Some years ago he presented symptoms of tuberculous meningitis, and it was possible that his present condition was due to the presence of a slight basilar meningitis. He briefly referred to what had been done with pituitary body extracts in the treatment of these cases.

Dr. Herman Schwarz reported the case of a boy, twelve years old, who passed 11,000 c.c., or about thirteen quarts, of urine daily. A differential point he gave between polydipsia and polyuria was that if some diuretic were given, it would increase the amount of urine in the former condition, but would have no effect in true diabetes insipidus.

Unexplained High Temperature in a Child.—Dr. Louis C. Ager reported the case of a twenty-one-month's-

old child with a negative family history. The patient was the third child, and all the children were healthy. On March 6 the child had a little fever, a moderately distended abdomen, reddened tonsils, and calomel was given in divided doses. On March 9 the abdomen became markedly distended, and the respirations were rapid. The lungs were apparently normal. A tentative diagnosis was made of pneumonia and high saline irrigations were given, which brought away a mass of yellow feces. At 6.15 the rectal temperature was 106°. The chest examination again proved negative. Aconite was given in minim doses. On March 10 the condition was about the same. Nothing was found in the urine. The child made a good recovery. Examination for pneumococci and plasmodium malariæ were negative.

Dr. Charles Herrman said that the reddened throat and irritability of the child pointed to a possible diagnosis of grippe.

Dr. Louis Fischer could see nothing in the way of a diagnosis except an autointoxication occurring in a milk-fed infant. He asked if indican was found in the urine.

Dr. Ager replied no.

Dr. Theron W. Kilmer thought this might be a case of status lymphaticus.

Dr. Ager said that the diagnosis he made was intestinal grip infection.

Dr. Pisek inclined to Dr. Fischer's diagnosis.

Dr. Bartley thought that it might have been a case of colon bacilli infection.

Sarcoma of the Kidney in Children, with a Specimen.—Dr. William Shannon read this paper and presented a specimen. A brief history of the case was as follows: The child was three and a half months of age. The family history was good, there being no history of cancer, tuberculosis, or syphilis. Both parents were living. The patient was well up to three months of age, when there was an enlargement, especially on the left side, noticed. Ten days later the abdomen became enormously distended and the bowels failed to act. When he saw the child he was fairly well nourished, but pale, and had an anxious expression of countenance. Dyspnea was marked. Examination of the heart and lungs proved negative. The abdomen was enormously distended and the cutaneous blood-vessels were much dilated. Upon palpation the abdominal walls were exceedingly dense and hard yielding. A semi-solid mass occupied the left side and extended beyond the median line. It was free from nodules. It was not continuous with the spleen or liver. There was tympany on the left side. A diagram showing the situation and size of the mass was presented. A diagnosis of sarcoma of the left kidney was made and operation advised. Three days later the patient was referred to the hospital and operation was performed. Twelve ounces of fluid escaped with the tappings, and, no doubt, much more was lost in the abdomen. There were adhesions to the peritoneum below the mesocolon. The kidney was pushed forward and to the right. The pedicle, therefore, came from behind instead of at the side. The tumor was removed and with but little bleeding. Three cigarette drains were inserted and the operation was completed as usual. Death ensued eight hours after operation. The tumor weighed three and a half pounds and was eight inches in diameter.

Dr. Louis Fischer said that the age of the child and the size of the tumor were very interesting features. He asked Dr. Shannon if there were any edema of the lower extremities or if any superficial veins were enlarged.

Dr. Shannon replied that some of the superficial veins were enlarged, but there was no edema of the lower extremities, penis, or scrotum. The constipation was caused by the pressure of the growth.

Remarks on the Exudation Diathesis of Czerny.—Dr. A. Hymanson read this paper and said this condition affected children in different degrees and manifested itself in the first weeks of infancy. The parents might be strong, but the children were weak. There might not be any gastrointestinal disturbances whatever, yet the children would not thrive. Some children might go on gaining in weight, but there appeared to be some trouble in metabolism. No other manifestation than a seborrhea of the scalp might be present; this, if irritated, might lead to an eczema. Scrofula was always common among children. Prurigo might be the only symptom evident. The skin might become thickened and covered by scales or crusts. Intertrigo was quite common. In very nervous children there was much itching of the skin, of a severe type, and the scratching might infect the neighboring glands. This explained the presence of enlarged glands in these patients. The various mucous membranes were likely to become involved and inflamed. The trouble must be due to some constitutional dyscrasia. There was constipation, fetor of the breath, and anemia. In the majority of the cases the trouble began in the nose or throat. It had nothing to do with tuberculosis, although tuberculosis might be a sequela. According to Czerny there were three indications to be carefully looked after in the treatment, viz., careful feeding, attention to the condition of the nervous system, and the avoidance of intercurrent affections. Each case must be separately studied. In children in the second year of life a vegetable diet was best. Children should be given plenty of water to drink, but very little milk, no butter, or sweets. The feeding in the first two years of life was very difficult. Great care should be taken that the patient did not get too much fat. Because the patients did not thrive on the mother's milk was not always because the milk was bad, but because of the condition of the gastrointestinal mucous membranes. Great care should be taken not to overfeed. Weaning was beneficial in some cases, especially in curing the skin affections. He cautioned against speaking of the trouble in the patient's presence. Send him to school, and do not teach him at home. Dr. Hymanson then described Czerny's treatment, and he cited a case to show the value resulting from diminishing the feedings.

Dr. Charles Herrman called attention to the publication of Dr. Holt on disturbances occurring in infants due to relatively high fat percentages and who reported five cases. In one case there were attacks of urticaria; in two, obstinate eczema was present; in the other two, the condition was described as an exudative diathesis, a relatively low capacity for fat digestion. Each child had a limit in the digestion of fats beyond which it was not safe to go. There seemed to be some constitutional derangement which was associated with a low capacity for fat digestion. Since the publication of Czerny's article two years ago, Dr. Herrman had been studying these cases, and those that most interested him were cases of facial eczema. They were quite typical and could be readily diagnosed. It had been mentioned in the literature that cases of eczema occurring in infants were improved when they became attacked by some acute infectious disease, such as pneumonia. The cases improved rapidly if the number of feedings and the quantity of food given were lessened. He gave sodium benzoate, five to ten grains, three times a day, according to the age of the baby.

Dr. Louis Fischer presented a photograph of a typical geographical tongue. The patient had an epithelial desquamation of the tongue, with marked fetor of the breath, which was due to the cheesy fermentation occurring in the lacunæ of the tonsils. Dr. Fischer said he wished to emphasize one point, that it was a bad plan to believe, because a baby was fat and gained in weight, that it was a perfectly healthy baby and metabolism thoroughly established. Too much weight was placed on the value of the scales. The dietary and hygienic part of the treatment in these cases had not been sufficiently emphasized. The mass of the people should be taught to give up wrong conditions, and made to know more regarding their diet and hygiene.

Dr. T. S. Southworth said that there was too much of an omnibus classification and too many symptoms described under exudative diathesis.

Variation in Fat-Content of Cow's Milk. A Study of the Fat in Certified Milk Delivered in Brooklyn During 1906.—Dr. E. H. Bartley read this paper. He said that home modification of cow's milk for the preparation of infant's food was the most popular method of the present day. The problem of securing pure, clean milk had practically been solved by the Milk Commission. It was now time to secure more uniformity in the composition of the milk than they had heretofore obtained. Wide variation from day to day were undesirable and sometimes disastrous. Having observed in infants fed upon modified milk disturbances on certain days, which were not seen on other days, it occurred to him that perhaps there were certain variations in the fat on certain days which might account for this. He began to make a study of the variations in the fat of the milk served from one dairy, and soon found greater variations than he had supposed to exist, and he believed the results of this study might be interesting. He had had tabulated the results obtained in the weekly estimations of the fat in the certified milk sold in Brooklyn as furnished by the chemist, Dr. Moak, during the year 1906. This milk was furnished by eight farms and was sold by eight dealers. The results were given by months, which was the average of from four to six examinations each month. The greatest variation in any month was 2 per cent., while 1 per cent. was not unusual. The average of the whole milks which gave between 4 per cent. and 4.4 per cent. of fat gave 16.3 per cent. of fat in the top 8 ounces. Those milks which contained from 5 per cent. to 5.2 per cent. of fat gave a top milk containing an average of 19.5 per cent. of fat. It was shown that the fat in ten bottles varied from 4 per cent. to 5.2 per cent., and the fat in the top 8 ounces varied from 16 per cent. to 20 per cent., or a variation of 25 per cent. Incidentally it was observed that the 4 per cent. milk gave about 16 per cent. fat in the top 8 ounces, which was 2 per cent. higher than he had hitherto found it to be, and higher than it was generally stated to be. This meant that they had been feeding infants with a larger percentage of fat than they had intended, or thought they were feeding. The effect of this was that when they thought they were feeding 2.8 per cent. of fat, they were actually giving from 3.3 per cent. to 4.2 per cent of fat. When they thought they were giving 3.5 per cent. they were actually giving from 4.1 per cent. to 5.2 per cent. The difference between 3.5 per cent. and 5 per cent. of fat in baby's food was a matter of no small importance and probably accounted for some of the troubles on certain days. The cause of the variations might be in the methods used in bottling, or it might be in the breeds of the cows in the stables. By proper mixing of these milks an average milk of a medium amount of fat could be obtained. The results presented were not intended to throw any discredit upon the process of home modification of cow's milk, but to suggest that some efforts be made to correct a manifest defect in the handling of the milk. There should be more care exercised in mixing the whole product of the milking before bottling. The only way to obviate sudden and great variations was to standardize the milk. This should be done with as little manipulation as possible, and might necessitate a return to the practice of bottling at the creamery instead of at the farm. In either case it would be necessary to have frequent estimations of the fat from each dairy, and pointing out to the dairymen how to mix the milk from the various cows to secure about the right composition. This would be a more satisfactory method, he believed, than that sometimes adopted of separating and recombining the skim milk and cream. For infant feeding Dr. Bartley preferred 4 per cent. rather than a richer milk. It seemed to him feasible to have a dairy produce a milk that would yield between 4 per cent. and 4.5 per cent. fat without unnecessary manipulation or trouble by mixing the milk of selected cows.

Dr. Henry Dwight Chapin said that in the assays made at the hospital, where they used certified milk, no such wide variations had been noted as Dr. Bartley's figures indicated. The assays for two or three years presented a variation of about one-half of one per cent. An important thing was to see that the ratio between the fats and proteids was all right. In the young baby the ratio should be three to four; in older children two to three. Infant feeding would be more successful if this ratio was observed. The milk in New York was close on to 4 per cent., but Dr. Chapin preferred a 3 per cent. milk. High fats did not mean high proteids, although the ratio was about the same up to 4 per cent. A very fat milk did not run such a high proteid content. Dr. Chapin preferred to consider three layers of the bottle, viz., the top 9 ounces, with the ratio 3-1; the top 16 ounces, with the ratio 2-1; the top 20 ounces, with the ratio 1½-1. He believed it would be better to bottle the milk at the creamery than at the farm because of better facilities. He was not a believer in separating the milk and then recombining it. Whenever one interfered with the natural emulsion one was likely to get into trouble.

Dr. Roland G. Freeman said that for household purposes most people preferred a high percentage of fat; but for infant feeding he preferred a 4 per cent. fat. Top milks he believed to be a very uncertain method of infant feeding.

Dr. T. S. Southworth said that the estimates presented by Dr. Bartley were made from a special milk, milks that were properly bottled under special regulations. Consequently the variations found might not appear in the New York milk, where the milk was brought from larger and more numerous dairies. The less normal child tolerated fats badly, and therefore it would be a great advantage if they used a milk with a lower fat content. The systematic feeding of babies from the top milks of two bottles, he believed admitted a great many possibilities of trouble. There were cases in which harm was done because of the shipment of milks from the individual's own farms, where fancy cattle were kept. In analyses that he had had made of such milk he had found as high as 7.5 per cent. of fat in two, and 7 per cent. in another. High fat percentages in milk was another cause of eczema.

Dr. Moak said that he could not say what the variations in mother's milk were from day to day covering a period of ten days, but that cow's milk varied greatly.

Dr. E. H. Bartley closed the discussion.

Books Received

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Yearbook of the United States Department of Agriculture, 1906. 8vo, 720 pages, illustrated, muslin. Government Printing Office, Washington.

L'Amnesie. Par les Drs. G. Dromard et J. Leassort. 12mo, 258 pages, muslin. Felix Alcan, Editeur, Paris.

Nouveau Traité de Chirurgie: Les Grands Processus Morbides; Traumatismes, Infections, Troubles Vasculaires et Trophiques, Cicatrices. 8vo, 584 pages, illustrated, paper. J. B. Baillière & Fils, Paris.

On Treatment. By Harry Campbell, M.D., B.S., F.R.C.P. 12mo, 421 pages, illustrated, muslin. William Wood & Company.

A Dictionary of Medical Diagnosis. By Henry Lawrence McKisack, M.D., M.R.C.P. Lond. 8vo, 583 pages, illustrated, muslin. William Wood & Company.

The Essential Similarity of Innocent and Malignant Tumors. By Charles W. Cathcart, M.A., M.B., etc. 4to, 79 pages, illustrated, muslin. William Wood & Company.

Surgical Suggestions.

Dermato-Veneral Don'ts.—Don't think that syphilitic eruptions never itch. They may in hairy parts, or accidental causes may produce pruritis. Don't suppose that itching about the mons veneris is always symptomatic of pediculi pubis. Don't depend upon internal treatment to cure all local syphilitic lesions. Don't promise a cure for psoriasis; it is certain to relapse at some time. Don't confine all your treatment of skin diseases to local measures exclusively. Don't use irritating remedies on acute skin diseases, or vice versa. Don't discourage syphilities; but don't give them too much hope; let them understand the gravity of the disease. Don't deny that you give mercury in syphilis; make your patients know that it is an absolute necessity in the proper treatment of their disease. Don't mistake mosquito bites for measles; look for the small scarlet point in the center. Don't call an eruption of wheals an urticaria when it is bed-bug bites; examine the bed, if necessary. Don't take a bee's or a hornet's sting for a boil; pull out the sting and be persuaded. Don't call every macular erythema a syphilitic roseola. Don't frighten your syphilitic patients or they will desert you.—*American Journal of Dermatology.*

Burns.—After thorough cleansing and disinfection of the injured area has been carried out, the choice of dressings is a large one. That which is easiest obtained and most generally applicable in the early stages is a hot boracic fomentation, which may be changed every four or six hours. Indeed, in many cases these fomentations are also the best, if there is any chance that the first cleaning is not as thorough as might be desired. On the other hand, if the first cleaning has been thorough and there is no particular factor predisposing to sepsis, a dry dressing is better, for it need not be changed so often and, therefore, the patient need not be so much disturbed. The eucalyptus ointment (B.P.) spread on lint is, perhaps, the best application; it is, however, rather expensive and some people object to the smell. A dressing composed of boric acid gr. xx. mixed in ʒj. of soft paraffin is good, but is hardly antiseptic enough, even for a well-cleaned burn. Picric acid solution (5 per cent.) may be used, but it has no especial advantage, and its staining properties make it a very difficult dressing to put on without doing damage to sheets and clothes. A very good dressing is a powder consisting of salicylic acid 1 part and boracic acid 5 parts, powdered on and covered by a piece of dry lint; but it is apt to stick and makes the redressing very painful; also it smarts for some time after it is applied.—*The Hospital.*

Tuberculous Peritonitis.—The treatment of tuberculous peritonitis by injections and notably by tincture of iodine has sometimes given good results, but in certain cases these injections have been known to provoke grave symptoms of collapse. To obviate these accidents Prof. Capperoni substituted for the tincture of iodine iodoform suspended in glycerine in the proportion of five per cent. The quantity injected varied with the age of the patient; in adults he injected the full amount (5—100), while in children the dose was thirty grains in a drachm of glycerin. The injection was made in all cases before tapping the ascites, so as to avoid a too rapid absorption of the substance. After the injection and for a few hours the temperature rose to 102°, but gradually diminished during the three or four days following and caused no trouble. The patients were kept for a week on milk diet to obviate any temporary albuminuria.—*Medical Press.*

Skin Grafting.—A mixture of epithelial scales and blood from the lower layer of the derm is used by Noesske (*Deutsche Zeitschrift für Chirurgie*, Vol. lxxxiii, No. 3, 1906) as a substitute for Thiersch grafts. The graft material is prepared as follows: The area is shaved and cleansed, and the skin, held stretched by the left hand, is scraped with a razor held at right angles to the surface. The dry, horny layer is discarded, and the scraping then continued in the lower layer of epidermis until punctiform hemorrhages occur. These deep scrapings are spread directly on the ulcer in a thin, even layer. As compared to the Thiersch method, it has the very great advantage that only a small area and a slight operation is required to obtain the material, and therefore autoplasty is always possible; and secondly, there is no trouble in covering irregular or concave surfaces such as those following mastoid and other bone operations. It heals, however, less rapidly, than the Thiersch grafts, and gives a less elastic skin. It is especially adapted to very large and irregular surfaces.—*Therapeutic Gazette.*

Medical Items.

Glycogen Contained in the Maternal Liver in Pregnancy and the Puerperium in the Placenta, and in the Liver of the Fetus.—E. Opocher, after experiments on the glycogen contents of the fetal and maternal liver during pregnancy, gives us his conclusions. In pregnancy there is an increased amount of glycogen in the liver, but its accumulation is not regular and progressive, and is greater in the last months of pregnancy than earlier. This increase depends on changes in metabolism, and its variation depends probably on the amount of glycogen needed by the fetus in its development, which is greater during the earlier months. The increase in glycogen takes place to provide for material needed in lactation, for the exigencies of labor, and to aid the system in eliminating the poisons that are thrown into the circulation during pregnancy. The glycogen in the placenta maintains its equilibrium throughout. In the first days of the puerperium the reserve of glycogen, which is no longer needed, rapidly disappears.—*Annali di Ostetricia e Ginecologia.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended August 23, 1907:

SMALL POX—UNITED STATES.

		CASES.	DEATHS.
California, San Francisco	Aug. 11–17	4	..
Kansas, Kansas City	Aug. 11–17	1	..
Massachusetts, South Groveland	July 1–Aug. 17	20	..
Michigan, Detroit	Aug. 11–17	1	..
Nebraska, Lincoln	Apr. 1–July 31	95	..
New York, Buffalo	Aug. 11–17	1	..
North Carolina, General	June 1–30	62	..
Greensboro	Aug. 11–17	1	..
Ohio, Columbus	June 1–30	3	..
South Dakota, Sioux Falls	Aug. 11–17	1	..
Texas, San Antonio	Aug. 11–17	1	..
Vermont, Waterbin	Apr. 26–Aug. 20	43	..
Washington, Seattle	July 1–31	17	..
Spokane	Aug. 11–17	1	..
Tacoma	Aug. 11–17	1	..
Austria, Trieste	Aug. 3–9	1	..
Vienna	July 23–Aug. 3	2	..
Brazil, Bahia	July 14–27	11	..
Rio de Janeiro	July 15–28	4	2
Santos	June 1–30	1	1
Canada, Halifax	Aug. 11–17	1	..
China, Chefoo	July 14–27	2	..
	Case July 20 From S. S. *Pennsylvania.*		
Shanghai	July 14–27	2	60
	Cases, foreigners.	Deaths,	Natives
Germany, General	July 21–27	2	..
India, Calcutta	July 7–13	..	2
Italy, General	Aug. 2–8	7	..
Genoa	June 1–30	6	..
Naples	Aug. 10	1	1
Madeira, Funchal	June 29–Aug. 11	20	8
Manchuria, Dalny	July 7–14	4	..
Mexico, Aguas Calientes	Aug. 6–17	10	..
Portugal, Lisbon	July 28–Aug. 3	6	..
Russia, Riga	July 28–Aug. 3	2	..
St. Petersburg	July 21–27	1	..
Warsaw	July 1–27	..	5
Spain, Almeira	July 1–31	..	8
Barcelona	Aug. 1–10	..	4
Carlir	July 1–31	..	5
Seville	July 1–31	..	4
Valencia	July 21–27	..	4
Straits Settlements: Penang	July 7–13	1	1
Turkey in Europe, Constantinople	July 28–Aug 4	2	..
Turkey in Asia, Damascus	July 6–13	..	Present
Bagdad	July 7–13	..	"
Bassorah	July 14 20	..	"
West Indies: Barbadoes—Bridgetown	Aug 2–10	1	..

CHOLERA.

China, Amoy—Kulangsu—Native City	June 30 July 6	..	8
		Daily estimated.	
Tientsin	Aug 15	..	Epidemic
India, Bombay	July 17–23	..	3
Calcutta	July 7–13	..	26
Rangoon	July 7–13	..	1
Japan, Moji	Aug. 20.	26	..
Philippine Islands, Manila	July 14–20	2	2
Russia, Samara, Government District	July 16–Aug 4	35	10

YELLOW FEVER.

Brazil, Manaos	July 21–27	..	4
Cuba, Alacranes, Matanzas Province	Aug 26.	1	..
West Indies, Trinidad—Port of Spain	Aug 4 10	1	1
	On S. S. *Atrato* from Trinidad		

PLAGUE—UNITED STATES.

California, San Francisco	Aug 28–29	3	1

PLAGUE—FOREIGN.

Brazil: Rio de Janeiro	July 14–28	3	2
China, Amoy—Kulangsu, Native City	June 30–July 6	..	10
		Daily estimated.	
Hawaii, Honolulu	July 22 24	3	2
Previously reported, with case, which proved not to be plague.			
India, General	July 6–13	6,812	4,402
Bombay	July 17 23	..	3
Calcutta	July 7 13	..	18
Japan, Formosa	June 30 July 27	171	158

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Original Articles.

AN ACCOUNT OF THE DESTRUCTION OF MOSQUITOS IN THE "ORIGINAL INFECTED DISTRICT" IN THE NEW ORLEANS EPIDEMIC OF 1905;

TOGETHER WITH YELLOW FEVER STATISTICS OF THAT DISTRICT.

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THE yellow fever situation in the city of New Orleans in the last days of July, 1905, was discouraging. The number of cases was increasing daily and the number of new foci, or blocks, in which cases had occurred was also increasing. The situation resembled that of a conflagration in which the flames had overleaped their bounds in spite of the utmost endeavors of the firemen, and brands and sparks falling afar were kindling new flames.

The largest non-immune population in the history of the world was exposed to this disease rapidly spreading, and with an old-time malignancy not manifested on its last visit to New Orleans. According to the history of past epidemics in Southern cities the disease had burnt its way through the non-immune population until frost, and with great loss of life. The epidemic had begun this time in early summer, as had the worst previous ones, with a mortality of over thirty per cent. and with a small section of the city already being scourged as the city at large had been in 1854 and 1878.

It was true that the carrier of the disease, the *Stegomyia callopus* mosquito, was now known, and that the spread of yellow fever had already been fought and conquered along modern lines. It had been eradicated from Havana by Surgeon Gorgas of the Army after a good start had been made in the spring of 1902 while the disease was quiescent. Still it had managed to linger along until the latter part of September, when the last official case was reported, in spite of the fact that Havana was a city only fifteen per cent. of the population of which was estimated by Major Gorgas as non-immune. Dr. Gorgas, moreover, had the advantage of military power in carrying out his sanitary measures. Again, the late P. A. Surgeon Richardson of the Public Health and Marine-Hospital Service had in the early summer of 1904 stamped out the recrudescence of yellow fever in Laredo, Tex. Against these two successes where fortune favored the sanitarian there could be counted failures.

The situation in New Orleans was somewhat similar to that of Laredo in 1903, as the disease was widely prevalent among an alien people, this time the Italians, clustered together in their own quarter near the French market. However, their leaders were active and outspoken and united with the general public of the great Southern city in sympathizing and cooperating with the yellow fever fighters. But it soon became evident that the epidemic had gained a firm foothold and was rapidly getting beyond all control, for though the disease was kept in check in the original infected territory new foci were appearing all over the city. When this was clearly perceived the city did not hesitate to call on President Roosevelt for the aid of the Public Health and Marine Hospital Service. This was promptly furnished by Surgeon-General Wyman of this Service, who detailed over twenty commissioned officers for duty in the city and appointed double that number of local physicians to engage in the fight under the command of Surgeon Joseph H. White of the Service. The result of that summer's fight under the personal direction of Surgeon White is now history. None of the doctors engaged in the fight in the city lost their lives from yellow fever, though several were stricken with it. The physicians outside the city who fought the disease were not so successful, for Dr. Shanley at Baratraria, La., Dr. Anderson at Tallulah, La., and Dr. Rausch at Hamburg, Miss., paid forfeit with their lives, and thus added their names to the long list of medical men who have died as soldiers on the fighting line against yellow fever. However, shortly after the epidemic was over, P. A. Surgeon Richardson, the energetic and efficient executive officer of Surgeon White during the epidemic, succumbed to typhoid fever in New Orleans. It was my honor and pleasure to be more closely associated with him during that long summer's fight than any one else, and I knew of the strain on him as one trying day succeeded another, during which with his happy optimism he would divide cares with, and infuse hope and energy into, the different ward commanders. At night he would take off the day's mask and reveal himself as the tired and exhausted man, worn and harassed by the worries of the day. His vitality and reserve were used up, so that when typhoid fever attacked him he made little resistance. His death occurred, too, at a time when fresh honors were in store for him. He had been invited by the Republic of Honduras to undertake the task of ridding it of yellow fever and was on his way to that country when stricken. He died in his native city of New Orleans as truly a martyr for it as if he had died of yellow fever itself.

It was at the request of Dr. Richardson, then acting as the aid of Dr. Kohnke, the city health officer, that I was detailed for duty there on July 27. I arrived in the city on the night of July 30, and the following morning I was placed in charge of a fumigation headquarters, established July 30, and located within a stone's throw of the French market. The territory surrounded by Esplanade avenue on the north, N. Rampart street on the west, St. Ann street on the south, and the river on the east, and comprising about forty blocks, had been officially designated as the "Infected District," and it was in this district that I was directed to take charge

of the fumigation. This district had already been organized, covered by lay and medical inspectors, and the emergency yellow fever hospital was located in the same block as my own headquarters in the heart of the infected portion.

A few minutes after my arrival I walked into a scene that afterwards became familiar. A fumigating gang was standing in the courtyard of an Italian tenement house. A chorus of frantic wailing women were expostulating with the foreman of the gang, crying children and sullen men were standing near. A glance through half open doors showed sick on their beds in several rooms. The Italians could not understand the intrusion. Some thought that the sulphur fumes were a poison intended for them by the Americans, who were also poisoning their water with kerosene. Even the more enlightened ones wanted fumigation deferred until all the sick had recovered. To have waited until the disease had burned itself out in a large tenement house was impracticable. So finding that none were critically ill at the time orders were given to fumigate all parts of the house not occupied by the sick.

I quickly learned that the proper handling of a large tenement house took several hours' time for a gang of six men. Moreover, there were many blocks of such buildings, two, three, and even four stories high, with from twenty to forty-five rooms each, and the rear of the buildings surrounding or partially surrounding courtyards. The sides of the houses forming the court were lined with galleries, and the courts themselves contained a rookery of small dwellings, sheds, and outhouses, often vine-grown. All of these buildings, sheds, galleries, trees, vines, could be considered as possible, if not indeed probable, hiding places of the *Stegomyia*. Although it was perfectly understood that this mosquito was one of short flight, yet in the neighborhood of the French market, where the historic old Spanish and French houses still remained, it was a shorter distance from the rear of one house to that of another, than from some rooms of the same house to other rooms; while separate in front, the rears of the houses were so joined together by rear porches that several were practically under one roof.

It was quickly seen that the force to work with was inadequate, and as fast as they could be trained new fumigation gangs of six men each were broken in until sixteen were at work. And as soon as the force was sufficient, extra gangs were started at block work. One gang starting at each corner of a block, the four gangs completed it in two days. In this way the unknown foci were reached as well as the known. In about two weeks three-fourths of the district had been covered; the remaining portion, which was only slightly infected and more thinly populated, being spared. The local part of the epidemic being then under control, the force of men was rapidly reduced, trained fumigation gangs being transferred to other wards of the city.

Early in the struggle it was noticed that all the *Stegomyia* mosquitos were not, and could not be, killed by one fumigation of the rooms of the house. Some of the insects would naturally be out of the house in search of water. The underside of galleries, outside stairs, the vines, trees, piles of lumber and rubbish, the cisterns, and water barrels were all harboring places for the infected or non-infected mosquitos. The problem of the destruction of these mosquitos was met in two ways: One was the repeated fumigation of a house, especially if badly infected, and the other was the destruction of mosquitos by the steam blast. By this method a current of live steam under high pressure was sprayed through a nozzle on vines, rubbish piles, and all out-of-door places that could harbor a mosquito. It was under perfect control, and the undersurface of a dark gallery could be sprayed down systematically as if the stream was water instead of steam. Not all mosquitos routed out by this steam blast were killed, but many were, and this helped to lessen the problem.

It was my good fortune, as the officer in charge of the first large ward headquarters, to have the first chance at the unemployed of the city. Among them I secured about all of the theatrical billposters who were then out of employment. With these men trained in the use of paste and brush, better and better closing-up work was done. Archways, even as large as ten feet across and as high, were rapidly covered by successive sheets of 36-inch roll paper and reinforced by diagonal strips of narrow paper. When well put up over archways, or doorways when the door was lacking, these paper doors were as tight as a drum head and as impervious to smoke as the wall itself. Often the rear of a house was taken up by these archways. In one house, built in the form of a quadrangle about a court, we found the court itself lined with these arches. This house, 714-724 Hospital street, which, during ante-bellum days, had been a slave quarter, was now occupied by Italians in front and the rear part was used as a stable. A veritable explosion of secondary cases had occurred in this house, but after turning over fifty men into this courtyard all of the arches were papered across and every room in the place, excepting those of the sick, were sulphured at one time. No more cases occurred in this house. A large house on Chartres street was similarly treated, and open spaces fully twelve by thirty feet were papered across. A similarly satisfactory result followed in this house. Leaky sheds, outhouses, and even semi-closed spaces, such as passageways, were made into closed spaces by this papering process. Large sheets of white pepperill cloth or sheeting were also used to advantage when they could be nailed on wood. This substance is unlike paper in being leaky, yet it held a sufficient amount of the sulphur fumes to destroy mosquitos.

The agents used for the destruction of live mosquitos were sulphur, pyrethrum, and tobacco. Sulphur was burned in pots, and the 10 and 12-inch skillets were found to be most satisfactory. Their large surface area allowed the maximum amount of sulphur to be burned in the shortest amount of time. Pyrethrum was found to be uncertain in action and for that reason unsatisfactory, and under the circumstances dangerous in giving a false sense of security. Tobacco proved to be ineffectual and unsatisfactory. The mixture of camphor and carbolic acid, known as culicide, did not come into use until after this fumigation headquarters had been closed.

A supervisory control was exercised over the lay inspectors and oilers working in the district. No screening was directed from the headquarters of the "Infected District," the amount of work in the way of fumigating alone making it at the time it was in operation the largest and busiest headquarters. After a sick room was screened the place was kept under observation to see that the screening was not disturbed. After some screen doors were found propped open, and the screen wire of the window cut and slashed, warning cards printed in English and Italian were posted on doors stating that this offense was sufficient cause for the forcible removal of

the patient from his house to the yellow fever hospital. After two forcible removals of patients for this offense, no further trouble was experienced. Wherever possible patients were persuaded to leave their homes and go to the Yellow Fever Hospital. When they were without family and friends to care for them they were forcibly removed. In one case a patient was willing to go to the hospital, but his family, particularly a brother, strenuously objected. All of his objections ceased when this solicitous brother was called to one side and promised a place on a fumigating gang. He instantly became such an earnest advocate of the removal of the patient to the hospital that his counsel prevailed. This proved to be to the great good of the patient, who had a most severe attack and only recovered after most careful nursing, which he could not have had at home. Early in the work it was found advisable to employ a sprinkling of Italians among the workers, and one was placed in each gang as an acting interpreter. As these men could not help being impressed with the good accomplished, they became missionaries among their own people. And to the good influence of these workers I attribute much of the acquiescence of their people in the sanitary measures employed.

The character of the fumigation of a house depended on whether the case was removed to a hospital or not. In the former case the infected house and the ones on either side, also the one in rear, if closely abutting, were simultaneously fumigated. This one fumigation sufficed, unless other cases developed. On the contrary, when the case was treated at home, as much of the house as possible was fumigated at the time without unduly disturbing the sick. The houses on each side, when close, were also thoroughly fumigated. On the recovery or death of the patient the infected and its neighboring houses were again fumigated. Towards the last, when the origin of a case could be traced to infection outside of the district, the neighboring houses were spared. Whenever a new case occurred, however, in a house previously fumigated, it was fumigated again and again until cases stopped occurring. In one such house, 1217 Royal street, case after case occurred in spite of numerous fumigations. A search of the neighborhood showed that in the back yard of one of the adjoining houses were a large number of bottles hidden in some high grass. Water in these bottles contained numerous *Stegomyia larvæ*, and the cool grass was apparently the daytime refuge of the infected mosquitos. After this discovery and the remedy, one more fumigation of the house sufficed. Whenever cases kept occurring in a house a prolonged search by myself usually revealed a mosquito-breeding place in an unusual locality that had escaped the lay inspectors.

At the outset of our campaign the measures used were, I must now confess, strenuous; possibly, in the light of subsequent experience, more forcible than necessary, but then with sick and dying in every direction, and the hearse the vehicle most conspicuous on the streets, it was no time to go by usual standards, and the comfort and personal and property rights of the individual suffered. The district in August was partially deserted, and many houses or parts of houses were found locked. Usually the occupants had really gone away, sometimes they merely ran away when they saw the fumigation carts approaching. Threats to break open doors often caused keys to be produced, and when they were not the doors were ruthlessly forced. After fumigation the doors were again nailed up and printed notice affixed to them that forcible entrance had been made by the sanitary authorities. As a matter of course vigorous complaints followed this procedure. After the epidemic was gotten under control, the expedient of merely sealing up rooms was tried. The parlors of the better class of residences would contain many articles of furniture and furnishings that could be injured by sulphur gas. Such a room was first searched for objects, such as flower vases, that might contain water, and then the room was prepared as for a fumigation by sealing across the fireplace, if there was such, and across the cracks of windows and doors from the inside when these were not tightly fitting. The door of egress was then closed and sealed across from the outside. A printed notice was then placed across the door stating that the room would not require further treatment if the seal was unbroken. On the termination of the case, and after a complete fumigation of the rest of the house, this room could then be opened in confidence that no mosquitos had survived, for these insects cannot exist without water for over three or four days. As far as I know this method of killing mosquitos had never been used before with practical results, and I regard it as an important adjunct method of killing the insects. By chinking up cracks or doors and windows with cotton instead of pasting over them, this method is absolutely without injury to a room or its contents, a claim that cannot be made for any other method of killing mosquitos.

Another expedient tried in the early part of the campaign at the request of City Health Officer Dr. Kohnke, who was solicited by some experimenters in Texas to give it a trial, was the placing of mosquitos traps in sick rooms. These consisted of new molasses kegs about one-quarter filled with water and with a hinged trap door. They were placed in a sick room in the afternoon with the request that the trap door, 6 inches by 6 inches, be left open during the night and the next morning be closed, the idea being that the mosquito would go into the keg for water and finding it a suitable resting place would decide to spend her spare time in it. In the morning a messenger sealed the tops securely and brought the kegs to my office. No mosquitos were ever found in them.

The district being compact, ordinary push carts were used for the transportation of supplies by the fumigating gangs. They were supplied on leaving headquarters in the morning with sulphur, alcohol, paste, 2-inch, 6-inch, and 36-inch roll paper, pots, large paper shears, hammer, tacks, and nails. The foreman of a gang, when given an assignment of houses, would proceed with his gang to the first house, explaining his mission to the householder and after gaining his acquiescence would go ahead with the fumigation. If his eloquence or that of the interpreter failed, then I was sent for, and if my advice did not prevail, one or both of the two policemen detailed at my headquarters were summoned. The sight of the bluecoat was usually all that was necessary. Once a desperate negro assaulted a policeman with an axe; the policeman, who happened to be without his revolver, courageously stood his ground and fought with his club, finally knocking out his assailant by a lucky blow.

After the men had removed damageable articles from a house and had pasted up the cracks to make everything tight, a rough estimate was made by the foreman of the cubic capacity of the space to be fumigated, and two pounds of sulphur to the thousand cubic feet was allowed. In a few instances

I was able to move patients in their first day of sickness to a part of the house that had already been fumigated while their own sick room was being fumigated. A stretcher was bought for this purpose, but was used only a few times. In few cases was entrance made to the sick room of the patient until they had either died or were able to be on their feet.

An interesting way of noting the number of mosquitos in a house was to spread a sheet over the floor in front of a window of a room which was being fumigated. The other windows of the room were darkened and when the mosquitos were routed from their hiding places by the constantly increasing sulphur gas in the room they would fly towards the light, there to hover about until they fell asphyxiated on the sheet. Afterwards it was enough to convince the most skeptical doubter of the mosquito doctrine to see in a room where a patient had just died of the fever a dozen or two female *Stegomyias* dead on the sheet with their abdomens in various stages of distention from the blood of the late patient, and to know that products of the absorption of this blood would have been duly injected into some one else's system had not the mosquitos been arrested in their career.

However, daytime entrance into even the most infected houses during the epidemic did not prove particularly dangerous. Of my force of over 100 men, nearly all non-immunes, only two, besides myself, suffered from attacks of yellow fever. In the case of my men I could not eliminate the possibility of their being infected at their own homes, for they lived in infected neighborhoods. As for my own infection I attribute it to having stayed in a badly infected house until after dark, just about four days before the onset of the disease, although I do not know when I was bitten. The bald statement that over 100 non-immunes spent about eight hours daily for weeks working in the worst infected houses of the city, with a morbidity of three per cent., and none of them positively attributable to daytime infection, is a good illustration of the almost purely nocturnal activity of the female *Stegomyia* of sufficient age to transmit yellow fever. I believe the experience of the other ward commanders regarding their men was about the same as mine. The former practice of towns having daylight communication with safety with infected cities has now a sufficient explanation when the cause of the transmission of yellow fever is known.

The historic old French market, covering several blocks, was given an "open" fumigation, the idea of P. A. Surgeon Richardson. A Sunday afternoon was selected, when the merchants had disposed of their stocks. All awnings on the side were let down and hundreds of pots were placed on the floors. In addition piles of crude sulphur were placed every few feet on the windward side. In this way we were able to use up a carload of Louisiana crude sulphur that had been donated to the Service, but which we had hitherto been unable to use, as it would not burn in pots. Sufficient concentration of gas was obtained to kill flies; so I infer that mosquitos, if there were any, were also killed.

There is an end to most mundane things and the tons of sulphur burned had its effect. The number of new cases in the district, which reached its maximum August 12, declined steadily until September 23, when no case was reported for that day, and few other cases occurred subsequently. The official estimate by Dr. Kohnke, the City Health Officer of New Orleans, was 100 cases and 20 deaths prior to the official announcement on July 22. All of these cases and deaths occurred in the "Infected District." After my own investigations I have concluded that the estimate of Dr. Kohnke is too high as regards the number of cases and too low as regards the number of deaths. My own estimate, after a fairly thorough investigation, is 60 cases and 30 deaths, all but three of the deaths occurring in the "Infected District," and these three being made up by three more occurring between the dates of July 21 and July 24, and not getting on the official report as yellow fever. The first traceable cases occurred at 1115 Gallatin street, where deaths occurred July 1, 2, and 3. Another patient was critically ill at the same time, but recovered after having black vomit. These four cases were doubtless secondary cases, the primary case occurring at least as far back as the middle of June. This house in question on Gallatin street was a barroom, and if no case of sickness was treated in the house in the middle of June, as was asserted, it is not improbable that a walking case had spent several hours at the place and infected the mosquitos. The next fatal cases, occurring but ten days later, could be tertiary infections from this or adjoining houses, or the case in early part of June had wandered about infecting other houses.

The dates of deaths of probable cases are as follows:

July	1.....	1 death	
"	2.....	1 "	
"	3.....	1 "	
"	9.....	1 "	
"	10.....	1 "	
"	12.....	3 "	
"	13.....	2 "	
"	14.....	1 "	
"	17.....	7 "	
"	18.....	2 "	
"	19.....	4 "	
"	20.....	6 "	
"	22.....	2 "	two not officially reported.
"	24.....	1 "	one not officially reported.

Total estimated cases, 60; deaths, 33.

Official cases reported in the "Infected District" subsequently are as follows:

	Cases.	Suspects.	Deaths.	
Prior to July 21....	60	..	33	My own estimate.
July 21....	0	..	1	
" 22....	20	..	3	
" 23....	10	..	0	
" 24....	9	..	1	
" 24....	5	..	2	
" 25....	6	..	2	
" 26....	11	..	4	
" 27....	2	..	2	
" 28....	13	..	1	
" 29....	21	..	2	
" 30....	20	..	2	
" 31. ..	15	..	3	Fumigation headquarters "Infected District" established and myself placed in charge July 31.
Aug. 1....	32	..	6	
" 2....	25	..	8	
" 3....	35	..	4	
" 4....	22	..	4	
" 5....	9	..	6	
" 6....	18	..	6	
" 7....	24	..	6	
" 8....	30	..	2	
" 9....	29	..	4	
" 10....	17	..	2	

	Cases.	Suspects.	Deaths.
Prior to Aug. 11....	25	..	8
" 12....	37	..	3
" 13....	23	..	7
" 14....	22	3	7
" 15....	23	3	1
" 16....	23	4	2
" 17....	31	7	1
" 18....	26	3	4
" 19....	11	0	1
" 20....	14	10	0
" 21....	21	7	4
" 22....	11	4	3
" 23....	12	11	1
" 24....	10	2	0
" 25....	17	9	2
" 26....	9 (1 imp.)	1	2
" 27....	3	6	4
" 28....	8	0	0
" 29....	9	5	2
" 30....	5	1	0
" 31....	8	1	3
Sept. 1....	7 (1 imp.)	4	0
" 2....	7	3	1
" 3....	3	1	1
" 4....	4	1	0
" 5....	1	1	0
" 6....	3	1	2
" 7....	5	0	1
" 8....	2	3	2
" 9....	5	1	0
" 10....	2	1	0
" 11....	1	2	0
" 12....	2	0	0
" 13....	3	1	0
" 14....	3	3	1
" 15....	3	0	0
" 16....	3	0	1
" 17....	2	1 (imp.)	1
" 18....	2	1	2 (1 imp.)
" 19....	2	1	0
" 20....	1	1	0
" 21....	3	0	1
" 22....	1 (imp.)	1	0
" 23....	0	0	0
" 24....	0	0	1
" 25....	2 (imp.)	0	0
" 26....	1 (imp.)	0	2 (1 imp.; last deaths.)
" 27....	0	1 (imp.)	0
" 28....	0	0	0
" 29....	1	0	0
" 30....	0	1	0
Oct. 1....	0	0	0
" 2....	0	0	0
" 3....	0	0	0

Headquarters Infected District closed with three cases left under treatment in the district. Subsequent cases are given below. Most of these were probably imported. I was outside of the city until October 16 and could not investigate.

	Cases.	Suspects.	Deaths.
Oct. 5.....	1	0	0
" 6.....	1	3	0
" 7.....	1	0	0
" 10.....	1	0	0
" 11.....	3 doubtful	0	0
" 13.....	1	0	0
" 25.....	1 positively an imp. case.		

Totals—859 cases, 115 suspects, 175 deaths.

The tabulated suspects are those which were never confirmed as cases of yellow fever. Whenever a case was subsequently confirmed it was removed from the suspect column and added to the positive cases of the day when the original report of the case was made.

A census of the district taken by the lay inspectors gave a population of 8,500; of these people 500 stated that they had been immunized in previous epidemics. Lumping positive and suspicious cases we have a local epidemic of 1,000 cases in a population of 8,000 non-immunes, and with a mortality of 17½ per cent. The balance of the population can be regarded as protected from yellow fever by the various means instituted.

Taken by weeks the statistics show more rapidly the rise and fall of the epidemic. It is to be noted that a force of fumigators adequate to handle the newly infected houses and to begin block work was not obtained until August 18. Besides, in the early part of August many houses and over a hundred rooms of houses contained persons too seriously ill to be moved, and on an average it took at least ten days before these rooms could be entered. It was not until August 18 that the unknown foci in the district had been eliminated and fumigation performed in the rooms where the sick were in the first ten days of the month.

	Cases	Susp.	Deaths.
Prior to July 21....	60	0	33
July 21-July 22....	20	0	4
Week ending July 29....	89	0	12
" " Aug. 5....	158	0	33
" " " 12....	180	0	31
" " " 19....	159	26	23
" " " 26....	94	44	12
" " Sept. 2....	47	20	14
" " " 9....	23	8	7
" " " 16....	17	7	2
" " " 23....	11	5	3 (1 of each imp.)
" " " 30....	5	3	2 (1 of each imp.)
Oct. 1-3....	0	0	0

A better indication of the rapidity of results is shown in figures of the block in which the headquarters of the infected district were located. Forces were first concentrated in this block, which had a population of about 400, almost all Italians and non-immunes.

	Cases.	Deaths.
Prior to July 23.....	13	8
Week ending July 29.....	26	6
" " Aug. 5.....	14	8
" " " 12.....	3	0
" " " 19.....	9	1

Three cases, two fatal, occurred in the next two weeks, but all were clearly imported ones. On or about Sptember 8 there arrived a party of twenty Italian immigrants en route from New York to a Louisiana sugar plantation, and who were consigned to a shipping agent in our block. They were unable because of quarantine to proceed further, and at my advice the agent quartered them in a lodging house nearby, which I then considered safe. They remained in this lodging house, 528 St. Philip street, for nearly three weeks before they were able to leave for the plantation. During this time not a case of illness of any kind occurred among them. They were all warned not to leave the house after nightfall and I believe this advice was obeyed. During the daytime they wandered about the streets and markets as they pleased. The previous record of this house had been seven cases, two fatal, the last case occurring August 14. The neighboring houses were as badly infected: two of the imported cases dying in adjoining houses the week previous to the arrival of this party. The worst record of a single house in the district was that of 511-515 Hospital street, in which twenty-three cases, seven fatal, occurred between the dates July 29 and August 12. Every occupant of the house was stricken and the sick were so numerous and the house so small that little preliminary fumigation could be done. After the recovery of the last case, naturally no further case occurred in the house, although it should be added that another family moved into it in the latter part of September.

In New Orleans the moving day is on October 1, and fearing that the wholesale shifting of population would be causative of further diffusion of the disease, moving was restricted by not allowing furniture to be moved into a house in our district un-

til written permission was given from our office. Then permission was not given until the house or part of the house that the family wished to move into was again fumigated. The purpose of this was twofold—to kill any infected mosquitos that might be alive at the house, and thus to prevent infection of the family, and to kill non-infected mosquitos so that in case any member of the family was in the incubative stage and would later be attacked in the house, the house itself would be then practically non-infectible territory and another focus could not be established. In addition to the families moving openly into houses at this time there were coming into their houses towards the latter part of September hundreds of Italians who had slipped away in the middle of July, and were now returning as they departed, in the night. These people brought no baggage with them, as they took none away, and they could not be detected in that way. But the sidewalks, which were practically deserted during August, were now quite different. It was an unconscious tribute to the sanitary authorities of the city that frightened people would now be returning of their own accord, two months before frost was expected. It is apropos to say that this same exodus in the middle of July had been one of the means of the wide diffusion of the disease in the city and State.

Contrary to what might be expected, in most of the infected houses there was no typical period of pause between primary and secondary cases. There were about as many cases three days after the first case as five days, ten days, or fifteen days, or any other number. In a country district where houses are far apart and the visits to each one are distinctly remembered by persons, the tracing back of an infection is not a difficult matter. However, in a badly infected area in the heart of a populous city the conditions are different. Even if the individual does not visit his neighbors, an infected *Stegomyia* has only to fly from one back door to another, only ten feet away, and if she does not leave a visiting card she often leaves pronounced evidence of her visit. However, following the primary deaths occurring between July 1 and July 21, I can in the majority of cases point out secondary cases or deaths at intervals of from thirteen to thirty days. The high degree of the infection of the district is shown by the statistics of the infected houses themselves. The 871 reported cases occurred in 355 houses. The 115 cases, reported as suspicious and never confirmed as positive, occurred in 93 houses. However, 70 of these 93 houses are already included in my list of positive infected houses. It is reasonable to suppose that most of these unconfirmed cases were genuine yellow fever of a mild type. As time progressed a larger portion of the cases in the district were called suspicious and the death rate fell among the positive cases. My belief is that the severity of the type of disease was lessened by the individuals being bitten by fewer mosquitos. In addition to the 355 known infected houses and the 25 additional suspected houses there were undoubtedly many unknown infected houses in which the infection was either wiped out during the block work, or when caught as an adjoining house. Several of the known and doubtless the unknown foci as well were barrooms and corner groceries. On Sunday and slack days these places were fumigated. Most of the saloonkeepers objected strenuously to this interference with their business on week days or on Sundays.

The vigorous sanitary measures instituted were not without considerable cost. Fifty tons of sulphur, tons of paste, paper, barrels of alcohol, and large quantities of other material were used. I estimate the cost of the two months' campaign at $15,000, two-thirds of which amount was expended for labor. However, when it is considered that about one-third of the actual cases and over one-third of the deaths in the city occurred in this district, and that a large number of the cases in the city at large were correctly attributed to infection in the French Market territory, the cost of wiping out this infected spot was cheap. When compared with its benefit to the commerce and future growth of a city of 300,000 the expense was a mere bagatelle. Besides the total fund of less than one-quarter of a million disbursed by the Service and city seems small when compared with the benefits derived from the lessons of the campaign. For instance, I was informed that after the epidemic was under control, and with the probability of its being wiped out all over the city before frost, real estate, which had been dull from time of announcement of the epidemic, became active once more, and began to change hands at prices even higher than those which had prevailed before the epidemic. The fear of such epidemics as scourged the city in 1854 and 1878 was forever removed, and New Orleans was conscious that a new era was before it.

Because the "infected district" did not in its boundaries follow ward lines, the work carried on was without the affiliation or assistance of any ward organization. However, the patience of many good citizens in their acquiescence to the seemingly harsh measures was sufficient assistance on their part, and this moral support most of them gave. But to such as did not, and valued their private comfort more than the public weal, and to those, mostly aliens, who resisted in their ignorance, the police and the courts above them presented a firm and unyielding front. Without the support of police and courts, and the intelligent and faithful work of the loyal foremen together with the rank and file of the sanitary laborers, the work could not have succeeded in this alien colony. This, after all, was one of the manifestations of the public opinion of the city.

As for myself, I feel that I am only to be congratulated that mine was the good fortune to have the first opportunity to attack with a sufficiency of men, money, and authority, an epidemic of yellow fever that had gotten a good start. Similar successful results were obtained in all of the seventeen wards of the city, and the infected district differed only in degree of infection and in that the sanitary workers had gotten an earlier start. Similar results would have been accomplished by Dr. Louis Crawford had I not been fortunate enough to return from my sick bed to my work. As it was, because of the augmented force of men, more work was done during my absence than at any similar period during my command. Then, too, the fumigation for the infected and non-infected *Stegomyia* was only one of the cogs of the great sanitary machine running under the supervision of Surgeon White. The work of oiling of cisterns and other water containers and the search for hidden sick by lay inspectors, under the direction of P. A. Surgeon Richardson; the diagnosing of these sick by medical inspectors under the supervision of Dr. M. Landry of New Orleans; the reporting of their private cases by the physicians of the city in spite of contrary desires of many of their patients; the yellow fever hospital for the reception of cases, under the management of Dr. Hamilton Jones of New Orleans; these

were all factors that contributed in various degrees to bring about successful results in the original infected district.

As my opportunities were superior for observing at close range the first large epidemic of yellow fever ever controlled, I may be excused for offering this article. Moreover, I have a further reason for putting the statistics on record, because in previous large epidemics no accurate statistics were kept or could be kept.

INTERCURRENT TYPHOID FEVER IN SURGICAL AND RENAL CASES.

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The importance of being continually on the alert for medical complications in cases primarily of a strictly surgical character cannot be too strongly insisted upon. I herewith append the histories of three cases, two of which illustrate the point in question, and at the same time forcibly demonstrate the necessity of the surgeon keeping in pretty close touch with at least the more common forms of disease which are supposed to be the special property of the internist. That typhoid fever occurs in the course of surgical cases, operative or otherwise, and is overlooked more frequently than is ordinarily supposed, I am firmly convinced from the experiences I am about to record.

Case I.—Woman, aged forty, with a history of severe attacks of renal colic attended by hematuria coming on at varying intervals for a period of fourteen years, was taken with a severe attack of what was described as dysentery, about a week before coming under my care. The bowel discharges were frequent, painful, and accompanied by severe tenesmus. The patient was not sure whether or not there had been any blood in the stools.

At the time of my first visit the pain had become localized in the vicitity of the right kidney. There was distinct tenderness and fullness in the loin, and anteriorly in the flank. The urine contained an abundance of both blood and pus. The pain radiated typically along the ureter and was associated with frequent and painful micturition. The quantity of urine was considerably less than normal. There were occasional chills, and the temperature varied from 101° in the morning to 102° in the evening. Patient stated that an *x*-ray examination had been made and a calculus found. It was impracticable to take a new skiagraph. I endeavored through the husband to secure the *x*-ray picture from the physician who had it in his possession, but was unable to do so, notwithstanding which I felt warranted in making a diagnosis of calculus in the pelvis of the right kidney and a calculous pyelitis with perirenal abscess. Urinary examination for tubercle bacilli was negative.

Operation was declined, so there was nothing to do but to palliate. At the end of about a week the pain had disappeared, although the condition of the urine remained practically the same. The temperature remained uniform, approximating 102° F. I noticed at this time that the patient had a slight cough, and that in blowing the nose or expelling mucus from the throat a small amount of blood was expelled. This, taken in connection with the suggestive facies, aroused my suspicions, and I had a blood examination made, which showed a typical Widal reaction. The diagnosis of typhoid being thereby established, I turned the case over to Dr. William E. Quine for medical treatment. The characteristic rose spots were discovered a few hours later, and were very plain when Dr. Quine and I first examined the case. The case ran the ordinary course of typhoid fever, but an unfortunate complication developed in the form of double parotiditis, a condition which proved exceedingly painful and exhausting.

I was asked by Dr. Quine to resume the surgical management of the case, and subsequently operated on first one parotid, and then the other, evacuating a small amount of pus and necrotic gland tissue. The operations afforded relief. The patient was apparently convalescing nicely when severe pain recurred in the kidney, with an associated recurrence of temperature. The urine, meanwhile, had been at no time perfectly clear, although it had improved considerably. Operation again was suggested, but declined. The patient subsequently suffered so severely that it was necessary to administer large doses of opiates, and finally chloroform, in order to give her relief.

Operation was finally consented to, but deferred until relatives could arrive from a distance, three or four days of valuable time being thereby lost. The last forty-eight hours before the operation the patient was compelled to take chloroform very frequently to afford relief from the frightful pain. I finally performed the operation and found the kidney extensively broken down, and the seat of three large abscess cavities connecting with a perinephritic collection of pus. In the pelvis of the kidney a moderate-sized, irregular stone was found. The patient did not react from the operation, but died of shock two hours later.

Case II.—Man, fifty-nine years of age, was referred to me for operation for an inguinal hernia of long standing and perineal section for bladder drainage. While the history was somewhat obscure, the occurrence of the hernia was dated back to childhood. The perineal section possessed no features of special interest, consisting merely of external urethrotomy, followed by drainage through the perineal wound. The hernia proved to be a very complicated affair. I found an old incarcerated omental hernia, in the midst of which, well up in the canal, was a degenerated retained testis. The folds of omentum were matted together by old inflammatory exudate, evidently from successive attacks of inflammation from one cause or another. Spread out over the hernial protrusion was the pampiniform plexus, the veins of which were enormously enlarged and very numerous. Great difficulty was experienced in freeing the sac, which was intimately adherent to the omentum. Besides this old infantile hernia, there was an oblique intestinal hernia of comparatively recent date. According to the history, this had become strangulated from time to time, and had been reduced by taxis. The operation was somewhat prolonged on account of the careful dissection necessary, and was followed by a moderate temperature, which was attributed to severe bladder irritation and an exacerbation of the cystitis which followed the operation. The bladder was exceedingly intolerant of the drainage tube, and this, combined with sleeplessness and a moderate degree of infection from the bladder and the perineal wound, seemed an all-sufficient explanation of the temperature, which ranged from 101° to 102°. The temperature varied between these limits for two weeks, then fell to a point ranging from 99° in the morning to 100½° in the evening. The patient was sitting up, the hernial wound having healed by first intention. The perineal wound, however, had not closed,

and there was still considerable cystitis. The tube had been removed. A few days later the temperature began slowly to increase, and on the twentieth day the morning and evening records showed 103°. The facies of the patient impressed me as that of typhoid. On inquiry, I found that the stools, the frequency of which had alone been recorded on the history sheet, had not only been moderately frequent, but thin in consistency almost from the first. The Widal reaction was typical of typhoid, and the patient ran the usual course of a typhoid of moderate severity.

Case III.—I was asked by my friend, Dr. Johnstone, of the Lakeside Hospital, to see in consultation with him one of the nurses, a young woman of twenty-three or twenty-four years of age, who was suffering from a severe attack of acute nephritis. The urine showed fully 50 per cent. of albumin by bulk; there was marked cardiac weakness, and edema of the lower extremities. The urine, however, was secreted in fair amount, and showed no marked decrease in solids. There was severe pain throughout the abdomen and back, which feature of the case was responsible for my being called in counsel. The nephritis had followed what was taken to be an attack of la grippe, and was apparently a typical one of toxemic nephritis, such as is frequently met with as a sequel of grippe. The case progressed indifferently well for some days. There was apparently no necessity for further counsel. I was, however, in the habit of calling to see the patient casually in the course of my visits to the hospital. On one of these casual visits I was struck by the peculiar facies of the patient, which was decidedly suggestive of typhoid. I suggested to Dr. Johnstone the advisability of a Widal test, and much to the surprise of all concerned typhoid was demonstrated, the case subsequently running a typical course of that disease, the patient recovering.

The discovery of typhoid fever in no wise changed my opinion as to the etiology of the nephritis. The case was evidently one, not of typhoid with a nephritic complication, but a nephritis with a complicating typhoid.

My experience with the foregoing cases has caused me to speculate somewhat as to the probable frequency with which intercurrent typhoid fever is overlooked by the medical or surgical attendant upon cases of a distinctly surgical character.

100 State Street

NUTRITION A FACTOR IN TOOTH DEVELOPMENT.

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It is a well-known fact that lesions of peripheral organs can often be linked with systemic disease, and in the course of the progress of medicine many symptoms that were formerly treated as local disease have been recognized as being produced by systemic conditions. In this progress of the recognition of disease, its symptomatology, etiology, and treatment, a factor has been overlooked, or rather its various conditions and relations to systemic disease have not been allotted the prominence in symptomatology it actually deserves. This factor is the condition of the teeth and the relationship these organs may bear to systemic disease.

Dentistry, as an individual calling has within the last twenty five years made greater strides than perhaps any other branch of the art of healing, and from the mere mechanical replacing of lost organs for the sake of cosmetic effect, it has developed into dental and oral surgery, with a symptomatology and materia medica of its own.

From year to year fewer teeth are sacrificed, oral conditions are better recognized and more successfully treated from the oral specialist's point of view, but the actual coherence of certain dental, oral, and systemic conditions has not been as fully recognized as is necessary to obtain perfect results from both the medical and dental point of view.

That the teeth are affected by systemic conditions is true, for any pathological condition that will alter the metabolism of the body is bound to bring about changes here as well as anywhere else, as the teeth are part and parcel of the human economy, and receive their blood, lymph, and nerve supply from the same sources as the other parts of the body. Were it not so, how can we account for the variations in the dental organs of different temperaments, as one finds variations in cranial contour, general framework, muscular development, or quality of the voice? Thus the long, fine, bluish tooth is found in subjects with a prominent, not broad, but expansive chest; and the rather broad, unshapely, opaque, and muddy-colored teeth in subjects with a large chest, though lacking in expansive power, showing that all factors exercising influences upon the system at large will also reflect upon the teeth.

Hutchinson long ago recognized the peculiar appearance of the teeth in inherited syphilis, and the atrophic changes affecting the teeth after diseases like typhoid fever, rickets, and sometimes scarlatina and measles, are also well enough known. Odontalgia in a sound tooth, as the result of some distal irritation, so often met with in pregnant women, hardly needs any mention. Still all these dental affections were at some time considered local lesions, and only in course of time was their true etiology recognized. Thus there are conditions which the dentist meets to-day, and often hopelessly tries to combat with local treatment, which undoubtedly will some day be recognized as associated with and caused by some systemic trouble.

Pyorrhea alveolaris is a condition about which many theories have been advanced. What is it? A condition in which there is a hyperemic, flabby condition of the gums, a purulent discharge from the alveoli with the formation of distinct pus pockets, loosening of the teeth, and destruction of the alveolar walls. The usual treatment consists in the removal of all deposits and the sterilization of the pockets and alveoli and the local application of stimulants and counterirritants, to induce a return to the normal. The success attending the treatment of the disease is limited because the actual cause is not always established. The deposits which so frequently are looked upon as the actual cause of the trouble are but exciting causes. Miller and other investigators attempted to isolate a microorganism specific to the disease, but failed. The condition is frequently associated with uric acid diathesis and diabetes mellitus. It is a local manifestation of some perverted function present in these diseases.

Success in the treatment of oral diseases cannot be obtained unless the etiology of these conditions is thoroughly understood. This offers a broad field for investigation to both medical and dental men, and those who succeed in clearing the fog will not only be benefactors to suffering humanity, but they will be disciples of Æsculapius in the true sense of the word; not only will they be healers, but they will also be preventers of disease. The greatest triumph

of medicine is not the curing, but the prevention of disease.

The various conditions affecting the teeth can be classified as affecting the dental organs during certain periods of life, namely:

1. Those conditions bearing influence upon the teeth during intrauterine life; this would be the period beginning with the first appearance of the epithelial inflection in the embryonal jaw (thirty-fourth to fortieth day) and ending at birth, the prenatal period.

2. Those conditions affecting the denture during infancy and childhood, *i.e.* during the period beginning at parturition and ending with the eruption of the first permanent tooth.

3. Those conditions affecting the teeth from the time of the eruption of the first permanent tooth till death or such time as the teeth are lost.

It is evident that in the first class, the conditions affecting tooth development are factors conveyed by the fetal circulation and are traceable to the mother. Any condition affecting the maternal blood is liable to have a reaction upon the embryo and fetus, and consequently modify tooth development. It therefore follows that the health of the mother during gestation is an important factor conducing to normal tooth development, and any pathological conditions present must be considered and corrected. All conditions which will lower the vitality of the mother are bound to affect the child *in utero* in some way, and the developing dental organs being part and parcel thereof, receiving blood supply from the same source, will consequently be modified if there be any aberration from the normal in the blood, chemical or physical.

The first indication of the future denture is observed about the thirty-fifth to the fortieth day of intrauterine life, when there appears an ingrowth of epithelium extending along the whole length of the jaw, rapidly extending into the mesoblastic tissue. This growth of epithelium assumes the shape of a flask, that is, it broadens downwards and is rounded off. This is known as the enamel organ; soon there appears a cell proliferation in the mesoblastic tissue, pushing its way into the bottom of the flask, crowding into the same, so that the epithelial growth covers the mesoblastic tissue like a cap. This mesoblastic cell invasion is known as the dentine papilla, as it forms the future dentine, as the enamel organ is the precursor of the outer covering of the crown of the tooth. There are now two distinct structures, an epithelial body (enamel organ) and a mesoblastic body (dentine papilla). The cells of the enamel organ now undergo a series of differentiations: the innermost layer is arranged as columnar epithelium, and is called the enameloblastic or enamel-forming layer; the cells of the outer wall remain cuboidal. The cells between the two become much distended, and have on account of their appearance been termed the stellate reticulum. The enclosed dentine papilla also undergoes cell changes, and there appears a peripheral layer of columnar cells which become dentine-forming cells, termed odontoblasts. By the time that calcification begins there is formed a capsule-like investment surrounding both the enamel and dentine organs. When this sacculus is fully formed, it is made up of an outer and inner wall, both very vascular. The outer wall becomes the dental periosteum, while in the inner wall, especially in the vicinity of the roots, osteoblasts appear and are calcified into cementum. By the time the crowns of the teeth are formed each tooth is incased in a crypt of bone, developed around, but at some distance from it; the crypt is open towards the gum, shielded by fibrous tissue. The permanent teeth are contained in the same crypt as the temporary teeth, but later become separated from them by a bony septum. The first appearance of epithelial inflection, according to Tomes, takes place about the seventh week of intrauterine life. The dentine papilla grows into the enamel organ about the tenth week. At eleven and a half weeks all the temporary tooth germs are formed. Having formed, so to speak, the organic network of the teeth, at about the twentieth week calcification of the teeth begins. Calcification, according to Sudduth, is that process by which organic tissues become hardened by deposition of lime salts in their intercellular substance, as exemplified in the formation of bones and teeth. The intercellular substance in organic tissues is fluid, and into this fluid particles of lime salts are deposited in regular systems, after the several forms of calcified tissues. This arrangement is superintended by specialized cells for each particular structure-osteoblasts for bone, odontoblasts for dentine, ameloblasts for enamel, cementoblasts for cementum. A great deal more could be said about tooth development and calcification, but for a careful study I would refer the reader to special works on this subject. The above will suffice for the present if it is but borne in mind that the various osteogenetic cells derive their supply from the blood.

To obtain a normal organism, three factors are essential: (1) Normal formative organs; (2) normal nutritive fluid; (3) normal physiological function. This, of course, also pertains to the dental structures. There must be normal formative organs, *i.e.* there must obtain a normal enamel organ and a normal dentine papilla—in short, there must be a normal tooth germ. The second essential factor is a normal nutritive medium, which is the blood—and there must obtain normal physiological function, which in turn is dependent upon the normal nutritive fluid.

Abnormal formative organs may be rendered so by (1) degeneration due to lack of use, producing atrophy; (2) to heredity; (3) to accident; (4) disease may also produce abnormal formative organs, as it is said that the pits and ulcer-like marks in the enamel of defective teeth are the sequence of ulcerous points upon the tooth follicle where formation was impeded during an eruptive fever.

The second factor—normal nutritive fluid (and that means blood) is even more important than a perfect formative organ, as upon the nutritive fluid depends the health of the future organ. An abnormal formative organ, properly nourished and developed, becomes an ill-shaped, but still a useful, healthful organism; whereas no matter how perfect the formative organ may be, when nourished by an unphysiological nutritive fluid it is bound to develop into an abnormal, pathological organism. To obtain normal formative organs is beyond our control. Excepting to utilize the precursors or parent organs so that no retrogression in reproduction will result.

Professor Talbot, in a masterly essay on "Interstitial Gingivitis" (Rigg's disease), speaks of the natural predisposition of the oval structures to disease, and says: "Because of man's advance in evolution, and because of the local degeneracies thereon resultant, through the law of economy of growth whereby one structure is sacrificed for the benefit of the organism as a whole, the face, teeth, gums, alveolar process, and peridental membrane (being variable structures) are predisposed to disease in their very order of evolution.

"The jaws are growing smaller because large ones are not required. The structures are changing shape to adapt themselves to the new environment.

Thus, instead of large broad jaws with low vaults, short broad alveolar processes in plenty of blood supply and vitality to resist mastication; teeth short with large bell crowns to give plenty of room between the roots for considerable thickness of the alveolar process for the nourishment of the peridental membrane and support and protection of the gum tissue—small, narrow jaws occur with apparently high vaults; long, slender and thin alveolar processes, which are not used in mastication with sufficient force to carry blood for the nourishment of the tissues. The teeth are changing their shape, causing the roots to come closer together, and thus lessening the area of the alveolar process.

"Since man has not adjusted himself to his new environment, the face and jaws may be said to be transitory structures. The teeth in some of the lower vertebrates develop continuously. That is, they come into place, possess large foraminas, serve their purpose, are shed and new teeth take their place. This is continued throughout the life of the animal; unlike this man has but two sets. The first teeth erupt; the alveolar process builds itself about the teeth to hold them in place. These are shed, the alveolar process absorbs, the second set appear, and the alveolar process builds itself about them to hold them in place. When the second set are lost the alveolar process is again absorbed.

"I have demonstrated this absorption many times upon dogs. Whether it is due to an erupting tooth, the movement of teeth by wedging, correcting irregularities, after extraction othosteohialacia, it is invariably an inflammatory process. The building up and tearing down of the alveolar process also demonstrates it a transitory structure. This, together with the evolution of the face, makes the alveolar process doubly transitory. So sensitive is the alveolar process to inflammation and absorption, the slightest irritation, whether local or constitutional, will set the osteoblasts at work.

"The teeth are virtually foreign bodies in the mouth. The tendency is to shed the second set as a result of atavism. The foramina are nearly closed; hence the blood pressure in the pulp is *nil*. The blood-vessels extend through the alveolar process and peridental membrane and stop short. Nourishment ceases, the teeth are like ivory pegs set in the jaws. In the study of the evolution of the pulp, their attachment and the use of the teeth in the scale of evolution must appeal to every scientist that the law of economy of growth resulting in degeneracy is very apparent. The blood-vessels and new tissues, therefore, at this locality, may be called terminal structures. These blood-vessels do not run straight through the bone, but ramify in all directions forming loofs or plexuses and are intimately connected with the peridental membrane and gum margin."

If it is not in our power to determine normal formative organs, we can, however, at least partially create and maintain a normal nutritive medium—normal blood. What is meant by normal blood? Blood which contains all those substances that are necessary for the maintenance and growth of the organism in physiological, *i.e.* assimilable, form, and in physiological quantities. Inasmuch as dental development begins before the second month of gestation is reached, it is evident that dental prophylaxis should be installed before calcification commences (about the twentieth week), as it is not within our reach to direct the formation of normal developmental organs. We can, however, by dietary and hygienic measures and proper medication, alter any abnormal condition of the mother's blood so as to bring about or create a normal blood condition, excepting in some forms of chronic disease. If the blood condition of the mother be rendered normal, it is safe to assume (granting that no organic lesion or chronic disease be present) that embryological and fetal development will be normal, and consequently the resulting denture will be healthy. This was recognized some time ago, and caused dental prophylaxis to take a new direction. The dentist, instead of prescribing calcium compounds, when his patient complained of soft teeth, advised his pregnant patients—in order to insure the child *in utero* a full dose of calcium salts—to take lime salts internally during the whole period of gestation. With what results?

Some years ago Professor Sands took up this line of work, with reference to the general osseous system, and Dr. Hodson collaborated with Dr. Sands in taking up the dental phase—and failed. Other men carried on similar experiments (feeding pregnant women on calcium salts), and when the term of delivery came a number of craniotomies had to be performed that might have been avoided. Harder or more resistant teeth were, however, not produced. In some cases, where labor was normal, the children later showed defective teeth, and children whose mothers were not subjected to a "hypercalcified diet" developed normal healthy teeth. How is this to be accounted for? The necessary material, calcium, was introduced into the system at a period when it was needed, and still the tissues, though demanding it, did not accept it. Where did it go to? In the cases where calcium was given the feces showed an increased amount of calcium, indicating that the body passed it off, and that it had not been offered to the tissues in properly assimilable form. Nature will not be commanded to "take this or take that!" She makes her demands, and then chooses. It is not only a question of alimentation, but a question of assimilation.

But how is the problem to be solved? How can it be brought about that the nutritive medium, the blood, shall be normal, that it shall contain the precious calcium salts and other earthy ingredients, which are necessary for calcification, in such quantities and in such form that the tissues will accept them? Not by loading the stomach with marble dust and apatite, but by offering the system the necessary ingredients in such shape as nature gives them, namely, as food; then all the calcium salts that are required for calcification will be taken up by the blood, distributed to and appropriated by the tissues. If food alone will insure proper dental development and calcification, how can it be accounted for that so many individuals develop defective teeth? A number of reasons can be brought to account for this: (1) Irrational mode of living on the part of the mother during gestation; (2) hereditary influences; (3) diseases during infancy.

It is not necessary to open text-books and to quote authorities on obstetrics, but common sense should tell every pregnant woman that her systematic condition is an altered one, and that her mode of living during gestation must be different from that before conception. She must live in such manner as to be able to satisfy the physiological demands of the embryo and the fetus. What does the child *in utero* demand? Proper food, *i.e.* physiological blood, which is obtained by proper diet on the part of the mother; diet that is nourishing and easily digested; proper aeration of the blood, which demands plenty of oxygen and sunshine; proper exercise.

It has been demonstrated that children born in the country are not so frequently afflicted with

rickets as children born in thickly-populated districts.

There are, of course, many other points that an expectant mother must consider, as dress, hygiene, regular habits, etc., but the foodstuffs are the points at issue in this paper.

What are the foods that are conducive to proper dental development? Recognizing the fact that the teeth demand calcium salts and other earthy ingredients, foodstuffs containing these ingredients in assimilable form are the ones required.

Von Winkel, in his Maternal Clinic in Munich describes a dietary as follows: Breakfast—¼ liter milk, one roll. Noon—¼ liter of soup, 150 gm. of beef without bones, ¼ liter vegetables or pastry (not fat), ¼ liter beer.

All the patients at this institution, unless bedridden, are compelled to do light work about the building, which gives them moderate exercise, thus stimulating all bodily functions. Regular habits are insisted upon—personal hygiene and cleanliness need not be mentioned—and the results are gratifying. Many a woman who would not live past delivery, and many a one who would give birth to a sickly child, is delivered of a normally developed, healthy offspring, and both mother and babe leave the institution hale and hearty. What do our modern mothers and ladies do? Do they modify their dress, habits, and mode of living during gestation? Do they sacrifice their rarebits and goose-liver patties? Do they give up their social appointments, to be able to retire early, so as to insure plenty of sound sleep? Do they attempt to create physiological conditions within their own bodies, to pave the way for a healthy offspring? No; they do not take any notice of that child to come, may even attempt to hide its presence by lacing the expanding abdomen, throw themselves into the social tide to forget—and the unfortunate offspring often has to pay for its mother's folly.

Milk is the most important of all animal foodstuffs, containing all the elements necessary for the maintenance of life, and thus constituting a complete food. It contains all the four classes of food principles, namely, proteins, fats, carbohydrates, and salts. If pregnant women would drink more milk and substitute this perfect food for some of the "impossible epicurian artifices," lead a proper life, and not absolutely ignore nature—by sacrificing some of their late wine suppers and gay all-night parties—this would not only insure their own health, but they would be able to give birth to a child in good general health and with a good denture.

The above-mentioned dietary is only one of one practitioner of note and can be substituted by others: the main point is a simple mixed diet in accordance with the patient's individual wants. It shows that no excess of calcium salts is necessary for proper embryonic and fetal development, but a simple and wholesome diet and physiological mode of living will do more than dietetic feats. Proper food and a rational mode of living on part of the mother create natural conditions for the embryo and fetus. At the time of birth all the crowns of the temporary teeth are calcified and the cusps of the six-year molars are beginning to harden. The last of the teeth to erupt are the third molars; these are not thoroughly calcified until about the twenty-first year of life and often later. We therefore say, roughly speaking, that the crowns of the temporary teeth calcify *in utero*, and the roots of the temporary and the permanent teeth (excepting the cusps of the six-year molars) after birth.

Therefore, about twenty-two years of human life is necessary to form and calcify the denture, and therefore many and long are the influences which may affect the development and growth of the organs of mastication. Normal blood condition of the mother, normal metabolism, that is anabolism and catabolism physiologically balanced, will insure for the offspring a sound set of temporary teeth. The calcification of the temporary teeth does not begin until after birth and the nutrition of the child becomes a factor to reckon with in the calcification of the permanent teeth.

A great deal has been written and said about infant feeding, a whole literature abounds on the nutrition of infants and children; physicians, chemists, and physiologists have devised methods, systems, and dietaries to provide the newborn with materials known as food to replace those substances which are utilized by the body in the performance of those physiological functions which constitute life, in cases in which nourishment as nature provides it, namely mother's milk, has been denied or so altered by disease that it fails to fill its want. Nothing as yet has been found which will absolutely and perfectly replace that source which God gave to every new being to draw its nourishment from. The nearest approaching to mother's milk is cow's milk, but even this does not fully replace the secretion of the maternal breast (as will be seen later on), for God intended it for calves and not for babies—and God never makes a mistake. Wherever it is impossible to obtain mother's milk, we have, of course, to employ those materials which most nearly approximate mother's milk, but, unfortunately, in these days many a child is denied the only perfect food (mother's milk) in consequence not of ignorance on the part of the mother but of a tendency to shirk those sacred duties which a mother assumes when she gives birth to a child. This tendency to substitute artificial food for mother's milk not only imposes a tax upon the infantile organism during digestion, which the body is not subjected to if mother's milk is given, but it actually creates conditions which are not normal, affecting the whole system, not barring calcifying teeth. It is true cow's milk contains all the ingredients of a perfect food, namely carbohydrates, proteids, fat, salts, and water, but not in the same proportion and degree of digestibility of mother's milk. We have contained in cow's milk the precious earthy salts so necessary for calcification, but its other ingredients make it more difficult to digest and its assimilation is not as perfect as that of mother's milk.

The question whether a child shall be strong and robust or a weakling is often decided by its food during the first three months. An infant spends most of its time sleeping and growing and at this time the muscular effort is not great. It therefore follows that the diet of an infant should contain relatively more of the tissue builders (proteids and mineral matters) and relatively less of the energy producers (carbohydrates) than one finds in the food of an adult. Proteids are furnished by the casein and other albuminoids present in women's and cows' milk, in the white of egg, gluten of wheat, fiber of muscle, etc. It is the great difficulty in the digestibility of proteids that causes the principal troubles in the substitution of cow's milk for woman's milk.

	Woman's Milk.	Cow's Milk
Water	89.6	87.7
Casein	1.4	3.0
Albumin	0.6	0.4
Fat	3.1	3.7
Sugar	5.0	4.5
Ash	0.3	0.7

Salts contained in:	Woman's Milk.	Cow's Milk
Natrium chloride	1.35	0.902
Calcium chloride	0.70	0.870
Calcium phosphate	2.50	1.477
Natrium phosphate	0.40	
Magnesium phosphate	0.50	0.336
Sodium carbonate		
Fluoride of calcium	a trace	
Potassium citrate		0.495
Magnesium citrate		0.367
Calcium citrate		2.133
Iron phosphate	0.01	

According to von Bibra:

	Dentine.	Enamel.
Calcium phosphate and fluoride	66.72	89.82
Calcium carbonate	3.30	4.32
Magnesium phosphate	1.18	1.34
Other salts	0.83	0.88
Fat and organic matter	28.01	3.59

Dr. Koplik, in his work on diseases of infancy and childhood, in speaking of the principles underlying the process of nutrition, says of the mineral salts as follows: "The skeleton in the first year increases fully 2.2 pounds or one kilo in weight and the earthy phosphate being an important element in the composition of the bones, 3.5 gm. of phosphate of calcium are used every week during the first year by the skeleton. This demand of the skeleton for lime salts is met by the food of the infant—the milk—much better and in a more assimilable state than by any food taken by the adult subject." A fact which contraindicates the giving of starchy foods during the first year of life. "The muscles also need a certain amount of lime salts, and a dearth of mineral salts becomes evident much more quickly in the infant and child than it does in the adults. We see this exemplified in artificially fed infants, whose food (cow's milk) is not as well assimilated as is the mother's milk by the naturally fed infant. Whereas 800 c.c. of mother's milk contains ½ gm. of potassium phosphate, 0.2 gm. of lime phosphate, 0.6 of sodium chloride, and 2.5 mgm. of iron, and these are completely assimilated by the infant; the same salts in cow's milk are excreted to a great part, rachitis and disturbances of nutrition of the bones are very common in artificially fed infants."

Foerster reports the case of an infant four months old taking 1,215 c.c. of cow's milk, who excreted 75 per cent. of calcium salts in the feces. If the osseous system is thus affected it stands to reason that the dental organs do not escape.

Dr. Koplik also states that metabolism in the bottle-fed infant varies from that of the nurseling at the breast, that according to Rubner and Hebner the artificially fed infant needs a greater amount of food, as more energy is required by the body to compensate for the extra work called for by the intestines in the digestion of cow's milk. It must be borne in mind that the utilization of cow's milk by the infant is not perfect for the following differences between breast-fed and bottle-fed infants are apparent: (1) The increase of weight is irregular in the bottle-fed infant as compared to the regular increase in the breast fed infant. (2) The daily fluctuations of temperature in the bottle-fed child are irregular as compared with the fluctuations in the breast-fed infant. (3) The bottle-fed infant as a rule is an anemic child; the breast-fed infant on the contrary. (4) The bottle-fed infant is rachitic even from birth; it is more susceptible to infection, less resistant to the inroads of disease. The bottle-fed child, notwithstanding the utilization of the calories of cow's milk, is deprived of the enzymes and alexins.

Enzymes are the soluble ferments in human milk, the most important of which is amylase, capable of converting starch into sugar as ptyalin in the saliva. Amylase is destroyed by heat and human milk heated above a certain temperature loses its amylolytic properties. Amylase is not found in either cows' or sheep's milk, though it is present in a less degree in dog's and ass's milk. Other ferments have been isolated from human milk which is capable of splitting monobutyrin into butyric acid and glycerin, also a ferment splitting salol into phenol and salicylic acid, and another substance capable of coagulating fibrin. These substances, excepting lipase in small quantities, are not present in cow's milk. Alexins are substances bactericidal and globulicidal in character, and Moro has shown that the serum of the blood of the breast-fed infant is more bactericidal than the serum of the blood of the infant fed on cow's milk.

In Japan, where women have a remarkable abundance of milk and give their children no other food during the first year, rachitis is never seen. This plainly shows that the character of the food which an infant ingests affects its growth and development, just as the health and nutrition of a mother exert their influences upon the embryo and fetus. Most infantile diseases occur during the first year of life and are more frequently caused by faulty metabolism due to the rational feeding than by any other factor. Many children survive, but there is laid in the system the foundation for life-long disturbances and unphysiological development which of course also is bound to affect the developing and calcifying dental organs, and it is here where the cause for so-called "soft teeth" is to be looked for. A remedy for such a condition does not exist, as tooth substance once calcified cannot be made to become more compact, as dental structure after calcification is not vascular. A bone that is fractured will have its break unite by the formation of callus and the secondary deposit of lime salts, obtained from the blood streams. A tooth fracture will not unite, as the structure is void of vascularity; were it otherwise, the filling of teeth would be unnecessary as nature would regenerate the tissues destroyed by dental caries.

The prevention, therefore, must be the treatment. Patients should be instructed accordingly and the dental specialist can do missionary work of inestimable value. The great mistakes so frequently made in infant feeding are the substitution of cow's milk for maternal feeding where mother's milk is obtainable, and also the too early ingestion of carbohydrates and other foodstuff that have no place in an infant's dietary. Opinions differ as to the period when young children should be given other food than milk; however, the consensus of opinion points to the fact that no solid food of any kind should be given prior to the eruption of the temporary teeth. Milk (maternal till about the eighth month, unless weaning becomes necessary through disease on part of the mother at an earlier period; good cow's milk after that) should be the principal food for eighteen months. Starchy food should be withheld for about a year. Nutrition is the basis of all development, and if this important function is supervised according to a common-sense physiological regimen the result will be a normally developed organism. It means a healthy body, a sound mind, and good teeth. Therefore nutrition is a very important factor in tooth development. Were it not so we would not obtain the abnormalities of tooth development and eruption following diseases of nutrition, as scurvy, rickets, marasmus, etc.

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PHTHISIOTHERAPY BY MEANS OF EMULSION BACILLI (KOCH).

By WILLIAM MEYER, A.B., M.D.,

WEST HOBOKEN, N. J.

The adverse criticisms of tuberculin which we encounter frequently in journals and society discussions should be based on a more conservative and careful investigation on the part of our opponents. This conclusion was reached by me through my own experience with both the old tuberculin (for diagnostic purposes mainly) and the new tuberculin (emulsion bacilli, used as a curative agent), and strengthened by the experience of German and French physicians and, in this country, of Drs. Trudeau, Brown, Pogue, and others. Even if the results are not entirely satisfactory and in spite of the fact that not enough time has elapsed to assure us of the permanency of the effects obtained, yet the curative properties of tuberculin are unquestionable. There can be no doubt as to the diagnostic value of tuberculin in cases in which the physical signs are practically absent or cannot be detected.

In presenting these 25 cases for consideration I wish to emphasize that no other remedy but tuberculin was employed. A few rules were instituted, but their value is doubtful, when we consider that almost all of these patients were working while under treatment. Even the few rules given could not be followed persistently and faithfully, as the nature of work of these patients will demonstrate. However, some rules had to be adhered to under all and any circumstances, in order to assure success, especially keeping a record of temperature, cough, hemorrhage if any, pain, appetite, bowels, sputum, and weight, with a few additional minor details. These cases were treated during the years 1905, 1906, and the early part of 1907. It is evident that the time elapsed gives us no assurance of the permanency of the effect, yet the results obtained justify the use of tuberculin and encourage us to further investigate.

Fatalities have not occurred, nor any relapses so far. I have selected those 25 out of a total of 30 cases, three patients having been dismissed for irregularity in taking the treatment and two having gone to Europe to continue there the same treatment. At present I have 18 cases under treatment and all are getting on nicely.

The Opsonic Index.—When we take a standard culture of tubercle bacilli and mix with the individual's blood, if we find that a large number or all of the germs are taken up by the leucocytes, *i.e.* if we notice active phagocytosis, the opsonic power of the blood is said to be on the increase and at such time tuberculin is given with the greatest advantage. Phagocytosis is, as a rule, low in tuberculous subjects, but it has been observed that this power is increased under cautious administration of tuberculin. I have not had enough experience with this method to give any definite opinion at present, but I am rather inclined to be hopeful as to its practical value. My personal experience covers only four cases up to date.

In a few cases I used the old tuberculin, which is borne less easily, in my opinion, than the emulsion, but at times it may be advisable, when the old tuberculin is not borne well, to use Koch's T. R. in an initial dose of 0.001 mgm., gradually increased to 0.1 mgm., and at this stage to go back to the old tuberculin, which is now borne better, as a rule, and gives better results. At present I use the emulsion for treatment only and the old tuberculin for diagnosis, but at times I also use the emulsion for diagnosis as well.

In the present 25 cases the emulsion has been the remedy par excellence, with the following restrictions and regulations: Patients must go to bed at an early hour, keep all windows open during sleep. When practicable they should sleep out of doors, but in a city this is almost impossible. Each patient hands me every week his record, which shows: Fever, cough, night-sweats, sputum, appetite, bowels, etc. A sponge bath is taken morning and night (cold water). Overwork, worry, etc., must, if possible, be avoided. The expectorated matter is placed in a paper cup and burnt at the first opportunity, or a porcelain cuspidor with a 5 per cent. solution of carbolic acid is made use of. The patient is told that the sputum is the means by which the disease is perpetuated, if not taken care of in the proper way. The patient must rinse mouth and nose with a 20 per cent. boric acid solution after eating and on rising, as well as on retiring. All unnecessary coughing should be suppressed. With the obedience to these rules I assure the patient that soon an amelioration will follow.

Before the injection is made I take the temperature and the pulse myself, and again from twelve to twenty-four hours afterwards. The average duration of the treatment is from five to seven months, with occasional exceptions.

Patients who persistently disobey these rules are excluded from the treatment. The initial dose of the emulsion is 0.0005 mgm., slowly increased to 5 and at times to 20 mgm.; the latter is given rarely. Injections are made on the average once a week, in a few cases twice a week for one or two months, then bi-weekly until the cure is completed (five to seven months). Some patients reach a dose of 1 to 2 mgm. only as the maximum dose in their case. If possible I avoid all reactions and I succeed in the majority of cases by the above doses. The weight, pulse, temperature, and general condition form the guide to the dosage.

The climatologist claims, and justly, that he obtains the same results as presented here, but no one can claim that any single remedy has brought about similar results as tuberculin did in these cases, for hygiene and diet, etc., play only a minor rôle in these cases. The cure was obtained under unfavorable conditions in the majority of cases, as will be seen in the table under the heading "Post-Discharge History" and "Occupation." All the patients, with one or two exceptions, were working while they took the treatment.

I have described the mode of examination and the establishment of an early diagnosis in an article in the MEDICAL RECORD of February 23, 1907, under the caption "Koch's Emulsion of Bacilli in the Diagnosis of Incipient Thoracic Tuberculosis."

Here it may not be amiss to recount a few observations made while using tuberculin. In ten different families in which one or the other member was affected with tuberculosis I found that a certain number of the rest of the family would react on the use of tuberculin, without having any visible symptoms of tuberculosis. I make mention of one boy in particular, seen by Dr. Brown, Saranac Lake, who could not find any pulmonaray trouble at the time except a slight depression under the right clavicle. In the course of two months, however, this boy developed râles and other positive symptoms. His brother had phthisis a number of months before. This experience I made in ten different families, and while some of the persons have not yet

TABLE I CLASS I

No. and Date of Entrance	Name, Residence	Occupation	Heredity	Duration of Relapse at Begin'g of Treatment	Condition of Patient	Fever Begin.	Fever End	Sputum Begin.	Sputum End	Reactions	Weight Begin.	Weight End	Dose and Duration of Treatment†	Previous Treatment	Condition on Discharge	Post Discharge History: Time Elapsed	Post Discharge History: Working	Post Discharge History: Present Condition
1 [illegible]	[illegible]	Shoe Worker	Father, mutral insuff.	4 mos.	Poorly nourished	O	O*	+ 3 w'ks	O	twice lightly	111lbs.	120lbs.	0,0005-10,0 mgm. Mar. 26-Sept. 2, '06.	Sanit. Italy, Piedmont 8 mos.; Jan.-Sept., '05	Ap. c.	11 mos.		Well, gained 9 lb.
2 [illegible]	[illegible]	Wool Sorter	Mother, tub.	5 mos.	Poorly nourished.	+	O	+ 2 w'ks	O	Once.	98 "	135 "	0,0005-10,0 mgm. Nov 2, '05-June 10, '06.	Davos; 6 mos.: May to Oct., 1904.	"	1 year	"	Well; no gain.
3 [illegible]	[illegible]	Typewriter	Mother, tub.	2 mos.	Well nourished	+	O	+ 2 mos.	O	Once	130 "	137 "	0,0005-10,0 mgm. Dec., '05-June 2, '06.	Colorado. May, '03-May, '04.	"	1 yr. 3 mos.	"	Well, gained 4½ lb.
4. [illegible]	Mrs. An	Mill	Father, tub.	4 mos.	Fair.	O	O	+3 mos.	O	11 times.	116 "	125 "	0,0005-10,0 mgm. Dec 18, 05-June 2, '06.	Liberty; 11 mos.	"	1 yr., 1 mo.	"	Well
5. [illegible]	M- R	Electrician	Negative	1½ mos.	Anaemic.	O	O	O	O	3 times.	136 "	148 "	0,0005-20,0 mgm. Nov. 9, '06-July, '06.	Saranac Lake; 6 mos.	"	1 yr. 1 mo.	"	Well, gained 12 lb.
6. [illegible]	Mr Z., 42	Machinist	Negative	6 mos.	Well nourished.	O	O	+ 2 mos.	O	14 times	145 "	163 "	0,0005-20, mgm. Jan. 5, '06-July, 1906.	France, Grenoble, 1 yr.	"	[illegible]		[illegible] gained [illegible]
7. [illegible]	[illegible]	[illegible]	Brother, tub	1½ mos.	Well nourished	+	O	+ 5 mos.	O	12 times.	141 "	153 "	0,0005-20,0 mgm. Apr., '06-Nov., '06.	Saranac Lake, 1 [illegible]	"	Sp[illegible]		[illegible]

[illegible] and free or almost [illegible] or present. Ap. c.=apparently cured. †Koch's emulsion bacilli was used throughout.

TABLE II—CLASS II. TWELVE CASES.

No. and Date Beginning of Treatment	Sex, Age, Occupation	Heredity	Previous Duration of Disease	Condition When Begun	Fever Begin'g	Fever End'g	Sputum Begin'g	Sputum End'g	Weight Begin'g	Weight End'g	Dose and Reaction	History after Discharge: Time Elapsed	History after Discharge:	Present Condition
1. 1906, 2 3	Mr. K., 21. Weaver	O	1 year.	R. A. A. few râles.	+	O	+	O	108	130½	0,0005-5 mgm. Two slight reactions.	1 mo.	Working and well	Apparently cured.
2. 1905, 3 16	Miss L., 26. Clerk	+	3 months.	R. A. A. dull to 2nd rib.	O	O	+	O	98	115	0,0005-10,0 mgm. None.	1 yr., 5 mos.	Working and well	Apparently cured
3 1905, 12 14	Mr. F., 38. Carpenter.	+	6 months.	Poorly now; prol. exp't'n left. Inter'd Bg. R. A. A.	+	O	O	O	110	125	0,0005-10,0 mgm. None.	1 year.	Working and well	Apparently cured
4. 1906, 2 3	Mr. N., 34 Weaver	O	1½ years.	R. A. A. dul. L. A. A & P. dull.	O	O	+	O	125	128	0,0005-8,0 mgm. Three reactions.	1 month.	Working and well	Apparently cured
5. 1906, 6 21	Mrs. L., 25. Housew'k	O	2 months.	Fair L. A. A.; fine râles.	O	O	+	O	136	140	0,0005-12,0 mgm. None.	7 months.	Working and well	Apparently cured
6. 1906, 7 14	Mrs. S., 28. Housew'k	O	4 months.	Fair. R. A. A. dull.	O	O	O	O	128	136	0,0005-10,0 mgm. None.	5 months.	Working and well	Apparently cured
7 1906, 8 1	Miss R., 19. Mill.	+	6 months.	R. A. A. Bron. ves bg. and a few râles.	O	O	+	O	112	126	0,0005-12,0 mgm. Six reactions.	3 months.	Working and well	Apparently cured
8. 1906, 4 9	Mr C., 31 Mill	+	3 months.	R. A. A. Râles on cough and deep respiration.	O	O	+	O	120	131	0,0005-10,0 mgm. Reacted each time for 3 months.	7 months	Working and well	Apparently cured
9 1906, 1 3	Mr S., 37. Plumber	+	1 month.	R. A. A. & L. A A slight dull.	+	O	+	O	145	146	0,0005-10,0 mgm. None.	1 month.	Working and well.	Apparently cured
10. 1906, 2 21	Mr T R., 23 Office	+	2 months.	Râles over left ant	+	O	+	+	128	141	0,0005-20,0 mgm. Reacted each time for 4½ months.	1½ months.	Working and well	Apparently cured
11 1905, 11 29	Miss V., 21 Mill	O	6 months.	L. A. A dull to 2nd rib. impaired movement.	+	O	+	O	110	130	0,0005-4,0 mgm. Reacted severely 4 times, a'd 3 times l'tly	½ month	Working and well	Apparently cured
12 1906, 1/12	Mr. At., 36 Embroider	+	2 months	Depression below left cla. occas râles; R. A A moist râles	+	O	O	O	141	140	0,0005-10,0 mgm. None	6 months	Working and well	Feels well, but has some râles

TABLE III.—CLASS III. SIX CASES

No. of Case; Beginning of Treatment	Weight		Sex, Age, Occupation	Hereditary	Duration of Disease Prior to Treatment	Condition on Beginning of Treatment	Fever		Sputum		Dose and Reaction	Condition on Discharge	Time Elapsed	Present History
	Beginning	End					Beginning	End	Beginning	End				
1. 1905, 7 12.	120	145	Mr. H., 29. Fruit-dealer	+	5 mos.	Depression under R. clavicle, morning cough.	+	0	+	0	0.0025-5.0 mg. Reacted 4 times moderately.	Apparently cured.	1½ years.	Working and well.
2. 1905, 7 10.	117	130	Miss A., 18 Office	0	3 mos.	Anemic wavy bg over both apices.	0	0	"	0	0.0005-15.0 mg 8 times. Reacted	Apparently cured.	1½ years.	Working and well
3. 1905, 9 4.	96	109	Miss F., 21 Clerk.	0	7 mos.	Anemic L. A. A. Dull.	0	0	+	0	0.0005-80 mg. Five light reactions.	Apparently cured.	1 year, 3 months.	Still well and gaining.
4. 1905, 12/2.	131	138	Mrs. L., 31 House-work	+	1 yr.	Dullness above R. clavicle.	+	0	+	0	0.0025-10.0 mg. Reacte for 3 mos., each time f ly	Apparently cured.	1 year, 2 months.	Still well.
5. 1906, 1/4.	116	134	Mr. Fr., 36. Electric	+	4 mos.	Poorly nourished, fine rales, R. A. A.	0	0	"	"	0.0025-10.0 mg. Reacted 9 times.	Apparently cured.	1 year	Still well.
6. 1906, 2/3.	126	150	Mr. U., 30. Salesman	+	1 yr., 5 mos.	Occasional night sweats; constant cough. R. A. A. dull	+	+	+	"	0.0025-20.0 mg. Reacte every time except the last 6 times	Apparently cure l	9 months	Still well and gains some

Note. + = present or positive. — = negative or absent.

developed tuberculosis I am convinced that they are affected with it, and sooner or later will show it, unless the proper treatment is given. In these cases I found further that the reaction lasted from three to six days and very severely. In my opinion all closed cases, that is, without cough or other means to rid themselves of the germ, react more severely than the open cases.

The cases described here are divided into three classes, or groups: (1) Disease of moderate severity, patients having made a climate cure previously, but relapsed. (2) Cases of moderate involvement, with no previous treatment. (3) Cases of very little involvement, mostly apical and one-sided; in all members of this class the diagnosis was made by tuberculin, but they showed other symptoms at the same time, some having bacilli in the sputum.

The classes will be found tabulated in the three preceding columns.

In conclusion it may be said that these cases would indicate that:

1. An early diagnosis gives the greatest assurance of an early permanent cure (tuberculin being the means of such diagnosis).

2. The selection of cases has a direct bearing on the results; far advanced cases are generally hopeless and second-stage cases doubtful.

3. A cure is possible by means of tuberculin, but the permanency of such cure is *sub judice* at present.

4. The dose is to be guarded in order to avoid reaction of a severe type and the intervals between the injections should be regulated according to reaction.

5. No ill-effects have followed large doses, even in the beginning of the treatment; but it is advisable to give small doses, since the larger doses may cause symptoms which alarm both patient and physician.

6. In fever cases very minute doses have a tendency to reduce temperature; three of the twenty-five cases have acted that way.

7. Bacilli usually increase in number at first, and cough may be more severe for a time, but the improvement is early and rapid.

8. Under tuberculin the weight increases and the general condition improves, the symptoms disappear, and the patient feels in every respect better; this naturally pertains only to certain well-chosen cases.

9. These observations have conclusively shown that patients while remaining at home and at work can take the tuberculin treatment and receive a great deal of benefit from it.

I am indebted to Dr. L. Brown of Saranac Lake for several valuable suggestions in the preparation of this article, and take this opportunity to express my thanks for his kindness.

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MORPHINISM.*

By CHARLES J. DOUGLAS, M.D.,

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Morphine, alcohol, and cocaine should be given preeminence among the drugs that enslave. There are other enslaving drugs, but they are not as commonly used nor as serious in their effects. Of these three, morphine is the most tenacious and exacting in its bondage, and escape from it is practically impossible without medical aid. Morphinism knows no periods of total abstinence, as is often the case with alcoholism, but every day the patient must have his regular allowance of the drug or suffer the most intense torture. The alcoholic will often have periods of weeks or months, during which time he is not only free from all thoughts of drink, but is sure that he will have no more trouble from that source. But the morphine habitué has no such experience. He is in perpetual slavery, without the intermission of a single day. The baneful effects of this drug are felt throughout the system. Almost every organ in the body is affected in some way by its habitual and long-continued use. But the most important and the most

*Read before the American Medical Society for the Study of Alcohol and Narcotics, at Atlantic City, June 5, 1907.

serious of these symptoms are those relating to the brain. The mental processes often become so changed, and the judgment so warped, that to a great extent another personality is developed. Morphinism in this stage should be classed as a mental disease.

Morphine patients occasionally use other drugs at the same time. The combination of morphine and cocaine is perhaps as common as any. This is often brought about by an effort to overcome the morphine addiction by the use of cocaine. The result of such treatment is always failure, and usually the patient finishes with two drug addictions instead of one. When alcoholics acquire the morphine habit, the two addictions sometimes continue synchronously, but often morphinism completely takes the place of alcoholism, and the last state of the man is worse than the first.

Unlike alcoholism, the morphine addiction is not a social habit, and consequently its causes must be looked for elsewhere. In a large majority of cases the habitual use of morphine begins with its employment for therapeutic purposes. Pain or discomfort of some sort is the usual cause for the administration of the initial doses.

Morphinism is undoubtedly on the increase. During the last two or three years I have especially noted that many are acquiring this habit through an effort to overcome the after-effects of excessive drinking. The theory is being passed from one to another among drinking men that the proper way to relieve the symptoms that follow a spree is to take a dose of morphine, and its use for this purpose is increasing yearly. The self-administration of this drug for any purpose usually results sooner or later in the fastening of the morphine addiction upon the patient. The use of morphine for "sobering up" purposes is an evil that is assuming serious proportions. Morphine addiction can, of course, be acquired by anyone, yet it seems to be more prevalent among people who are above the average in intelligence and social position. Both men and women of the better class are found among the victims of this treacherous drug. It is a curious fact that many physicians are addicted to it, and the self-prescribing of morphine is just as dangerous for medical men as for others.

There are few chronic diseases that are more surely curable than morphinism. But it cannot be cured at the patient's home, except under extraordinary conditions, with trained nurses day and night, and with a physician in attendance most of the time. At a good sanatorium, however, with proper care and treatment, it is entirely curable. The successful treatment of morphinism being essentially institutional, it is important that the right sort of an institution be selected. There are many sanatoria throughout the United States in which drug addictions are rationally and successfully treated. But there are others that make claims to miraculous cures by means of secret nostrums, whose methods cannot be approved. Physicians usually know the reputable institutions in their respective communities, and can advise their patients intelligently. But for some reason patients often decide the matter without consulting their family physician, and thus are liable to fall into the hands of charlatans and quacks.

The methods of treating morphinism may be divided into three general classes: (1) The sudden or abrupt withdrawal of morphine; (2) the gradual withdrawal of the drug; (3) the narcotic method.

The first or abrupt method of withdrawal is needlessly severe, causing the patient to suffer indescribable torture. This is the simplest and easiest method for the attending physician, as it consists merely in locking up the patient and leaving him to writhe in agony till the crisis is passed. This method is barbarous and unscientific and endangers the health if not the life of the patient. As it is wholly unnecessary to cause this suffering, it is remarkable that any institution should employ such drastic measures.

The gradual withdrawal method consists in so adjusting the doses of morphine that a slightly smaller amount is administered each day till zero is reached. This is a very satisfactory plan in cases that are not of too long standing and severity. Active medical treatment should accompany this method for the purpose of combating the withdrawal symptoms. These symptoms are always numerous and vary in different patients. By reducing the doses of morphine very slowly, and by the use of ameliorating remedies, these symptoms are greatly relieved.

The plan of treatment which I have denominated the narcotic method is, I believe, superior to all others in severe cases of morphinism. This consists in the use of various hypnotic remedies, so combined or alternated as to keep the patient asleep or in a quiet and comfortable condition for a short time, while the morphine is being completely withdrawn. When he awakes the period of suffering is passed, and all desire for morphine is gone. The painful part of the morphine withdrawal is accomplished while the patient is unconscious, on the same principle that a surgical operation is performed under the influence of anesthetics. The hypnotic remedy most often recommended for morphinism is hyoscine, administered in large and repeated doses. I consider this plan of treatment too uncertain to be recommended as a routine measure. While it may answer as an exclusive remedy in some cases, yet usually it produces delirium, and occasionally the delirium lasts for some time after the administration of hyoscine has been stopped. I have, however, often found it useful as an adjuvant to other sedative remedies, but many patients do not bear it well, and are made worse by its exhibition if it is not combined with other remedies. The exact remedy or combination of remedies must be determined by the idiosyncrasy of the patient, and occasionally several combinations will be tried before we find the one best suited to the peculiarities of the patient in hand. But, with experience, the physician will be able to get his patient promptly into the right condition for a total withdrawal of morphine, without pain and without danger.

A very important part of the treatment follows the withdrawal of morphine. Whatever method is employed, the patient is weak and debilitated for a time after the drug has been removed, and requires a course of tonic treatment and rest before he is fit to return to his usual vocation. If he leaves the sanatorium too soon he is very liable in his weakened condition to return to the use of morphine. Consequently the after-treatment is as important as any. This treatment consists in the use of remedies for the improvement of the appetite, the digestion, and the general condition of the nervous system. I often employ for this purpose high-frequency currents, mechanical vibration, and other therapeutic agents in addition to those of the pharmacopœia, and find them very valuable remedies and highly appreciated by the patients.

The victim of morphinism is usually a great sufferer and is deserving of as much sympathy and medical care as is given to any invalid. Because a patient has damaged his health by foolish habits is not a sufficient reason for professional neglect.

Many acquire the morphine addiction quite innocently, but even if the patient is entirely to blame for his condition we should remember that this is not the only disease for which the patients themselves may be responsible. In fact, a large proportion of the diseases that afflict humanity are caused directly or indirectly by foolish or unhygienic conduct. But this fact should not affect the physician's attitude, nor indeed that of the general public. In morphinism we have a serious pathological condition, and it is the business of the physician to devote his best energies to its cure. Every citizen should also be interested in it as a matter relating to the public health, that is of importance to the community. The self-administration of morphine is a great mistake, and its dangers should be more generally known. But we should not be too severe in condemning the errors of others. The only man who never makes a mistake is the one who never does anything. We are all composite creatures, made up of strength and weakness. To keep in mind this common heritage of the race, I have hung up conspicuously these lines:

"There is so much bad in the best of us,
And so much good in the worst of us,
That it hardly behooves any of us
To talk about the rest of us."

ON FLATULENCE AND ITS TREATMENT.*

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By the term flatulence a condition is designated in which an increased quantity of gas exists in the digestive tract. Two varieties may be differentiated, one in which the gas difficulty refers principally to the stomach—here eructations of gas or belching take place at frequent intervals—and the other in which the accumulation of gas exists principally in the intestinal tract—feeling of fulness in the abdomen and frequent passing of wind (flatus) per rectum.

Flatulence may exist as a primary disease or more frequently be associated with other ailments. Primary or idiopathic flatulence is a functional and nervous affection of the stomach or bowel, or both, in which the sphincter muscles of the digestive canal are principally concerned (relaxation of cardia or rectum).

There is no doubt that the quantity of gas emitted in this ailment is immensely increased over the normal. With regard to the origin of this ailment, the modern writers take quite a different view from that of the older clinicians. Formerly fermentation was believed to be at the bottom of the trouble. It was assumed that the carbohydrates and other food substances gave rise to undue fermentation and development of gas (fermentative dyspepsia). A disturbance of the act of digestion was assumed to exist, and the trouble, therefore, was considered a grave one. For the last twenty-five years, however, most clinicians have convinced themselves that flatulence may exist without any serious consequences for a long time. In most instances there is no real augmented fermentation of the food. The frequent eructation of gas or belching is explained on the theory that swallowing of air takes place at frequent intervals almost unconsciously (aerophagia, Bouveret). In this manner there need not always be an increased amount of gas in the stomach, but simply a swallowing of air and bringing it back again. My own experience is strongly in harmony with this modern view. I have frequently observed that in cases of ischochymia, in which there is almost always an undue fermentation and decomposition of food present (H_2S), patients do not suffer much from belching of gas. There may exist a feeling of tension in the stomach, but as a rule the cardia is perhaps rather more tightly closed than normally, due to the irritation by the decomposed substances. This is perhaps a provision of Nature not to let the patient become aware of the unpleasant odor which exists in his gastric cavity. On the other hand, frequent belching and expulsion of flatus exist in individuals who are well nourished and present no other symptoms whatever, indicating that the production of gas cannot be due to a grave lesion. Besides the swallowing of air a disturbed absorption of gas may exist. The latter incident is the principal factor in the augmentation of flatus.

A real increase in the formation of gas, and at the same time a diminution of its absorption, is encountered in acute and chronic gastric catarrh. A similar condition is met with in chronic enteritis, especially that variety in which the carbohydrate digestion is incomplete (fermentative intestinal dyspepsia of Schmidt). Here a feeling of fulness in the lower half of the abdomen and frequent passing of flatus are noticed by the patient. In these two classes of ailments the gas does not form the principal complaint of the patient, nor is it constantly present, in contradistinction from the above conditions in the so-called "flatulence." The main and almost only complaint of the patient is steady belching and flatus.

It is well known that gas under pressure is absorbed quicker than otherwise. Whenever the existing pressure is lessened by the frequent opening of the cardia and rectum, there is less liability of absorption. Habit in this way plays an important part in the origin and also in the aggravation of this trouble. The digestive canal can be trained to master the gases by quick absorption.

When our attention is actively kept up by some interesting or important subject also during sleep, the gases do not escape the digestive canal. It is merely in our easy-going hours, when our thoughts are turned to our vegetative function, that the need of passing gas makes itself felt. There is, however, no necessity of immediately responding to that sensation.

Secondary flatulence occurs in many affections of the digestive tract, in cardiac, circulatory, and respiratory disturbances. The feeling of constriction in the chest (want of more air and more space) is somewhat relieved by the propulsion of gas. The reason for this is the freer expansion of the lungs, which is made possible by the lessened tension within the abdomen. This, however, is only true when there is a real accumulation of gas present. The latter condition is met with occasionally in the above organic ailments, the patient finding relief after emitting the gas endeavors to repeat the same process whenever the feeling of oppression in the chest takes place. He then swallows air and brings it back again. In these instances the patient, after ridding himself of gas, may feel easier, but not really relieved.

In primary flatulence the main point is to instruct the patient that no harm is done if the gas is not emitted. He should, therefore, rather try to keep back the belching as well as passing of flatus whenever possible. With regard to diet, in simple eructation, there is no restriction whatever necessary; in flatulence due to disturbed absorption in the bowels it will be well to exclude from the diet beverages

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charged with carbonic acid gas and most gas-forming foods (cabbage, beans, onions, and the like). Nerve sedatives may also be administered for a short while, and will be helpful in accomplishing a cure.

In secondary flatulence the primary trouble must be attended to. Aspiration of fluids, whenever such exist, will give relief by decreasing the tension; the administration of iodides, digitalis, etc., according to necessity. With regard to diet, in most of these instances it will be best to have the patient take small and frequent meals in order to avoid overfilling of the abdominal viscera.

REMOVAL OF A LARGE THYROID TUMOR OF THE NECK—APPARENT DEATH—RECOVERY UPON REMOVAL OF THE ARTERY FORCEPS.

By JAMES HUNTER WELLS, M.D.

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IN CHARGE OF THE CAROLINE A. LADD HOSPITAL, PYENGYANG, KOREA; MEMBER OF THE MEDICAL MISSIONARY ASSOCIATION OF CHINA

As is well known, odd cases come in series of three! This coincidence recurs so often as to make one think that there is perversity among animate things as well as among inanimate. Although I do a good deal of general surgery in the little hospital I have charge of here, neck cases seem to be especially frequent. Scrofula being very prevalent, removal of enlarged glands is one of the common operations frequently called for. One of these came one day lately, and with the usual anesthetic, composed of eucaine 5 grains, adrenalin 1 dram, water 7 drams, injecting from 30 minims to even as much as 60 minims, we proceeded to take out the glands.

A few days later came in the case referred to in the title of this communication. The neck was enormously enlarged, breathing being difficult. The tumor, which was diagnosed as an enlarged thyroid, was somewhat movable and a little larger than one's double fists, and it looked as if removal would not be difficult. The difficulty in breathing made the local anesthetic not only preferable, but the only kind which could be advised, though it was expected that some pain would necessarily follow. The work proceeded properly, though it seemed at one time as if it would be impossible to get the tumor out without involving the trachea, it was so firmly imbedded and so very adherent. By carefully using fingers only it was removed from the trachea, and so out. Bleeding was free, of course, but mostly venous. The large cavity filled up rapidly with blood, and I grasped several places with forceps. Suddenly the woman gasped, struggled, and stopped breathing. Artificial respiration did no good, and, with staring eyes, blue lips, and every appearance of death, she quivered and then was quiet. The three doctors (two happened in as visitors) pronounced the woman dead—so did I. The husband, standing near, was told she was dead, and went out crying. I then concluded to remove the artery forceps, bleeding having completely stopped, and fix the body up to remove. There were perhaps a dozen artery forceps altogether. On removal of the forceps you may imagine our surprise and delight to note that the woman was coming to and quietly resuming breathing! The respiration rapidly became normal, the patient went on to complete recovery, and the operation was a success. When her husband was called back and informed that his wife was living, he would not come and did not believe it. He was finally persuaded, but I think he was somewhat chagrined to be covered from the shock and strangeness of it all.

Now, what was the cause of the trouble? I supposed, and am inclined to think yet, that it was due to grasping the pneumogastric nerve, though I thought it was quite far enough out of the way. The condition was not due to the local anesthetic; of this I am sure, for I have operated hundreds of times in which I used much more, and with the same solution, and had no bad effects.

I am not satisfied with the pneumogastric explanation, and so report the case, hoping I may get a more satisfactory explanation than any offered. Would just the removal of such a large tumor, with its intimate nerve supply, produce sudden symptoms of paralysis as here reported?

Two days afterward a smaller but deeper cyst—about the size of an egg—presented, and I removed it without any trouble, for having "waded in" on the other made me feel confident that almost any kind was removable if one can take time and use the local anesthetic. This makes the three, but finally, to explode the idea of "a series of three," a few days later another came, which was so large and adherent that I was obliged to pronounce it inoperable.

CANCER OF THE HEAD OF THE PANCREAS.

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PATIENT, male, colored, 45, family history negative. Enjoyed good health until five years ago, when he had an attack of appendicitis, for which he was treated medicinally. Since then he has been habitually constipated and had occasional attacks of acute pain. For the last eighteen months he has complained of a constant dull, aching pain in the epigastrium, worse when the stomach was empty, but three or four mouthfuls satisfies appetite and relieved the pain for a time. He suffered from constant nausea, occasional vomiting, anorexia, coated tongue, constipation, and jaundice. The attacks of acute pain and vomiting have been recurring with increasing frequency during the last six months. There has been marked loss of flesh.

He had on admission intense acute pain over the entire abdomen, more pronounced in the epigastrium, and was vomiting large quantities of water. No movement of bowels; cold, clammy skin, temperature subnormal, heart weak and irregular. The stomach was dilated almost to the symphysis and over to the right side. A stomach-tube was passed, and a large quantity of gas forcibly expelled, followed by about a quart of water. The pain was relieved and stomach reduced in size. There was a mitral murmur.

The temperature subsequently rose to 99.2°, but fell the next day to normal and remained there. The pain assumed a dull, constant character, increased by swallowing and on motion; no vomiting, no defecation. On the third day he had an attack of hiccoughs which lasted about eighteen hours, and was stopped only by cocaine. On the fourth day he began vomiting a brownish fluid with slight fecal odor. A palpable lump now appeared along the ascending colon. Diagnosis made of intestinal obstruction or intussusception, and immediate operation advised. At the operation, on opening the peritoneum, a quantity of gas escaped. The lumen of the small intestine was narrowed at intervals by bands of adhesions. There was a thickened mass in the head of the pancreas which proved to be carcinoma. There was no fat necrosis. The gall-bladder, liver, stomach, and large intestine were normal.

168 WEST SIXTY-FOURTH STREET

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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THE EFFECT OF THE ROENTGEN RAYS ON THE KIDNEYS.

BEFORE proof to the contrary had been adduced it was generally believed that the *x*-rays had an effect only on the superficial portions of the body which were exposed to their action. Within a few years it has been shown that the lymphoid tissue over the entire body is affected by this agent and that the testicular functions are likewise disturbed. Its action on the other internal organs, however, constitutes a practically unexplored field for study, as the observations which have thus far been made are too incomplete to warrant any definite conclusions. As regards renal changes we are very much in the dark, for the few observations which have been published seem to indicate that the kidney epithelium is quite resistant to the action of the *x*-rays, and that no renal changes are produced by this agent. The paucity of our knowledge on the subject lends interest to the valuable paper published by A. S. Warthin in the *American Journal of the Medical Sciences* for May, 1907, which is based on the kidney changes discovered in the material from two cases of leukemia that had been treated for some time with the *x*-rays. In one the leukemia was of the myeloid type, the white cells numbering 800,000 and the spleen being greatly enlarged. Under the use of the *x*-rays the patient's condition greatly improved and after seven months of treatment it was believed that a cure had been attained. Six months later the symptoms returned and necessitated renewed treatment, but death finally ensued with evidences of a severe intoxication. The autopsy showed that the leukemic condition had evidently been transformed into an aleukemic one. The kidneys, however, showed a most remarkable change, the greater part of the renal structure being replaced by calcareous deposits, producing a picture similar to that which is seen after poisoning with mercuric chloride. The renal epithelium seemed completely necrosed. In another case of leukemia a similar deposit of lime salts was found in the kidneys, the patient having died, after a period of apparent improvement, with evidences of intoxication like those observed in the first patient.

The presence of this extensive calcification naturally arouses interest as to the posible connection between this condition and the treatment employed. Warthin examined the kidneys in twenty-five cases of leukemia which had not been treated by the *x*-rays and in no instance were any evidences of calcareous degeneration found. In all there was more or less extensive parenchymatous degeneration in the kidneys and its extent seemed in direct proportion to the number of degenerating white cells seen in the blood and other organs. Warthin believes that the more severe renal changes seen in the two cases of irradiated leukemia are the results of some poison arising from the excessive destruction of white cells by the *x*-rays. In order to substantiate this theory the writer undertook a series of animal experiments, a considerable number of the smaller animals being employed for the purpose. It was found that degeneration of the renal epithelium occurred in all cases, its extent depending on the length of time the animal had been exposed to the *x*-rays. Continuous exposure was apparently always fatal, the rapidity of this result invariably depending on the amount of lymphoid destruction and the extent of the kidney lesion. The character of the symptoms, however, suggests a primary or secondary damage to the central nervous system, probably from an intoxication similar to that which results from the products of protein destruction.

A practical application of these observations would seem to warrant the assumption that the great destruction of leucocytes as it occurs in the *x*-ray treatment of leukemia may be extremely dangerous. From an occasional radiation of the body it is hardly likely that any serious damage to the kidneys will result, but when the process is repeated and prolonged, as in leukemia, the possibility of renal injury must be borne in mind. The condition of the kidneys should therefore be carefully watched by frequent examination of the urine, for, especially when a previous nephritis is present, an exacerbation may readily occur. The article here referred to constitutes a valuable contribution to our knowledge of a therapeutic measure which is undoubtedly of service, but regarding whose characteristics we are not yet sufficiently or satisfactorily informed.

THE EFFECT OF FEVER UPON THE RESISTANCE OF THE ORGANISM TO INFECTION.

IN the development of scientific medicine the significance of fever accompanying acute infections has always claimed the attention of the clinical observer. Long ago there arose the theory that fever is a conservative phenomenon, and accordingly those cases that ran their course without high temperature and the other elements of this symptom-complex, came to be regarded as especially severe and dangerous forms of the disease in question. The first blow to this view was delivered by Liebermeister ("Handbuch der Pathologie und Therapie des Fiebers"), whose studies uncovered many of the deleterious effects of fever upon the tissues and the organs of the body. Later, however, the observations of the effect of heat upon the life-processes of microorganisms, which soon came to be regarded as the true causative agents of many diseases, led to a revival of the ancient conception of fever. High temperature *in vitro* certainly inhibits the growth and the activity of many bacteria: it was argued, accordingly, that similar temperatures *in vivo* produce the same effect. Soon, however, the objection was brought forth that our knowledge of the localization

of high temperature in the body is not sufficient to allow the conclusion that the various bacterial excitants of disease are subjected to the same degree of heat that is registered by our thermometers (Krehl). Moreover, it became a question whether the inhibitive effects of fever upon the cellular excitants of disease were not made up for by a like inhibitive effect upon the body cells of the patient.

Lately, the attention of laboratory workers has been attracted to the subject, and the attempt has been made to reproduce the clinical condition, in part at least, by animal experiments, and thus to study the effects of the phenomenon at first hand. In *Russkii Vratch*, No. 25, 1907, Dr. V. P. Barankieva gives the results of her recent studies in this direction. She believes that a most important question in this connection is the behavior of the organism in fever toward the microbes that are probably constantly gaining entrance to the fluid channels of the body and are then rendered harmless by the bactericidal properties of the cells and of their products. She produced high temperatures in rabbits by means of the so-called "thermal puncture" of the brain (Aronsohn, "Allgemeine Fieberlehre," 1906), killing the animals in the height of this condition. Bacteriological examinations of the organs showed in such cases the constant presence of *Staphylococcus albus* and of a streptococcus. She concludes, accordingly, that fever may lead to an infection of the organism by the bacteria that are constantly present on the surface, and ever ready to effect an entrance when opportunity offers. Fever, therefore, seems to diminish the resistance of the cells of the organism.

Still more interesting experiments were made with the aim of studying the effect of fever upon natural immunity of animals. Rabbits were inoculated with the pneumobacillus of Friedländer, to which they are normally very resistant. The natural immunity of the animals was shown to be much diminished or completely lost in the presence of fever experimentally produced, the animals dying of lesions in the lungs accompanied by many focal necroses in the liver and spleen. Then a laboratory culture of staphylococcus of well-known virulence for rabbits was used, and again the effects of high temperatures proved to be the same; the infections were more virulent and their course more rapid than was usually the case.

These experiments throw a flood of light upon the etiology of mixed infections, and perhaps upon the increased susceptibility of individuals affected by acute diseases of brief duration with high temperatures, such as influenza or tonsillitis, to other more serious infections—pneumonia and tuberculosis for instance. Of course, all the data given above require further development and corroboration, but they certainly point the way to interesting experimental possibilities, the study, for instance, of the action of antipyretics in the course of experimentally produced fevers, and so on. Meanwhile, however, it is perhaps wise to hold in check the present tendency to consider all phenomena observed in the organism in the course of an infection in the light of the wonderful conservative process, and the custom of was finally persuasive noninterference in such cases. covered from the shock enough that the various organs

Now, what was their constituent cells meet the injurious forces assailing them by a striking variety of defensive processes and activities, but such reactions, once started, may not be inhibited at the proper time; it may be the part of wisdom, therefore, in such cases as the high temperatures discussed above, to interfere at some point with the local or general manifestations of the conservative process, in the interests of the organism as a whole.

CANCER HOUSES.

The old question of "cancer houses," one of the arguments employed by the adherents of the parasitic theory, has been revived in Paris by the publication of a report to the Prefect of the Seine of the Sanitary Bureau of that city. A commission appointed to study certain facts in regard to the localization of tuberculosis added to its labors an investigation of that of cancer. From August 1 to December 31, 1906, 1,062 deaths from cancer were reported to the Board of Health of Paris. Grouping these deaths by houses, Mr. Paul Juillerat, in his report, found that in 1,008 houses there was but one death each; in two houses there had been two deaths each during the year; in one convent there had been four deaths, and in five asylums and homes for the aged there had been in all twenty-six cases. These cases are, of course, not conclusive, or even significant in themselves, but it is the intention of the Health Department to continue the observation for a number of years in order to see whether there are any houses among the dwellers in which cancer is especially prevalent. The statistics would be more valuable if it could be noted in what houses the disease first declared itself, as well as those in which its victims finally succumbed.

Dr. Alfred Fillassier, writing in the *Gazette Médicale de Paris* of August 15, has collected a number of cases of these so-called cancer houses. In one apartment in a house at Vouziers, the husband, wife, father-in-law, and a servant died of cancer between 1870 and 1875. In another house at Oyonnax three successive tenants, unknown and unrelated to each other, died within a period of four years. In another case five persons, belonging to three different families, died in a farm house in the course of forty years. In another house at Jassy, eight families lived at various times in the course of twenty-five years; in each of these families a case of cancer occurred, and in one there were two cases. The writer of this paper promises further statistics regarding the domiciliary prevalence of cancer when he has completed a study of the family histories of the cases admitted during a series of years to a home for inoperable cancer sufferers. The undoubted instances of cancer cages observed during the study of Jensen mouse tumor have directed attention anew to this subject, and the study of fresh instances of house endemics of cancer promises to bring out facts of interest and possibly of significance in the etiology of malignant growths.

Subcutaneous Injuries of the Abdomen.

A blow on the abdomen or a severe concussion of the body resulting from a fall from a great height upon the pelvis, feet, etc., may injure the abdominal organs, while the elastic abdominal wall entirely

escapes injury. This is mainly true of the solid organs, any of which may suffer a rupture of varying degree, especially if they are diseased. The intestines usually escape, while the liver is most likely to be injured. These injuries prove fatal by internal hemorrhage or by a general peritonitis. As both of these conditions can be treated, the prognosis depends upon an early diagnosis. The difficulties and importance of an early diagnosis have been again emphasized by Dr. T. Vöckler in the *Münchener medizinische Wochenschrift* for August 13, 1907, where he discusses them in connection with a case of rupture of the liver. The signs are often very indefinite at first, so that the decision whether any, and, if so, what organ is injured, is difficult or impossible. It is not so important to diagnose which organ is involved as it is to know whether an internal injury really exists, for the treatment is laparotomy, no matter which organ is injured. The symptoms of any internal injury consist in more or less marked manifestations of shock, i.e. pallor and coldness of the skin and visible mucous membranes, dilated, slowly-reacting pupils, irregular, weak pulse, at times nausea and vomiting, and frequent fainting spells. But this symptom complex is also seen as a result of internal hemorrhage, and, after simple contusions of the abdominal wall without intraabdominal injuries, and it is difficult to determine whether it is just due to a simple contusion of the abdominal wall, or whether the symptom complex is a manifestation of an internal hemorrhage. It is due to the latter if the symptoms do not decrease, but increase, as time goes on and continue longer than two hours; thus the pulse will become more rapid and the pallor more marked. If nothing else speaks for an internal injury, these symptoms alone suffice to make a diagnosis. Other symptoms, such as general abdominal tenderness, may also be of value. Rigidity of the abdominal wall, most marked over the injury and increased by touching the abdomen, when present, is a sign of internal hemorrhage; to ascertain its presence early the patient must be told to breathe with his mouth open, and not too deeply. This rigidity must be constant, for, when transient, it may be due to a simple contusion of the abdominal wall. Vomiting is a late sign unless stomach or intestine is the seat of the injury, in which case the other symptoms of a general peritonitis usually set in as early as six hours after the injury. If an internal hemorrhage is present, signs of fluid in the abdominal cavity can be made out in one-half to two hours after the injury. Its location aids to a certain degree in diagnosing which organ is injured; if it is caused by rupture of the spleen, it is usually confined to the upper left portion of the abdomen; if it is due to a rupture of the liver, it is general or confined to the right side. As regards the treatment, shock is abated by the dorsal position and heat. As the first period of shock is often followed by a period of ease, the patient should be closely watched and sent to a hospital at once, so that an operation can be performed immediately if the occasion demands it. To be on the safe side, nothing should be given by mouth or rectum, as this only favors a general peritonitis in case the stomach or intestine is injured. Too much stimulation is bad before the source of hemorrhage is stopped; morphine should be withheld, lest it mask the symptoms. The patient should be catheterized immediately after the injury, for, if no urine and only blood is obtained, we know the bladder is injured; while if bloody urine is obtained, it points to a kidney lesion. If the rupture in the liver or spleen can be easily reached, and has clean-cut edges, it may be sewed; otherwise it is best to pack it. If the pancreas is injured the abdominal wound should always be drained, as its secretion injures tissue and causes fat necrosis. A pancreatic fistula is best treated by putting the patient on an antidiabetic diet, as carbohydrates increase the flow, while a fatty diet diminishes it.

Typhoid Bacilli Carriers in Institutions for Chronic Invalids.

It has long been known that typhoid bacilli are excreted with the feces and urine of patients suffering from typhoid fever. It has also been discovered more recently that bacilli may be excreted for years after the patient has recovered from the disease, not necessarily with each stool, but at intervals. Dr. A. Nieter reports in the *Münchener medizinische Wochenschrift* of August 13, 1907, an attempt to trace the etiology of several typhoid epidemics in a large insane asylum. After excluding such sources as water and foodstuffs, he made examinations of the stools of all the inmates, and found seven patients with typhoid bacilli in the stools. All of these were well and up and about. After isolating these seven cases, he thought no further epidemics would develop, but only a few months later three new cases developed in the same building from which the seven had been removed. Water and foodstuffs were again excluded as sources of infection, and the stools of all the patients were again examined for typhoid bacilli. One patient was found excreting the bacilli. She had been in the institution several years, and examination of her stools during the previous epidemic showed negative results, proving that the excretion of bacilli is not constant. She felt well and had a positive Widal of 1:6,000. Similar findings in this and other institutions were reported, and in some no further epidemics developed after isolating the carriers. It is therefore important in all large institutions for chronic invalids, where the patients remain for a long time, to trace the etiology of each case of typhoid fever. When by repeated examinations of the stools of all the patients, carriers of typhoid bacilli are detected, they should be isolated.

News of the Week.

The Sixth International Dermatological Congress has been in session at the Academy of Medicine, New York City, during the present week. At the meeting on Wednesday, Prof. Thomas De Amicis, of Naples, Italy, was elected President of the next Congress, which is to be held in Rome in 1910.

Cholera.—It is reported from Russia that cholera is spreading in St. Petersburg and householders in that city have been warned by the health authorities to observe the strictest precautions in the preparation of food, in the use of boiled water, and in disposal of refuse. The disease is also epidemic at Nijni-Novgoro'l, where from ten to fifteen new cases are reported daily. A Russian emigrant died recently of cholera on a train while passing through Prussian Poland. This was the first case discovered this year in German territory, but a day or two later a raftman on the Vistula died of the same disease after reaching Prussian territory.

The Plague.—Up to September 7 there had been eighteen cases of bubonic plague in San Francisco. The first case of plague occurred at the U. S. Marine Hospital on May 27, and the next case was not discovered until August 12, when two cases appeared at North Beach. The burned district is said to be alive with rats, and every effort is being made to exterminate them.

recommended to the Board of Supervisors that the City and County Hospital, which has sheltered a number of plague cases, be burned. The hospital is a collection of frame buildings, which the city authorities have long planned to destroy. The announcement is made that the Marine Hospital Service is to take charge of the plague situation. Dr. Rupert Blue has been assigned by Surgeon-General Wyman to direct the campaign.

Smallpox in Vienna.—Smallpox is prevailing to such an extent in Vienna that it has been declared epidemic, and public meetings and processions have been forbidden. Within a week more than 160,000 persons were vaccinated.

Koch's Work in Central Africa.—It is reported that Prof. Robert Koch has been meeting with unvarying success in his treatment of sleeping sickness by atoxyl, having had about four hundred cases of the disease. His fame has spread throughout Central Africa, where he is known as "the great white wizard," and appeals to him for help are constantly coming from the most remote regions where the disease prevails.

Civil Service Examination for Anatomist in the Army Medical Museum, Washington.—The United States Civil Service Commission announces an examination on October 23-24, 1907, at the usual places, to secure eligibles from which to make certification to fill a vacancy in the position of anatomist (male), at $1,600 per annum, in the Army Medical Museum, office of the Surgeon-General, and other similar vacancies as they may occur there. The examination will consist of the following subjects: (1) Human anatomy, (2) anatomical drawing (competitors will be required to make a pen-and-ink drawing from a photolithograph which will be furnished), (3) gross pathology (of tissues), (4) construction, care, and use of microscope (questions relating to the compound microscope, with knowledge of various makes in general use), (5) training and experience (rated on application). Two days will be required for this examination. The first subject will be given on the first day, and the remaining subjects on the second day. Age limit, 20 years or over. It is desired that the person appointed to this position should be young, in good health, have a thorough knowledge of anatomy (preferably, but not necessarily, a graduate in medicine), be able to make anatomical drawings, understand microscopes, surgical instruments and appliances, and be able to prepare, card, and keep in order the anatomical specimens of the museum. This examination is open to all citizens of the United States who comply with the requirements. Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1,312.

Chicago Dispensaries.—In Chicago, where dispensary records are not yet kept with the exactitude desired by the committee of the Chicago Medical Society now working in that direction, twenty-nine of the fifty-five dispensaries duly listed last year, treated 223,110 persons, the sixteen dispensaries in which figures are carefully balanced reporting the visits of 93,800 persons, with a total of 236,140 treatments. The number of applicants refused attention, because palpably able to pay outside physicians, was 1,170. Since the investigation of dispensary applicants, though now partially conducted by the Chicago Bureau of Charities, has not yet become general or thoroughly systematic, these figures must be taken as mere suggestions of the true state of affairs. In order to correct the abuse of medical charity a committee was appointed, consisting of Drs. C. W. Green, E. A. Fischkin, W. Van Hook, J. B. De Lee, J. M. Dobson, D. A. K. Steele, and T. B. Renn, chairman. This committee has just made the following recommendations: (1) That a committee be appointed by the president of the Chicago Medical Society, whose duty it shall be to bring into one federation the managers of all reputable dispensaries for the purpose of overcoming the evils that now exist through cooperation of the dispensaries themselves, by the education of the public and of those who apply for treatment, through the public press, if need be, and, if this is not successful, to inaugurate legislation to correct this abuse. (2) That all dispensaries be required to keep complete records of all cases, which records should be open to the inspection of the officers of the federation, and that all dispensaries be required to furnish sanitary and hygienic accommodations for both sexes, which should be inspected by the Department of Health. We also recommend that these facts be brought to the attention of the Commissioner of Health. (3) That all dispensaries should have a sign in a conspicuous place, stating that the free dispensary is for the deserving poor only, and should employ a distributor, who should inquire carefully into the ability of the patient to pay, referring all doubtful cases at once to the Chicago Bureau of Charities for investigation. (4) That none but the deserving poor should receive treatment or should be received at any dispensary, and these should be required to sign a statement that they are not able to pay. (5) Wherever possible, all patients treated gratuitously at free dispensaries should be used for teaching purposes, as this tends to systematize the record of cases, and gives the patient more careful and helpful treatment.

A Trolley Hospital.—A hospital car was recently placed in service on the street railway lines in Milwaukee. The interior of the car is fitted with three leather upholstered permanent stretchers. Hooks are placed in the side near the ceiling, from which a fourth stretcher may be suspended. At either end of the car are stationary cabinets supplied with complete surgical outfits, consisting of all necessary instruments, as well as dressings that might be called for in emergency cases. The car is electrically heated, and water in a two-gallon tank fed from a larger receptacle may be heated in the same manner. The car is not designed for city work, but in outlying districts, far removed from a hospital, first aid will be direct on the ground instead of bringing the sufferer to the city. The car was built and equipped after plans prepared by Dr. C. H. Lemon of Milwaukee.

A Launch for Dr. Grenfell.—A large gasoline launch was recently sent to Labrador from Gloucester, Mass., for use by Dr. Grenfell, the medical chief of the mission to the Labrador fishermen. The launch will be used for making trips along the coast to fishing stations that cannot be reached by the regular steamer of the mission.

Garbage Barrels for Food.—Orders have been issued by Health Commissioner Darlington to contractors handling the garbage and refuse of the city, that the practice of selling to produce and meat dealers for further use the empty barrels and boxes in which waste matter has been carried to the dumps must be discontinued. The order follows an investigation which was made in response to the complaint of a citizen.

New Laws.—On September 1 two new laws affecting pharmacists became effective. One of these forbids substitution in the compounding of prescriptions, and the other makes it a felony to sell cocaine or any compound containing it, except upon

the written prescription of a duly registered physician.

Powerful Drugs.—The *British Medical Journal*, in making an investigation of some of the British public's favorite quack remedies, gave the result of an analysis of a bottle of 200 pills largely sold in England. The most careful tests failed to reveal the presence of any drug, the pills being pure sugar without any admixture whatever. The bottle of two hundred pills, which were made in America, sold at retail for a shilling.

Another Cancer Cure.—A despatch to *The Sun* from Budapest states that Dr. Haler of that city has secured very beneficial results in cancer cases at the University Hospital through the use of an injection of gelatin. In forty cases thus treated he claims to have been successful in all but three.

The Pollution of Lake George.—The Attorney-General of the State has announced, in answer to a complaint from the New York State Board of Health regarding the pollution of the waters of Lake George by the steamers plying thereon, that he has no authority to prosecute the company owning the boats. Under the navigation law the penalties for such violations go to the adjacent towns, and it is only the officers of those towns who are empowered to prosecute.

Private Cups at Public Fountains.—The W. C. T. U. has offered to present a drinking fountain to the town of Bloomfield, N. J., and the town council has accepted the offer. The Board of Health, however, announces that it will not allow cups for public use to be placed on the fountain because of the great danger of the spread of disease through the use of such utensils.

Payment for Birth Certificates.—Hereafter every baby born in Michigan will cost the county into which it has come 75 cents. A law passed by the legislature last spring provides that all physicians, midwives, or nurses who file their birth certificates, properly made out in black ink, with the registrar within ten days after the birth, will receive a compensation of fifty cents for each certificate. In addition to the compensation for the physicians or others making out the certificates, the registrars receive 25 cents for their services in recording and forwarding the same to the department at Lansing.

Fraternal City Sanatorium.—The first buildings of this sanatorium, intended for the tuberculous members of various fraternal organizations, are now completed and patients are being received. The sanatorium is located on a plateau in New Mexico, about four miles from Alamogordo, at an elevation of 4,750 feet above sea level, not far from the Marine Hospital Sanatorium at Fort Stanton and the Army Sanatorium at Fort Bayard. The buildings now completed include the large general building and immediately east is located the service building. The former is a structure nearly 300 feet in length, having a second story for about half its length. The sleeping rooms are arranged in groups of two, each group being separated by covered porches, and between the rooms are located the toilets, one for each suite of two rooms. Accommodation is now ready for 250 patients, and it is intended to add to the capacity of the sanatorium indefinitely.

Woman's Medical College Hospital in Philadelphia.—Plans have been prepared for a new hospital building for the Woman's Medical College of Pennsylvania. The proposed new structure will be six stories in height, of brick and concrete, and it will adjoin the college building. It will have a front of 74 feet and a depth of 87 feet. The first floor will be divided into offices, receiving room and students' rooms, with a large operating amphitheater, two stories high, with a glass roof. The second story will be given up to private rooms. On the third floor will be two public wards and two private rooms. Fourth, fifth, and sixth floors will be given over to private patients, nurses, and attendants. A roof garden for convalescents will surmount the entire structure.

The Chicago Eye, Ear, Nose, and Throat College has purchased property adjoining the present site of the College, and it is proposed in the near future to build a new building occupying both the old and new sites. The building will be an eight-story fireproof structure, with a forced draft ventilating system. During the erection of the new building there will be no interruption of the business of the institution, as one-half will be erected and occupied while the other half is being gotten ready.

Tuberculosis Hospital in Milwaukee.—Work will be begun soon on the tuberculosis annex to the Milwaukee County (Wis.) Hospital at Wauwatosa. The structure will be of brick, two stories high, and will provide accommodation for forty patients, fifteen women and twenty-five men.

The Hudson Street Hospital.—An annex is to be built for the Hudson Street Hospital to provide accommodation for the increasing number of emergency cases. The annex, located in the rear of the hospital, and connected with it by a covered bridge, will be 55 by 26 feet and three stories high.

Tuberculosis Hospital at a Prison.—The Tennessee Prison Commission has decided to erect a tuberculosis hospital at the Brushy Mountain mines. The State Board of Health is cooperating with the Commission, and the hospital will embrace the idea of both the bodies.

A New Medical College.—The College of Physicians and Surgeons of Meridian, Miss., has purchased ground upon which it will at once erect a college building and hospital.

Scarcity of Milk in New York.—It is said that the city is threatened with a partial milk famine, there being at present a shortage of 80,000 quarts, which may be expected to be even greater when all the families now in the country have returned to the city.

International Milk Congress.—The second international congress of the Gouttes de Lait Association was held this week in Brussels. Among those present were Mr. Nathan Strauss and Dr. Arthur Randolph Green, director of the Strauss laboratories for the pasteurization of milk.

The San Francisco Board of Health.—Mayor Taylor has appointed a new Board of Health, composed of Drs. Thomas W. Huntington, Dudley Tait, and William Ophuls, in place of the old Board appointed by former Mayor Schmitz.

Dr. Arthur A. O'Neil has been appointed by Mayor Taylor warden of the San Francisco City and County Hospital, to succeed an appointee of the deposed Mayor Schmitz.

A New Association of Physicians was organized at the Sherman House (Chicago) recently, with Dr. Charles McCormick as president and Dr. C. W. Crosby as secretary. Directors will be selected at the next meeting of the organization. The objects of the association are announced to be to secure insurance against malicious prosecution; to

secure speedy changes in the laws of the several States so as to permit a licentiate to practice medicine in any State of the Union; to have members of health boards appointed from all walks of life, and to publish a medical magazine.

The Wisconsin State Medical Society held its annual meeting at Superior on August 21-24. The officers elected were: *President*, W. E. Ground, Superior; *First Vice-President*, Byron M. Caples, Waukesha; *Second Vice-President*, Dr. Herman Gasser, Platteville; *Third Vice-President*, Dr. E. S. Hayes, Eau Claire. Milwaukee was chosen for the next meeting place.

The Piscataquis (Me.) Medical Association.—At the annual meeting of this society held two weeks ago, the following officers were elected for the ensuing year: *President*, Dr. H. A. Snow, Milo; *Vice-President*, Dr. A. H. Stanhope, Dover; *Secretary*, Dr. C. W. Ray, Sangerville; *Treasurer*, Dr. E. A. Thompson. A banquet at the Blethen House followed.

Fifth District Medical Society of Arkansas.—At the annual meeting of this society, held at Dardanelle in the last week of August, the following officers were elected: *President*, Dr. Norborn H. Jackson of Pontoon; *Vice-President*, Dr. J. S. Kalb of Clarksville; *Secretary and Treasurer*, Dr. S. P. Vaughter of Little Rock.

Obituary Notes.—Dr. Richard Botsford of Lake City, Iowa, died on August 30 at Fort Dodge, following an operation for gallstones. He was born in Fort Dodge in 1874, was graduated from the Medical Department of the University of Vermont in 1898, and practised for a few years in Burlington. Later he removed to Lake City, Iowa.

Dr. Joseph A. Winkler of Boston died on August 20, at the age of seventy-seven years. He was born in Savannah, Ga., and was graduated from the New York University Medical College in 1854. He practised in Savannah until 1865, when he went to Jamaica Plain, Mass., where he had lived ever since.

Dr. Daniel H. Kelley of Old Town, Me., died August 28, at the age of fifty-two years. He was born in Milford, Me., and was graduated from the Medical Department of the University of Vermont in 1881.

Dr. Henry J. O'Donnell of Ellsworth, Kan., died August 23. He was born in Ireland in 1866 and came to the United States in 1884. He was educated at Queen's College, Galway, and obtained his medical degree from the Bellevue Hospital Medical School in 1891. He was surgeon to the Kansas National Guard in 1895-6, and in 1905-6 represented Ellsworth county in the State Legislature.

Dr. Charles F. Branch of Amherst, Mass., died August 27, of Bright's disease, at the age of sixty-one years. He was born in December, 1845, in Orwell, Vt. He was a graduate of the Medical Department of the University of Vermont in 1879. He practised first in Coventry and later in Newport, Vt. He was professor of hygiene in the University of Vermont, Surgeon-General of the Vermont National Guard, and president of the Vermont State Medical Society in 1895. He removed to Amherst in 1896.

Dr. C. A. Kiemmer, formerly of Minot, N. D., and later of Faribault, Minn., died recently in Berlin, where he went last May to study in special courses. He was a graduate of the University of Minnesota College of Medicine and Surgery at Minneapolis, in the class of 1904.

Dr James Harris died in Yokohama on August 1, at the age of 81 years. He was born in Providence, R. I., and was graduated from the New York University Medical College. He entered the Russian army as Surgeon-Major during the Crimean war. His services there were appreciated and he received the Crimean and St. Petersburg medals. Returning to the United States, he entered the Federal army at the outbreak of the Civil War as Surgeon of the Fifth Rhode Island Regiment. In 1867 he was sent to Japan with the warship *Stonewall*, and never came back to America, but settled in Yokohama, where he practised medicine for twenty-three years. He retired from practice in 1890.

Dr. Charles L. Frankel of Berlin died August 27, at the age of forty-one years. He was a graduate of the St. Louis College of Physicians and Surgeons in 1892.

Dr. Lewis Mayo of Sauk Rapids, Minn., died August 25, at the age of seventy-nine years. He was prominent in political life as well as in medical practice, having been coroner, treasurer, and probate judge of Benton county and State Senator in 1870.

Dr. William Gutch of Albia, Ia., died August 24, at the age of eighty-three years. He was born in England, but came to this country in early life. He was a graduate of the Western Reserve Medical College, Cleveland, in 1855.

Dr. Edward J. Messemer of this city died two weeks ago at Marburg, Germany. He was born in New York and was graduated from the New York University Medical College in 1871. He was a member of the State and County Medical, Neurological, and the German Medical Societies, and was for thirty years an attending physician to Mt. Sinai Hospital Dispensary.

Dr. Joseph A. Krieger died recently in St. Louis. He was a graduate of the Missouri Medical College in 1888.

Dr. Nathaniel W. Webber of Detroit died August 30, at the age of 66 years. He was born at Gardner, Me., but removed when a child, with his parents, to Chicago. He was studying medicine at the time the Civil War began, and entered the army as hospital steward; later he was appointed assistant surgeon, and, on the retirement for ill health of his chief, surgeon. At the close of the war he completed his medical course, and was graduated from the Northwestern University Medical School, Chicago, in 1866. In 1869 he removed to Detroit, where he became professor of anatomy in the Detroit College of Medicine.

Dr. William H. Abercrombie died in Washington, September 5, at the age of sixty-five years. He was born in New York, and was graduated from the Homeopathic Medical College in this city in 1872. He practised medicine here and in Jersey City until 1890, when he was appointed Consul at Nagasaki, Japan.

Dr. William A. Rocap died at Olney, Philadelphia, on August 20, at the age of thirty-eight years. He was graduated from Jefferson Medical College in the class of 1888, and was for two years resident physician in the Jewish Hospital.

Dr. Bernard Zweighaft of this city died suddenly at Kennebunk Beach, Maine, on September 1, at the age of forty-one years. He was a graduate of the Medical Department of the University of Pennsylvania in the class of 1891.

Dr. Michael Beshoar died in Trinidad, Col., September 5, at the age of seventy-four. He was born in Pennsylvania, graduated from Ann Arbor University in 1853, and was the last survivor of his class. He was a surgeon in the Confederate Army.

Correspondence.

DENTISTRY WITH THE ETRUSCANS 2,300 YEARS AGO.

To the Editor of the Medical Record:

Sir:—One of the recent numbers of the journal, *Rivista Italiana di Odontoiatrica*, contains an article by Prof. Galli on the practice of dentistry in the land of the Etruscans in the fourth century before Christ. Upon carefully examining a skull dug up in the necropolis of an Etruscan city, he found old dental work consisting of four golden capsules or crowns, two of which covered natural teeth and had the other two as a bridge between them. Galli is convinced that his discovery shows the work of ancient Etruscan dentists; they also filled decaying teeth very well, and their crown and bridge work has stood the test of ages. In concluding he says that through American skill and invention dentistry has made wonderful progress, indeed, but it would seem that the foundation of the art had been laid away back in the early Roman times.

Leonard Weber, M.D.

APOMORPHINE IN ACUTE ALCOHOLISM.

To the Editor of the Medical Record:

Sir: In the issue of July 27, in an article, "Apomorphine in Acute Alcoholism," I note the statement that this hypnotic use of the drug was first given the profession by Douglas in 1899. This struck me as singular, since at that date I myself, then only a medical student, knew of the method, among my father's case records, of an alcoholic whom we have observed for twenty-five years. I find its use as far back as 1891. As at no time did my father (since dead) speak of the method as original, but rather taught it me as a recognized method, I believe the method must have been fairly generally known eight or nine years prior to 1899. J. E. Tuckerman, M.D.

EYE BORING OF SIGHTLESS CHILDREN.

To the Editor of the Medical Record:

Sir:—I shall be much obliged if you or some of your readers can give me an explanation of why blind babies and little children so constantly dig their fingers into their sightless eyes. I am deeply interested in the subject of blind babies, as the International Sunshine Society, of which I am President-General, established and maintains the only home for blind children under eight years of age in the whole State of New York. After that age they are provided for, but till then they have hitherto been kept at home, or sent to the departments for the feeble-minded. I discovered these facts in the course of my work as a newspaper woman, and with the help of interested friends started the Home for Blind Babies, at Dyker Heights, Brooklyn. In a number of cases which came under our notice, in the course of investigations, the blind children when left to themselves without occupation or amusement found both in digging their knuckles into their eyes, until, frequently, they literally picked out their eyes, and subsequently died of blood poisoning. Often sticking their fingers deep into their eyes before they could be prevented, they would squeal with pleasure, as if they experienced some agreeable sensation. I asked a physician the reason, and he said he did not know unless when the fingers were pushed in far enough a nerve was touched which gave a spark of light, corresponding to what we experience when we bump our heads and "see stars." I do not know if this is the correct explanation and shall be much interested to hear through the columns of the Medical Record the reason of this action.

Cynthia Westover Alden.

96 Fifth Avenue, New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

PLAGUE, THE KING, VICEROY, AND INDIAN SECTION—OPINIONS OF EXPERTS—PROF. HAFFKINE'S POSITION—"KALOO" NUTS A POISON—OBITUARY.

London August 23, 1907.

On Monday it was announced that the King had addressed a letter to the Governor General of India, expressing His Majesty's anxious interest in the course of the plague epidemic, and his heartfelt sympathy with his Indian subjects. The next day we learned that a Gazette Extraordinary had been published at Simla, containing the King's letter, one from the Viceroy to the local governments, and one from the Government of India. This last states that the Plague Commission held that the disease is spread by rats, the direct vehicle being the fleas of the rats; further, that the life of the germ in the soil, floors, and walls is of short duration. Accordingly the government recommended the destruction of rats, the improvement of house construction, the reduction of the food of the rats by the care of the grain stores, the removal of people to temporary dwellings, and inoculation, while avoiding anything which would probably stir up the opposition of the natives. In a subsequent memorandum the Government of India offered further suggestions, laid stress on the inadequacy of the sanitary service for dealing with the epidemic, and recommended the creation of a special service consisting of superior officers in the Indian Medical Service, physicians sent from this country, and certain grades of natives. On consulting the local governments it was found that they all disapproved of this scheme as unsuited to Indian needs. The Plague Research Committee, which was nominated by the Royal Society and the Lister Institute, have been at work for two years, and measures have been taken to strengthen the laboratories, and the Indian Government says that every demand of the committee has been promptly met. The Secretary of State for India has sent a despatch to the Viceroy in which he refers to the above-named memoranda, urges that no effort should be spared to arrest the spread of the disease by means acceptable to the people, and adds that within reasonable limits of cost all proposals for combating the epidemic will have his support. While admitting that the Viceroy and his advisers can say with authority what measures can be enforced with good results and at what point intervention becomes dangerous, he remarks that plague having been active in India for eleven years and the number of its victims exceeding five and one-fourth millions, while its virulence is unabated and its progress uncontrolled, doubts necessarily arise as to whether everything possible has been done by the responsible authorities, and whether the last word of medical science and administrative skill has been said.

All this looks well as a defence of what has been done and as a promise for the future, but is not beyond criticism. Those who know most of the matter are not satisfied. For example, Major Ronald Ross, than whom no one is more able to speak with authority, has recently blamed the Indian Government for its inefficiency—if not worse. He recalls that the disease had been epidemic in Hong-Kong for two years before it reached India, but though this was well known no adequate measures were taken to exclude it or to detect the first cases; consequently these were unobserved, and when they had spread vacillating counsels prevailed. He seems, too, to doubt whether the great efforts since made have been made in the best way. Undoubtedly the obstruction caused by the ignorance and fears of the native population is the greatest obstacle to administrative sanitary zeal. But this obstacle does not apply to malaria, and Major R. Ross declares that it causes more sickness in India than even plague. I will add another authority—Dr. F. J. Fremantle, a late plague medical officer, has recently asserted in the *Times* that though important measures were taken by the Indian Government, they did not at first do the one thing needful—organize a thorough scientific investigation. They have now, he says, a small band of men busy in research, but that should have been the very first step. I would add it could very well have been taken while the epidemic was raging in Hong-Kong, before the invasion of India.

The position of Professor Haffkine is naturally recalled to mind whenever the subject of plague or of Indian research work is mentioned. That a great injustice was done in holding him responsible for the accidental contamination of a tetanus serum is generally admitted, and the *Times* has published a protest signed by several highly distinguished authorities. In reply to questions by Sir W. Collins in the House of Commons, the Indian Secretary, Mr. Morley, has refused to make any further inquiry, though he had to admit that Prof. Haffkine's plague prophylactic continues to be prepared at the Bombay laboratory, and that inoculation is now extensively employed without any untoward results. Mr. Morley added that he would take no action, but Mr. Haffkine would be employed in research work again if he liked to return to India, at the salary he formerly received.

In reply to another question the under Secretary for

the Colonies announced that a further grant will be made to the Liverpool School of Tropical Medicine.

"Kaloo nuts," lately imported from Africa, seem to be poisonous. Some were sold by a costermonger with grave consequences to a number of children, six of whom were treated at Guy's Hospital. The nuts were promptly seized by the police and destroyed. The seller proved that he bought them in the usual way of trade from the importer, who gave evidence that he had been in the nut trade for many years and never knew of such an occurrence. Vendors or importers can be prosecuted under the Health Acts, but it is hardly likely any more will be imported. It would be satisfactory to have the nuts identified in case of a further arrival.

Mr. Charles Williams, Senior Surgeon to the Norfolk and Norwich Hospital, and Consulting Surgeon to the County Asylums, died on the 11th inst. He contributed to the "System of Surgery" and the *Lancet* articles on stone and lithotomy, as to which the Norwich Hospital surgeons have always had much experience, stone being very prevalent in the neighborhood. Mr. Williams qualified in 1857 and in 1859 took the F.R.C.S., Edinburgh. He was a great admirer of the writings of Sir Thos. Browne, and wrote interesting articles respecting him. Among other literary essays he also wrote on the "Barber Surgeons of Norwich and the Treatment of the Sick There in the Seventeenth Century." Mr. Williams was further interested in most archæological and antiquarian subjects besides those closely connected with medical facts.

Mr. F. J. Pearse, who was Surgeon to the A Division of our police, a Surgeon Colonel in the Rifle Volunteers, and an officer in the Medical Reserve, died last week, aged 59. He had been prosector at the College of Surgeons, and took the membership in 1870. For a time he took charge of invalids on one of the steamship lines. Then he joined his father in practice in Westminster, being the fourth generation of the same family who had carried on the practice there.

The death is announced from India of Major T. W. A. Fullerton, on the 15th inst. The deceased officer graduated at the Royal Victoria Institute in 1890, and joined the Indian medical service in 1892. He was in the Waziristan expedition in 1894-5 and the operations on the Northwest Frontier, 1897-8, for each of which he was awarded the medal and clasp. In 1902 he was given the Kaisar-i-Hind Medal for Public Service in India.

Another Indian medical officer died on the 17th, Major H. F. Whitchurch, V. C., who entered the service in 1888 and was in the Lushai Expedition in 1890 and that to Chitral, 1895. It was in this last that he won the Victoria Cross by one of the most splendid deeds of gallantry, when he carried Capt. Baird to a place of safety, under constant fire from the enemy, and when nearly all the bearers had been killed or wounded. He was in the China operations in 1900, present at Peking, Peitsang, and other actions, was mentioned in despatches, and awarded the medal and clasp.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

CAUSAL TREATMENT OF SYPHILIS—CLUB PRACTICE—RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN—BUTTERMILK IN INFANT FEEDING—VITAL STATISTICS FOR 1905—LEYDEN'S RETIREMENT.

BERLIN, August 10, 1907.

As was naturally to be expected, the discovery of the pale spirochete as the specific microparasite of syphilis has given fresh life to the search for new remedies for this disease. It is well known that Bloch, several years ago, suspecting that the specific organism of syphilis was, like that of malaria, a protozoon, recommended the employment of arsenic. Lassar also had made trials, but without success, of arsenic in the treatment of syphilis, but in response to Metchnikoff's recommendation of larger doses of atoxyl (meta-arsenic-anilide) he recently repeated his experiments in this direction. He gave an injection of 0.5 gram (7½ grains) of this drug in 10 per cent. solution three times a week, and noted a speedy disappearance of the symptoms, especially in the older cases. It was remarked that the spirochetes stained especially well in preparations from cases under the arsenic treatment. Lassar believes that there is a splitting off of the anilin group of the atoxyl in the body, and that this has a selective action on the spirochete. Hoffmann has also reported three cases of severe secondary syphilides which were greatly benefited by half-gram doses of this remedy every other day. He regards the arsenic treatment as especially indicated in the severer cases.

Another "Aerztetag," the thirty-fifth, has been held. These meetings of German physicians are growing increasingly important from year to year, not only because of the great number of physicians represented in them—this year at Münster 260 delegates, representing 20,000 physicians, were present—but also on account of the importance of the questions discussed. This year, in addition to the perennial questions of club practice, other subjects discussed were the relation of physicians to the life insurance companies, quackery, and the sick relief and insurance of medical men. Objection was made to raising the limit of the income permitting membership in the medical clubs. If this limit were raised from 2,000 marks, the present figure, to 3,000 marks, as had recently been proposed, only 4.7 per cent. of the inhabitants of Saxony would be outside the associations, and free to select their own physicians.

At the eighth meeting of the Association of German Physicians, held at Münster just before the Aerztetag, the question of the relief of widows and orphans of medical men came up for discussion, and it was asserted that the sum granted them was insufficient. As, however, work is better than charity, an effort should be made, it was held, to provide them with the opportunity of earning their own living. It was determined therefore to establish a bureau, with head office in Berlin, which should obtain employment and remunerative work at home for the families of deceased physicians.

The use of buttermilk in infant feeding was discussed by Niemann recently at the Berlin Medical Society. The children to whom buttermilk was given were from three weeks to six months of age. The preparation of the food was as follows: To one liter of buttermilk were added 15 grams of wheat flour and 60 grams of cane sugar and thoroughly amalgamated by stirring; then the mixture was brought to a boil and immediately removed from the fire, and this was done four times in ten minutes; the preparation was then cooled, poured into clean bottles, and kept on ice. The buttermilk preparation was found to afford excellent nourishment for both sick and healthy babies. In 71 cases of gastroenteric catarrh complete recovery was obtained in 63. Good results were also obtained in cases of chronic dyspepsia and marasmus. Cream could be added to the mixture in any desired proportion, and the acid could be disguised by the addition of sugar. In only a few cases did the children object to the taste of the buttermilk; when they do revolt against the taste they should never be forced to take it. Cassel, in the discussion of Niemann's paper, did not approve of the employment of buttermilk regularly, but would resort to it only in cases of necessity when other food disagreed. Its use should be tentative, beginning with small quantities, and increasing as the tolerance for it was proved.

Some figures from the recently published report of health conditions during the year 1905 may be of interest. The death rate in Germany for the year was 19.8 per 1,000 living; in 1904 it was 19.5. The mortality from scarlet fever, measles, and diphtheria showed a continual decrease. In 1901 the deaths from these diseases numbered 36.52 per thousand living; in 1905 only 33.77. The birthrate was lowest in Berlin (29.9), and so also was the deathrate (16.38). The total number of deaths in 1905 was 726,670, one-third of which was of children under one year of age. Of the 28 cities having more than 100,000 inhabitants, 13 had an infant mortality above the average for the Empire, and 15 fell below the average, some of them very much below the average. The deaths from typhoid fever showed a progressive decrease, having declined from 2.04 per ten thousand living in 1877, to 0.74 in 1905. Tetanus showed a greater prevalence in Prussia than ever before; there were 4,040 cases of the disease, with 2,507 (67.2 per cent.) deaths. In 77 cases of smallpox there were 11 deaths. In 1890 28.35 per 10,000 living died of tuberculosis; in 1905 only 10.13. In man the greatest mortality from tuberculosis occurred between 40 and 50 years of age; in woman, between 15 and 30 years.

Ernst von Leyden's retirement from the Klinik of the University was made the occasion of an ovation in honor of the veteran professor. The lecture room where he had taught for so many years was filled with his students, former assistants, and fellow professors, and a large number of the medical men of Berlin. Of the many addresses we will mention only one, that of Scheide, the medical superintendent of the Charité, who

dwelt especially upon Leyden's solicitude on behalf of the patients to see that they were always made as comfortable as possible. Senator, Albert Frankel, Lazarus, and Blumenthal spoke as fellow workers with Leyden in many of his scientific undertakings, and as collaborators in the work presented to the retiring professor a volume containing many scientific contributions. Leyden himself in his reply drew a picture of the development of clinical medicine from the time of Boerhaave down to the present. He spoke especially of his teachers, Schönlein and Traube, and he expressed his gratitude to the latter in particular. In all his medical life he had always had in mind Virchow's saying, that the physician is the natural protector of the poor. With an expression of the deepest gratitude to all who were present and to those who had assisted him in those halls he bade farwell to the scene of his labors of many years.

Professor His, the former Director of the Gottingen Klinik, has been appointed Leyden's successor

Progress of Medical Science.

Boston Medical and Surgical Journal, August 29, 1907.

The Three Long-continued Fevers of New England.—Richard C. Cabot claims that there are but three long-continued fevers in New England—namely, typhoid, tuberculosis, and sepsis. But of 784 cases at the Massachusetts General Hospital, there were 586 cases of typhoid, 54 of tuberculosis, and 70 of sepsis, or 90 per cent. of the total. In summing up, he thinks it is important to realize the fact that there are but three common, long-continued fevers in New England; second, that these fevers, though often confused with each other and so unrecognized, can be recognized in the vast majority of cases provided we think of them at all and look for them carefully by the ordinary methods of physical diagnosis.

The Organization of Tuberculosis Classes.—Joseph H. Pratt tells of the work of the Emmanuel Church tuberculosis class, which was organized July 1, 1905. Since that time 54 consumptives have been members of the class, 17 have recovered and returned to work, while the disease has been arrested in 75 per cent. of the incipient and moderately advanced cases. Although it has been demonstrated that the class method furnishes an economical and efficient means of treating tuberculosis in the homes of the poor, three important points should be borne in mind if the tuberculosis classes are to be successful: First, they should be directed by physicians familiar with the details of the modern treatment, and the right woman should be selected for the position of friendly visitor. Second, there should be adequate funds for the support of the class. Third, every physician in the community should learn to recognize the disease in its early stages and to refer the case for treatment without delay.

New York Medical Journal, August 31, 1907.

Glaucoma; the Importance of Its Early Recognition.—Mary Buchanan sketches briefly the etiology, pathology, and symptoms of glaucoma. Glaucoma is divided into two forms: (1) Primary glaucoma, coming on independently of previous inflammation or traumatism, and (2) secondary glaucoma, which follows either of these and is caused by them. The direct cause is interference with filtration. The contributing causes are many. The diagnostic points in acute glaucoma are: (1) The rapid failure of sight in that eye; (2) increase in tension; (3) the dull cornea, it looks steamy, like glass than has been breathed upon; (4) anesthesia of the cornea; (5) the semidilated and non-responsive pupil; (6) shallow anterior chamber, the iris seems to be pushed aginst the cornea; (7) the lids are somewhat swollen and discolored, conjunctiva injected and swollen, and there is a red, dull, ciliary injection; (8) pain in the eyeball, reflected over the brow and temple and around the lower margin of the orbit. Having diagnosticated acute glaucoma, summon the nearest oculist, for a few hours' delay may mean blindness. While awaiting his arrival drop a one or two per cent. solution of eserine sulphate into the eye, repeating the dose every fifteen minutes until the pupil is pin-point. Use hot stupes all the time, give morphine hypodermically and a cathartic. An iridectomy is the treatment for acute glaucoma. Subacute glaucoma demands eserine sulphate and iridectomy, but the time for operation must be between the attacks.

Treatment of Chronic Indigestion.—Harry Weinstein cites a few of a long list of cases of chronic indigestion that were benefited by medical treatment. These were selected for their chronicity, with a view to illustrating that chronic cases, notwithstanding their prolonged duration, can be benefited medically. He fully recognizes the value of surgery in chronic digestive disorders, but he maintains that before recourse is had to such treatment the indications must be clear and beyond dispute. It is safer practice for the surgeon, at the present state of our knowledge of this branch of medicine, to work hand in hand with the internist, in order to better subserve the interests of the patient. Such cannot be the case if conclusions are arrived at from premises not based on actual observations and experience. Above all, an exhaustive examination is imperative in order to arrive at a proper diagnosis. The treatment of these patients is more a matter of diet and regimen than drugging.

Some Recent Ideas on Local Inflammation and Its Treatment.—Johannes H. M. A. von Tiling presents certain considerations to show why it seems natural that hyperemia by Bier's method would be most effective if used in the beginning of an inflammation, and if used prophylactically. Bier has, for instance, used the hyperemia prophylactically in cases of evidently infected wounds of the hands, where a number of finger-joints were opened and filled with dirt and most of the tendons cut, and with the best results. In cases of abscesses, where there are already many bacteria present, sufficient incisions, even if small, must not be omitted, so as not to hinder the elimination of the serum and pus that is loaded with toxins and endotoxins. He mentions this particularly, because at first, with the hyperemia treatment, the old rule *ubi pus ibi evacua* seemed somewhat negligible. On the other hand, this same endotoxin theory seems to give some counter indications for the use of the bandage. In cases of general sepsis, for instance, there is no serum in the organism which is not laden already with the products of the bacteria. Also in very virulent and very progressive infections the hyperemia treatment is, it seems, not always successful; perhaps because too many endotoxins are brought into the circulation each time the bandage is removed. Local inflammations are by no means the only affections for which the induction of hyperemia is of great advantage. Stiffened joints, joints affected by chronic rheumatism, sprains, fracture with insufficient production of callus, etc., form a large field for the treatment with either active or passive hyperemia.

Journal of the American Medical Association, September 7, 1907.

Smoke in Relation to Health.—A. Jacobi protests against the idea that the smoke question is one of social rather than sanitary importance, and quotes British and other statistics to show that diseases of the respiratory organs and their mortality have increased with the increase of the smoke nuisance in civilized communities. He quotes also experimental results of Aschoff, Schulze, Beitske, and others as proving that anthracosis of the lungs is directly caused by inhalation, and he criticises the New York sanitary code for its inefficiency as emasculated by judicial decisions, in the remedying of this evil.

Glycosuria in Its Surgical Relations.—A. E. Halstead discusses the relatinon between traumatism and certain surgical diseases and sugar in the urine. He has examined in this regard 50 cases of fracture, 6 of them fractures of the vertebræ. In three of the latter sugar was found, in two directly after the injury, one patient dying on the second and the other on the third day. The third glycosuric patient died on the twelfth day; all the non-glycosuric patients lived over two weeks. Of the remaining 44 patients, all of whom had simple fractures, six had sugar in the urine for periods of twelve or fourteen days; in none were there other signs of disturbed sugar metabolism or was the healing of the fracture influenced. These observations point to shock or cerebrospinal concussion as the principal cause of the condition. He would postpone operations that are not imperative until the disappearance of the sugar, as more permanent glycosuria might possibly result from the shock of operation or the anesthesia, and the chances of non-union be greatly increased. The secondary transitory glycosuria, due to drugs or infections, does not seem to affect the prognosis of surgical infections greatly, but it should cause the postponement of major surgical operations while the needed measures for its relief are being carried out. It is not a contra-

indication, however, to necessary minor surgical procedures, but rather the reverse. In long-continued suppuration the possibility of a secondary glycosuria becoming permanent must be kept in mind. In erysipelas, sugar in the urine is of serious prognostic moment, as an index of the severity of the infection. In diabetes, imperative operations have to be risked, and Halstead does not think that we can always take the quantity of sugar excreted as a guide to the safety of the operation. Other substances—acetone, diacetic acid, etc.—indicate a greater danger of coma than any quantity of sugar alone. He would try a thorough course of treatment, in case a high percentage of sugar is present, before performing any operation that can be postponed. Under aseptic conditions, except in the lower extremities, where the circulation is liable to be impaired, wounds heal readily in diabetes. The dangers incident to infection, however, are increased, and operations that are avoidable should not be considered. Too much stress cannot be laid on the importance of a rigid course of preliminary medical treatment. Inhalation anesthesia, even by nitrous oxide, should be avoided as far as possible. In case operation is unavoidable, ether is the least and chloroform the most harmful. Local or regional anesthesia should be the form employed whenever possible.

Corneal and Conjunctival Syphilis.—Brown Pusey reports a unique case of secondary syphilitic pustular eruption involving the cornea and bulbar conjunctiva, which rapidly cleared up under specific treatment. There was no question as to the diagnosis; the patient was also seen by a prominent dermatologist. Pusey reviews the literature of conjunctival syphilis, and shows the rarity of the condition by the fact that he could collect only twenty-seven recorded cases, though it is spoken of as not rare by Groenow. Involvement of the cornea in secondary syphilis must be even more rare, as it does not appear to be mentioned in the literature as even a possibility. Its occurrence coincident with conjunctival involvement, as in this case, would seem most likely, and Pusey had this in mind in his search of the literature.

Abdominal Pain in Relation to Ileus.—The subject of abdominal pain, especially pain in connection with ileus, is reviewed by K. G. Lennander, who refers to his former work on the subject and illustrates his points with later facts and observations. His conclusions are summarized in substance as follows: In estimating abdominal pain, and especially in connection with illnesses giving the symptoms of ileus, we must bear in mind that: 1. Pains do not originate in the abdominal organs supplied exclusively by the sympathetic fibers and the vagus. 2. All pains originate in the abdominal wall, more especially in the parietal serous membrane and subserous connective tissue structures innervated by the cerebrospinal nerves. 3. Stretching of the parietal (mesenteric) attachments of the stomach and intestines, as well as of string or band-like adhesions to the abdominal parietes, invariably causes pain. 4. The same holds true for the displacement of the parietal serosa from its normal relation to the muscles or aponeurosis of the abdominal wall. 5. Most of the diseases connected with ileus are, at their beginning, attended by increased and, as a rule, irregular peristalsis. 6. Chemically different substances, such as the contents of the stomach, intestine, etc., cause severe pain when they come in contact with the healthy or hyperemic parietal peritoneum (perforation pain). 7. Even that form of peritonitis that goes under the name of peritoneal irritation (*peritoneal Reizung*) greatly increases the sensitiveness of the parietal serous membrane. 8. The sensitiveness of the parietal peritoneum at first increases *pari passu* with the inflammation, but later decreases as the inflammation reaches a certain high degree, and may even cease altogether. (Compare herewith erysipelas, especially gangrenous erysipelas of the skin.) Lennander believes that we shall finally learn to understand completely the pains of ileus, though much still remains to be found out.

Experimental Ileus.—W. B. Cannon and F. T. Murphy report the results of experimental studies on the production of dynamic ileus which emphasize the distinction between that form due to spinal influence and that of local origin in the wall of the intestine. The animals used were cats, the method employed was to obtain by means of the x rays the peristalsis after the introduction of food mixed with bismuth subnitrate. In testing experimentally reflex dynamic ileus, the testicles or ovaries were crushed during etherization, and control experiments were made with simple etherization alone. Similar experiments were made with the splanchnic nerves cut to test the inhibitory action of these nerves. From the results tabulated, it appears that paralytic ileus can be prduced not only without mechanical changes in or about the intestinal wall, but that the condition is one of inhibition conveyed to the stomach and intestines through the splanchnic nerves. The question of local paralysis of the intestine was also studied, and it was found that manipulation of the stomach and intestine, even gently and under the most favorable conditions, had in their experiments a much greater effect in causing postoperative inactivity than any other of the factors under control during operation. After severance of the splanchnics, manipulation still produced inactivity, thus showing it to be due to local disturbance and not to extrinsic nervous influences. Certain points of practical importance, such as the location of the seat of trouble in case of intestinal paralysis, etc., are mentioned, but the authors' experiments have not progressed far enough to answer them. They have experimented with physostigmin to check reflex inhibition of the alimentary canal, and find that it had a very marked temporary effect, which was lost in about two hours. Any long-continued effects attributed to a single dose in clinical cases seem to them dubious.

The Lancet, August 24, 1907.

Pancreatitis Due to Direct Extension of a Malignant Growth of the Gall-bladder Along the Common Bile and Pancreatic Ducts.—A. W. Mayo Robson and P. J. Cammidge report a case which is clinically interesting as showing how closely cancer of the gall-bladder may simulate cholelithiasis, if the disease be associated with suppuration. The intermittency and severity of the attacks of pain for thirteen months, without jaundice, suggested the presence of gall-stones in the cystic duct, and the last severe seizure, followed by jaundice, made it appear probable that a calculus had passed into the common duct. Although no gallstones were actually found, either at the operation or later, it is quite possible that cholelithiasis may have been the original cause of the disease, and this is rendered possible by the presence of more advanced inflammatory changes in the head of the pancreas than could be accounted for by the recent invasion of the gland by malignant disease from the ducts of Wirsung. Their experience in other cases of cancer of the pancreas has shown that an inflammatory condition is apt to supervene as a complication in a certain proportion of cases, and unless this is borne in mind it may lead to errors in diagnosis and to useless operation.

Calculi in the Appendix.—D. T. Barry reports a case in which four stones, each about two millimeters in diameter, dark brown in color, smooth and faceted, composed chiefly of calcium phosphate with a small amount of organic matter, were found in the appendix. He expresses the opinion that, excluding parasites, which have been found on a few occasions, bodies in the lumen of the appendix may be classified under the following heads, which he gives in the order of frequency of their occurrence: (1) Fecal molds; (2) enteroliths, with or without a foreign body as a nucleus; (3) gallstones; and (4) true foreign bodies.

A Case of Appendicitis Excited by a Clove, the Appendix Being the Sole Viscus in a Hernial Sac.—W. Hal Barnett and J. W. Scott Macfie report the case of a man, 58 years old, who had suffered for twenty years from a rupture in the right inguinal region, which he controlled by the use of a truss. One week before admission to the hospital he found a swelling, hard and painful, which he was unable to reduce. It grew rapidly larger and painful. There was no visible impulse on coughing. The tumor was hard, elongated, and oval in shape, and about three inches by one inch in size. The mass could be traced from the internal ring down the canal as far as the testicle. At operation a small quantity of clear straw-colored fluid exuded on pricking the sac, and on further opening the mass a rough-walled cavity was laid bare containing a dark red elongated mass. Some purulent material was found, and on lifting up the red mass a clove was discovered lying beneath it. It was then realized that the tumor consisted of a short but very greatly thickened appendix lying in a hernial sac. No other viscus was found in the sac. This case was of interest, first, because of the difficulty in diagnosis, for the tumor felt almost like a malignant mass, and yet it had come down so suddenly; secondly, because of the unusual cause, a clove; and thirdly, in that the appendix, greatly thickened and inflamed, was the sole viscus in the sac.

British Medical Journal, August 24, 1907.

The Unborn Child: Its Care and Its Rights.—T. Arthur Helme says that we must recognize the rights of

the unborn child to life; to protection from the hereditary taint of degeneracy; to health—that is, to conditions conducive to the safeguarding of the health: to nature's food (when born)—that is, its mother's milk; to its natural protection (when born)—that is, its mother's care. The recognition of these rights demands the recognition of the following duties on the part of the parents, the profession, and the State: 1. On the part of the parents: A clean and normal life before and after conception. 2. On the part of the mother: (*a*) The consistent regulation of her mode of life; (*b*) the abstention from alcohol; (*c*) the feeding of the child by the breast; (*d*) the care of the child after birth. 3. On the part of the medical profession: (*a*) The restriction of therapeutic feticide; (*b*) the education of a healthy public opinion. 4. On the part of the State: (*a*) Restriction of procreation to the fit, by the regulation and restriction of marriage to the fit, either by education or legislation, and by the prevention of procreation by the unfit, whether by segregation of the unfit, or sterilization of degenerates, or the evolution of a healthy public opinion; (*b*) by regulation of the life of the pregnant woman by State provision of food for the necessitous, by provisions of hospitals for the reception of women during pregnancy, and by State prohibition of woman's work and employment during pregnancy; (*c*) immediate registration of stillbirths, premature labors, abortions, and, if practicable, pregnancies; (*d*) registration of birth within twenty-four hours; (*e*) regulation of the life of the woman who has given girth to a child by State provision of food for the necessitous, and by State prohibition of woman's work for at least six months after confinement.

Berliner klinische Wochenschrift, August 19, 1907.

The Effect of Metals on Gastric Mucosa.—Bickel found that metallic iron, metallic magnesium, metallic aluminum, metallic manganese all caused an abundant and continuous flow of gastric juice as long as they are in contact with the gastric mucosa. He explains their action by the fact that they are decomposed in the presence of a weak solution of hydrochloric acid; during this process of decomposition hydrogen is set free, which then stimulates the flow of gastric juice. The freshly secreted hydrochloric acid in turn keeps up the decomposition of the metals, and thus the process goes on until the metal is either entirely decomposed or washed out of the stomach by the increased quantity of gastric juice. That hydrogen is the real cause of the increased gastric flow is proven by the fact that metals, such as tin, bismuth, gold, and silver, which hardly give off any hydrogen when brought in contact with weak solutions of hydrochloric acid, do not increase the flow of gastric junce when put into the stomach. The knowledge of the action of metals on the stomach he considers of practical importance, since Klemperer and others use escalin (metallic iron, manganesium, and aluminum) as a substitute for bismuth in the treatment of gastric ulcer, a mode of treatment which increases the flow of hydrochloric acid when large amounts of the latter are in reality undesirable. On the other hand, these metals can be used successfully in conditions where an increase of gastric juice is wanted.

The Cause of the Absence of Phagocytosis.—Weil and Tsuda carried on extensive experiments to ascertain what could prevent test tube phagocytosis. They used only the hay bacillus, the staphylococcus, and the dysentery bacillus, all of which cause a markel phagocytosis in the presence of guinea pig serum and leucocytes. Their experiments proved (1) that this phagocytosis of the dysentery bacillus by the leucocytes was prevented when dysentery-aggressin was added; (2) that phagocytosis was absent only in the presence of the dysentery bacillus, for it took place when staphylococci and hay bacilli were added, in spite of the dysentery-aggressin, showing that the action of the latter is specific and that the aggressin does not poison the leucocytes; (3) that the absence of phagocytosis is not dependent on the absence of opsonin, for it does not take place when the bacteria exposed to the aggressin are loaded with opsonin; (4) that aggressin is the cause of the absence of phagocytosis and that it protects the bacteria in the same way as the capsule of anthrax protects it against phagocytosis.

Münchener medizinische Wochenschrift, August 13, 1907.

Spontaneous Rupture of the Rectum.—Heinecke adds the history of another case of spontaneous rupture of the rectum to the few recorded in medical literature. The patient was a man forty-five years old who for four to five years had experienced a prolapse of the rectum at stool, which he could always easily reduce. For some time he had been troubled with constipation and occasional bloody stools. The morning on which he came under Dr. Heinecke's care he was seized with a sudden tearing pain in the lower part of the abdomen while in the act of moving his bowels; at the same time a few loops of small intestine protruded from the anus. The abdominal pains, at first slight, were very intense when the patient was admitted to the hospital six hours after he first experienced them. By this time he had begun to vomit, and examination showed a rigid, distended and tender abdomen, while about one meter of small intestine with its mesentery was found protruding from the anus. The gut was dark blue in color and the mesentery was full of hemorrhages. A prolapse of the rectum was not found. After the small intenstine was thoroughly cleansed and placed into the rectum, the abdomen was opened. Some cloudy fluid was found free in the peritoneal cavity, and after exposing the rectum a tear was found in its anterior wall extending upwards for five centimeters from the bottom of the rectovesical fossa. The intestine protruding through this opening was replaced into the abdominal cavity and the latter irrigated with salt solution, after which the rectal and abdominal wounds were closed without drainage. Two days later the patient died of a septic peritonitis, which was confirmed at autopsy; the latter showed nothing else of interest outside of a loosely fixed rectum. The history of this case is similar to the majority of the twelve reported in the last eighty years. The increased intraabdominal pressure caused a prolapse of the rectum and also forced the small intestine into the blind pouch of peritoneum in front of the inverted rectum; when the pressure became too great the rectum tore and the small intestine prolapsed, while the rectum reduced itself spontaneously.

Transplantation of a Spindle-celled Sarcoma in Dogs.—Stricker, who some time ago reported successtul transplantations of round-celled sarcoma in the dog, now reports a case of transplantation of a spindle-celled sarcoma. A seven-year-old cachectic greyhound was turned over to him with the history of having had a tumor, the size of a walnut, removed from the humerus seven months previous. The growth recurred three months later and had now reached a considerable size, while metastases had developed in the axillary glands, testicle, and lungs. He removed the tumor of the humerus and the involved testicle, after which the dog lived only a month. The microscopical examination of the original tumor and all the metastatic growths showed the typical picture of a spindle-celled sarcoma. Pieces of the tumor were implanted subcutaneously in two dogs and intraperitoneally in two others. In the dogs, which had the growth implanted intraperitoneally, a laparotomy, fifty-six days later, showed numerous small fibrous nodules on the greater omentum, which, however, showed no tumor cells microscopically. The other two dogs showed a mass the size of an almond under the skin. On the forty-second day these proved to be spindle-celled sarcoma identical with the original tumor in the greyhound.

Cystitis in Nurslings.—Giuseppe Caccia considers that cystitis is comparatively frequent in nurslings, but is not usually recognized, being confounded with the effects of disturbances of digestion or other childish troubles. Its causes are various and include the same factors that produce it in adults—catheterism, infective diseases, etc. It results from fever, profuse diarrhea, cold, uricemia, arthritic diathesis, poisons, urinary stasis, and tuberculosis; from the gonococcus rarely, and from other bacterial agencies. There is one form that especially interests the author, that resulting from the presence of *Bacillus coli* in the urine. In female children these germs may be introduced from the vagina; in males when phimosis exists. In this case the infection is ascending. It is not probable that it often is of hematogenous origin and the author discards the theory of passage through the intestinal walls. The author has observed the disturbance in fifteen cases, six males and nine females. In all the males there was phimosis, and this is regarded as an important factor. The symptoms are fever, pain, nocturnal enuresis in cases in which the pain causes the urine to be withheld during the day, turbid, acid urine, containing agglutinated leucocytes and bacteria, odorless, and with small amount of albumin. The disease when not treated generally is cured spontaneously after a time, so that the prognosis is good.—*Rivista di Clinica Pediatrica.*

Book Reviews.

A Manual of Diseases of the Nose, Throat, and Ear, By E. B. Gleason, M.D., LL.D., Clinical Professor of Otology in the Medico-Chirurgical College, Philadelphia; Surgeon-in-Charge of the Nose, Throat, and Ear Department of the Northern Dispensary, etc. Philadelphia and London: W. B. Saunders Company, 1907.

This manual opens with descriptions of methods of examination in the specialties named in the title and is followed by sections devoted to detailed diseases with the proper methods of treatment. The author has condensed a vast amount of information into a comparatively small space. A considerable number of the illustrations, of which there are 262, are original or have been drawn from dissections made by the author. The latter's vast clinical experience has enabled him to produce a manual which covers all the conditions likely to be found in actual practice. The section entitled "Formulas" is more than a mere catalogue of prescriptions, as in it a detailed description of the better methods of use of each of the more important drugs has been interpolated. This is of great value to the beginner who is often overwhelmed by the large number of remedies suggested without definite directions as to their relative value.

The Essentials of Chemical Physiology. For the Use of Students. By W. D. Halliburton, M.D., LL.D., F.R.S., Fellow of the Royal College of Physicians; Professor of Physiology in Kings College, London; Author of "Text-Book of Chemical Physiology and Pathology" Sixth Edition. London: Longmans, Green & Company, 1907.

It is not difficult to understand the popularity of this work which is now appearing in new form for the sixth time. It exemplifies to a noteworthy degree the virtues of clear exposition, conciseness, and reasonable completeness, and is well adapted to the needs of both student and practitioner. In this edition such modern topics as the chemistry of the secretions and the recent advances in our knowledge of proteid metabolism have been incorporated, and the work has been brought up to date in other ways. The revision might with advantage have been extended to the appendix also, for the descriptions of the apparatus to be used in making blood examinations are not abreast of the times.

Lessons on Massage. By Margaret D. Palmer, Formerly Masseuse and Manager of the Massage Department of the London Hospital, Instructor of Massage to the Nursing Staff of the London Hospital, Member of the Council of the Incorporated Society of Trained Masseuses. Third Edition. New York: William Wood and Co., 1907.

The chief changes in this new edition are to be found in the revision of the sections on lateral curvature, flat foot, and wry neck; otherwise the book remains very much as it was before. The bulk of the work consists of such essentials of anatomy and physiology as are necessary for the intelligent application of massage. The remainder treats of massage in general, massage of special regions, and massage of children. There are chapters on the Nauheim or Schott treatment and on bandaging; and the book concludes with a fairly complete glossary. The volume is clearly written, is well illustrated, handy in size, attractive in appearance, and will prove useful to nurses and masseuses.

Atlas and Textbook of Dentistry, Including Diseases of the Mouth. By Gustav Preiswerk, M.D., Ph.D., of the University of Basel. Authorized Translation from the German. Edited by George W. Warren, A.M., D.D.S., Professor of Principles and Practice of Operative Dentistry, Pennsylvania College of Dental Surgery. With 103 colored figures on 44 plates and 152 text illustrations. Philadelphia and London: W. B. Saunders Company, 1906.

This volume is the latest addition to the English translations of Lehmann's well known medical hand atlases. Most of the present volume is of interest only to dentists; but the chapters on the anatomy, bacteriology, histology, and embryology of the teeth, and on diseases of the mouth will appeal to the medical practitioner. Naturally the illustrations form the chief part of the work, these are both artistic and instructive. The reading matter is probably a fair presentation of dental practice in Germany.

Short Medicine. By John Godfrey, Surgeon P.H. and M.H.S., Detroit, Mich. The Rebman Co. and Baker Co., Printers, 1907.

This is a volume of verses composed by a surgeon of the Public Health and Marine Hospital Service and dedicated to the Medical Officers of that service. Like Burton, the author undertakes "things unattempted yet in prose or rhyme." But here everything Miltonic ends; we quote a stanza, taken at random:

> "Why his abdomen failed to crack
> Is almost a conundrum,
> For there was not an empty space
> In even his jejunum."

It would certainly be cruel to prescribe this volume for any patient, even in homeopathic doses; but possibly it was only intended by its author for the amusement of his brother practitioners.

Diagnosis of Organic Nervous Diseases. By Christian A. Herter, M.D., Professor of Pharmacology and Therapeutics at Columbia University; Visiting Physician to the City Hospital. Revised and Enlarged by L. Pierce Clark, M.D., Visiting Neurologist to the Randall's Island Hospital and Schools; Consulting Neurologist at the Manhattan State Hospital, N. Y.; Consulting Neurologist at the Craig Colony for Epileptics, Sonyea, N. Y.; Assistant Neurologist at Vanderbilt Clinic (Columbia College), New York. With 109 illustrations. New York and London: G. P. Putnam's Sons, 1907.

In the new edition of this book the chapters on the anatomy and physiology of the nervous system and on the examination of the patient have been largely rewritten, and the section dealing with the symptomatology of nervous diseases has been modernized. The scope and general plan of the work remain as before. In its new dress this volume is probably the most useful book on the diagnosis of nervous diseases that could be put into the hands of either student or general practitioner. While professing to be elementary in character, it gives enough detail to make it entirely serviceable and satisfactory. The authors have been eminently successful in making attractive a subject that is generally disliked by the average student. The only adverse criticism we have to make is on the inaccuracy of many of the references.

Hints on the Management of the Commoner Infections. By R. W. Marsden, M.D., M.R.C.P., D.P.H., Honorary Physician to the Ancoats Hospital, Manchester; Honorary Assistant Physician to the Manchester Hospital for Consumption; Formerly Medical Superintendent Monsall Fever Hospital, and Clinical Lecturer in Infectious Diseases, Owens College. New York: E. B. Treat & Co., 1907.

In most books dealing with the practice of medicine the discussion of treatment is generally brief and often vague. Quite frequently the seeker after therapeutic knowledge is told to "attend to hygiene," or to "reduce the temperature," or to "treat symptoms," or something else equally indefinite. The present volume gives in some detail the general principles of treatment that are to be observed in the management of the more commonly occurring infectious diseases. The introductory chapter contains general measures, such as methods of applying cold water to the skin, contraindications to cold baths, stimulation, importance of rest, details of the bed and bedding, ventilation, cleanliness, warmth, feeding, details of nasal feeding, alcohol, etc. Then follow separate sections on the treatment and hygienic indications in the different specific diseases. The book concludes with valuable chapters on isolation and disinfection. The volume contains just the information that the student and young practitioner are apt to require; and the book will serve as a useful companion to any textbook on practice or therapeutics.

American Pocket Medical Dictionary. Edited by W. A. Newman Dorland, A.M., M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania; Fellow of the American Academy of Medicine, etc. Containing the Pronunciation and Definitions of all the Principal Terms Used in Medicine and the Kindred Sciences, Along with Over Sixty Extensive Tables. Fifth Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1907.

This is apparently a condensation of the editor's larger dictionary and has the defects of all such abbreviations in that the ideas of the editor and the consultor seldom coincide, the editor often leaving out much that the consultor wants to know. For example, there is no definition of opsonic index, of Mendel's law, of heart-block, of *Treponema pallidum*, or of many other modern terms. Perhaps the apparent fact that this is not a new edition, but only a reprint, may explain some of these omissions. We have been unable to verify the statement on the title page that the book contains over sixty extensive tables; most of the so-called "extensive tables" are merely a few subtitles grouped under the main title. We do not think the editor's reputation as a dictionary maker will be enhanced by this book.

Society Reports.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-ninth Annual Meeting, Held at Washington, D. C., May 7, 8, and 9, 1907, in Connection with the Seventh Triennial Congress of American Physicians and Surgeons.

Special Report to the MEDICAL RECORD.

Tuesday, May 7—First Day.

DR. A. W. DE ROALDES OF NEW ORLEANS, LA., PRESIDENT.

President's Address.—Dr. A. W. de ROALDES thanked the Association for the honor it had conferred upon him and alluded to his own work in the establishment of the Hospital for Eye, Ear, Nose, and Throat diseases in his own city. He felt that it was the Association's duty to push the work of securing for the specialty a greater recognition than it yet enjoyed in the medical schools and that a further need of the times was the establishment of more special hospitals for this class of diseases. This would not at all interfere with special departments in general institutions. He also announced his intention to establish a prize fund for the Association. This suggestion had been made many years ago by the Association's first president, the late Dr. Louis Elsberg. He referred to the deaths of Señor Manual Garcia, Honorary Fellow, and of Dr. William Carr Glasgow, Active Fellow, both of whom had died since the last meeting. He also referred to the celebration of Prof. von Schroetter's seventieth birthday in Vienna, to the similar celebration in honor of Prof. Bernhard Fraenkel in Berlin, the pleasure felt in welcoming Prof. Gustav Killian of Freiburg to the present Congress, and the proposed Tuerck-Czermak Congress to be held next spring in Vienna to celebrate the semi-centennial of the establishment of systematic teaching in laryngology.

Tuberculosis of the Accessory Sinuses of the Nose.—Dr. J. W. GLEITSMANN of New York read this paper, which was in the main an analysis of the recorded cases. The majority of instances of sinus tuberculosis were referable to extension from some adjoining focus. In twenty antral cases tuberculosis of the bones of the nose or of the upper maxilla was found twelve times. The majority had pulmonary disease and only a few had the local disturbances of antral disease without constitutional symptoms, but at operation tubercle bacilli were found in the antral contents. In eight the bacilli were found in the external discharge. Tubercle of other sinuses must be rare, the author said, as he had found records of only four cases of frontal disease and one of combined ethmoidal and sphenoidal disease. Pathological changes were very much the same as in nasal tubercle. Empyema, exuberant granulations, caries, cheesy deposits, all were found, while examination of the sinus lining showed exfoliation of epithelium, extensive smalled-celled infiltration, penetrating the superficial as well as the deep layers of the mucosa, while the middle strata had revealed the fibrous structure of the connective tissue containing serous liquid and some leucocytes. Efferent glandular ducts and their lumina had been enlarged, giving rise to cystic spaces, and giant cells had been found in the infiltrated tissue. Of the entire number only three cases showed confinement of the tuberculous process to the antrum, viz., the cases of Coakley, Gaudier, and Keckwick. Dr. Gleitsmann gave summarized clinical histories of some of the more important cases. Prognosis must be regarded as unfavorable. Treatment was eminently surgical and did not differ from that generally adopted in severe cases of sinus disease. It naturally had to be more radical, as not alone the soft parts, but all diseased bone had to be removed.

Dr. C. G. COAKLEY of New York gave some additional facts as to his own patient whose case was referred to by Dr. Gleitsmann. This patient had been under observation for over two and a half years and when last seen had no evidence of the disease in any other part of the body. Diagnosis was positive in this case as giant cells containing tubercle bacilli had been found in the tissue removed from the antrum.

Prof. GUSTAV KILLIAN of Freiburg, a guest of the Association, stated that he had had a case of multiple tuberculosis of the bones with caries of the left frontal sinus. Operation was followed by recurrence of the sinus condition. There was tuberculosis of the maxillary bone and of part of the antral walls, but no pus. Tubercles were found in the mucosa of the frontal sinus.

Dr. HARRIS P. MOSHER of Boston referred to a low grade of tuberculosis, a scleritis which had defied treatment. Finally the use of tuberculin determined its nature. Dr. Mosher had recently been giving tuberculin in certain sinus cases, but thus far had obtained no reaction. In the ordinary forms of tuberculosis in sinuses it was difficult to find bacilli. He would not consider tuberculin as of much value in these cases as compared with the usual methods of surgical intervention. Dr. Gleitsmann, in closing, referred to the work of Bartles, who had endeavored to formulate the condition known as the tuberculous state, declaring that before this period arrived there was a pretuberculous epoch manifesting itself mainly in lymphoid infiltration, a hydremia of the parts involving the lymphoid tissue similar to the hydremia observed in septic cases before real septic symptoms manifested themselves.

Massage of the Pharynx.—Dr. SAMUEL W. LANGMAID of Boston exhibited an instrument which had been devised for the purpose named by an eminent tragedian, the late Edwin Forrest. This instrument was a smooth wooden handle with curved ends which Forrest was accustomed to sweep around in his throat in order to "ream out the old trumpet," as he expressed it. It had been impossible for various reasons to discuss with the actor the latter's views as to the value of the manipulations referred to. Dr. Langmaid had long been accustomed to recommend to his patients massage of the throat by some such implement as the broad, rounded extremity of a tooth brush handle. It greatly reduced the irritability of the pharynx, removed enlarged follicles on the posterior wall, and in general seemed to reduce hyperemia. Since writing his paper he had found that a century ago a certain British Admiral, who wrote more as an osteopathist than as a masseur, recommended instrumental massage of the mouth and throat not only as a prophylactic measure, but as curative also for sore throat.

Dr. J. SOLIS-COHEN of Philadelphia stated that he had often used the so-called extension finger of the dentists in pharyngeal manipulation so as to accustom patients to the handling of the epiglottis.

Dr. G. HUDSON-MAKUEN of Philadelphia believed that in these cases much could be done in showing the patient how to keep quiet during examination by having him manipulate the pharynx with the handle of a tooth-brush or similar instrument. The patient's' attitude was too often one of self-protection rather than of cooperation, and he should be taught to give the physician intelligent assistance. Dr. Makuen could not agree with a statement Dr. Langmaid had made that singers and speakers had anemic pharynges.

Dr. CLARENCE C. RICE of New York was inclined to agree on this point with Dr. Langmaid. In his experience noted singers and actors did not, as a rule, have much chronic pathological change in their throats. His own feeling was that the strong use of the voice and vibratory massage of the pharynx tended to atrophy and anemia rather than to congestion. If he found congestion in a singer's pharynx without any special nasal or postnasal catarrh he would ascribe it to tobacco or alcohol rather than to voice use. In general, intelligent massage was a useful therapeutic measure.

Bilateral Abductor Paralysis of the Larynx.—Dr.

Charles H. Knight of New York reported a case of this nature. He thought the lesion referred to was more common than authorities would lead us to believe. It was often difficult to distinguish between abductor paralysis, abductor spasm, and ankylosis of the cricoarytenoid articulation, and prolonged observation was often required in determining the actual condition in a given case. The author passed in review the differential features diagnostic in the conditions named and then reported the case of a middle aged man of nervous temperament who in childhood had had chorea and had been subjected to severe nervous strain. He had been alcoholic for one year, some years before coming under notice. Six years ago he had an attack of ptomain poisoning. The year following he suffered increasingly from rapid heart action, dyspnea, and vertigo. Later he developed sciatica, presumed to be the forerunner of tabes. Six years ago he contracted syphilis and had the usual secondary symptoms, but received thorough treatment. One year ago he was suddenly awakened one night struggling for breath. Later, when running for a train, he had his first attack of laryngeal spasm. During the last six months he had had some twelve or fourteen repetitions of this spasm, all but one or two coming on during sleep. Sometimes the attacks had followed excitement or exertion. After exercise there was always inspiratory stridor. The laryngeal image was typical of bilateral paralysis of the abductors, with a moderate grade of catarrhal inflammation. A redundant uvula was excised, inhalations of mentholized oil given with strychnine and iodide of potassium. Electricity seemed to aggravate the symptoms. Under the foregoing régime there had been some improvement. The author referred to the following proposed measures in such cases: (1) Intubation, (2) ablation of the soft parts lining the voice box, (3) division or resection of the inferior laryngeal nerve, and (4) tracheotomy. His personal experience had been limited to the first and last. In this particular case one observer who had previously seen the patient urged immediate tracheotomy, but this was refused by the patient, who preferred death to wearing a tube. Dr. Knight thought that up to the present time at least the result seemed to have justified this decision. He considered that in such cases the ideal procedure, on theoretical grounds at least, was resection of one recurrent nerve, whereby the corresponding vocal band would be placed in the cadaveric position and the voice would finally be regained through compensating action of the abductors of the opposite side. He had been unable, however, to find any successful record of such a case. Mere division of the nerve was useless, as it was possible that in some of these cases a portion of the innervation of the abductors was derived from the nerve of the opposite side and in addition there might be more or less ankylosis of the cricoarytenoid joint. Tracheotomy would doubtless afford us the most satisfaction. It was best done under local anesthesia. The onset of dyspnea was often alarmingly sudden. The prognosis in such cases was less hopeless than was generally believed.

Removal of Papillomata of the Larynx by Direct Instrumentation with the Aid of Killian's Tubes.—Dr. Cornelius G. Coakley presented a paper reporting six cases of this nature and discussing the general mechanical problems involved. He had tried the Kirstein method of examination years ago, but had given it up. Observing at Killian's clinic, however, the case with which bronchoscope tubes were passed through the larynx, it occurred to him that such a tube with a window on one side could be used for the removal of laryngeal papillomata. He had had opportunity to give the method a trial in six cases. In all a general anesthetic was used. Some time might be saved by cocainizing the pharynx and larynx before the administration of the anesthetic. The patient should be placed on the back, the shoulders brought to the edge of the table, and, supported by an assistant, allowed to hang over. The operator should sit on a low stool, the height of which could be so adjusted that the eye was directly opposite the widely opened mouth. The tongue should be grasped with forceps and drawn out, thus raising the epiglottis and facilitating the introduction of the spatula beyond the tip of the epiglottis. The tongue was now allowed to fall back into the mouth and the spatula was easily passed directly into the supraglottic portion of the larynx. A good view of the cords was now readily obtained, and any growth thereon could easily be removed by a straight forceps passed through the spatula. The Kirstein headlight had been the illuminating agent. It had been somewhat difficult to remove multiple neoplasms on account of obscuration of the field by blood and mucus in spite of frequent wiping away with cotton. Out of the six cases the result was satisfactory in four. One proved to be malignant and required a thyrotomy, while in one the bulk of the growth appeared to be caught between the spatula and the anterior portion of the larynx.

Prof. Gustav Killian said that he had two cases under observation in which he had operated in the method described by Dr. Coakley. In such cases it was necessary to cocainize the larynx very thoroughly or it would contract from the contact of the tubes so that nothing could be seen. This method obviated laryngotomy and tracheotomy. If the patient could breathe sufficiently well to allow of general narcosis, the direct method of operating might be employed. In recurring cases arsenic should be given for a long time. Potassium iodide also seemed to have some power in preventing the recurrence of papillomata.

Dr. E. Fletcher Ingals of Chicago had had several successful cases by the direct method. In one case during operation the larynx began to close, the child could not breathe, so he had to do a quick tracheotomy, as he had no intubation tube. In general, he was inclined to believe that tracheotomy was best in all cases in young children, though Dr. Coakley's experience had demonstrated the fact that it was not necessary.

Dr. J. Payson Clark of Boston referred to a paper on this general subject presented by him to the Association some years ago and gave the later history of some of the cases therein referred to. He had used the direct method in removing the growths. He was still a partisan of tracheotomy, as it gave the larynx perfect rest, during which a papilloma was more likely to atrophy than when the child was using the larynx as a respiratory organ.

Dr. Emil Mayer of New York spoke of some of the disadvantages of the tube with reference to the heat from the headlight. The attachment of the light to the handle of the spatula was a great improvement. His own experience as to recurrence had been the same as that of the preceding speakers.

The paper was further discussed by Drs. H. L. Swain, Casselberry, Goolidge, Lincoln, Langmaid, Hubbard, Delavan, and Ingersoll.

Dr. Coakley, in closing, stated his belief that cases of recurrence in children were cases in which new papillomatous areas occurred. Such would crop up in spite of all one could do. He certainly would not consider any cases as cured unless there was a freedom from return of the growth for several months. He believed, however, that if these cases were seen early it was often possible to avoid the deformity of an external operation, but one should not give an anesthetic without having a tracheotomy tube handy. He preferred to apply ten per cent. cocaine before the general anesthetic was given, waiting sufficiently for the cocaine to act. He was not sure of the efficacy of pure carbolic applications to the seat of the growths. It was at least harmless, but he would not use it unless the patient was wearing a tube. He had used cocaine in connection with chloroform several times without had re-

sults. He knew, however, that such a combination was regarded by some as risky. A tracheotomy tube, if worn some years, would be likely to produce a certain amount of stricture, though this might cause no trouble. Parents were naturally averse to having scars on their children's neck, especially with girls. On the other hand, tracheotomy was distinctly of service in giving rest to the larynx.

Ophthalmological Manifestations of Latent Disease of the Nose and Its Accessory Sinuses.—Dr. Francis R. Packard of Philadelphia reported a series of cases illustrating the relation between eye and nose conditions as suggested by the title of his paper. The examinations of the eyes had been made by Dr. W. C. Posey of Philadelphia. Dr. Packard stated his belief that there should be more active correlation between the ophthalmologist and rhinologist in order to insure the recognition of this class of cases. Experience had shown that the ocular symptoms occurring as a result of sinus disease might variously affect the vision and visual field, orbit, lacrymal apparatus, lids, extraocular muscles, conjunctiva, cornea, pupil, and uveal tract, and might lead to cataract, reflections, asthenopia, and headaches and neuralgias. His series of nine cases reported bore out the foregoing statements. The truth of this theory of connection between the two organs was borne out by the results of treatment. Dr. Packard referred to various contributions on the subject by various authors.

Dr. J. H. Bryan of Washington, D. C., had for some time been accustomed to have his sinus cases examined by an oculist and had seen external rectus paralysis from sphenoid disease, scotoma, narrowing of the visual field, etc.

Dr. G. A. Leland of Boston stated that there were three cardinal symptoms of the eye condition that pointed directly to an intranasal origin, namely, astigmatism against the rule, ciliary reflex, and narrowing of the color field. He gave the detailed history of one case of the nature described in Dr. Packard's paper.

Dr. L. A. Coffin of New York said that the connection between eye and nose conditions was not yet sufficiently recognized even in special institutions. Patients operated on for sinus disease were often able to lay aside their glasses.

Dr. F. C. Cobb of Boston said that in sinus disease conjunctivitis might arise from direct infection from nose to eye, but with regard to astigmatic affections there was little satisfactory evidence. There was a tremendous neurasthenic element in all these patients, and allowance ought to be made for this before we made positive statements as to the relations between the maladies of the two organs in question.

Dr. H. P. Mosher thought ptosis a rather unusual symptom of latent frontal sinus disease. He had, however, seen it once. He had come to the conclusion that the *x*-ray would clear up many cases of weakness of vision due to trouble in the sinuses or ethmoidal region. An ethmoidal condition might be revealed which had given no signs in the nose.

(*To be continued.*)

AMERICAN ACADEMY OF MEDICINE.

Fifty-second Annual Meeting, Held at Atlantic City. June 1 and 3, 1907.

(Special Report to the Medical Record.)

Saturday, June 1—First Day.

The President, Dr. Casey A. Wood of Chicago, in the Chair.

Report of the Committee to Investigate the Value of the First Degree in American Colleges. "The Academic Training for Medicine."—Some points presented in the report were: The faulty curriculum of the medical school; the time element; the plans for condensation or shortening. The difficulties in the way of coordination of secondary, collegiate, and technical education were stated. An outline course was suggested, involving changes in each class of schools. To make the suggestions effective the committee recommended that the Academy hold a meeting for the full discussion of the problems, to which representatives of educational institutions be invited for a full discussion of the subject; that an outline program be presented at this meeting, and, that the American Academy of Medicine act as a central bureau to give efficiency to the conclusions of the conference.

The Communal Life of Physicians; Its Cultivation and Value.—Dr. Leartus Connor of Detroit in presenting this paper defined the "Communal Life of Physicians," outlined methods for its cultivation, and presented estimates of its values under the following heads: 1. The individual physician. 2. Physicians as a unit. 3. Physicians outside communal life. 4. The laity. 5. Medical science and art. It was shown that individual growth, professional development, and medical triumphs awaited a clearer perception and unswerving obedience to the obligations of the communal life of physicians.

The Superiority of the Playground to the Schoolroom.—Dr. Woods Hutchinson of New York City thought the superiority of the playground over the schoolroom in the physical development of the child needed little proof. In addition to the disadvantages of the overheated air of the schoolroom, inadequate ventilation, and improper light, the child was denied his divine right to wriggle. Children kept out of school for half the day were said to make better progress in their studies alone, to say nothing of the improved physical and mental condition. That the child would never learn the classics in the school of play was regarded one of its chief advantages. These, the author said, represented a relic of barbarism, of caste education, of culture separating its possessor from the rest of his kind, the aim of which was selfish in self-culture and personal exaltation. The aim of modern scientific education was rather effectiveness for helpfulness to others. The playground was claimed to be equally effective on the moral side by checking and controlling the child's impulses and interests through contact with his fellows. The best morality in the world he thought was to be acquired on the playground. Justice and fearlessness rather than charity were said to be demanded by the new code.

Dr. Winfield S. Hall thought many of the principles expressed by Dr. Hutchinson were recognized by the present day educators. He recalled the case of a girl of fourteen brought up on the plains who had shown remarkable development after being in school one year. This larger ability to study was also marked in boys able to attend school for only three months in the year. Even in the playground, however, he would have the attention of the children riveted as an aid in their mental development.

Dr. J. W. Grosvenor of Buffalo agreed in part with Dr. Hutchinson, but was entirely opposed to the idea that a child should follow his own sweet will. Because of his belief in the matter of heredity concerning the mental and moral characteristics of the child he said education should be largely individual. Even the play of the child should be superintended by an experienced person. The study of the classics he regarded of advantage in the training of the mind, especially of the memory. He agreed with Dr. Hutchinson, however, that too much time was spent in the schoolroom.

Dr. S. A. Knopf of New York City would not have children enter school before the seventh or eighth year and would have the first few years made up of half or three-quarters play. He suggested the advantage of having singing and recitations out of doors, and in this connection referred to the custom in the German army of allow-

ing the soldiers to sing while on march. He thought physicians should urge the establishing of roof gardens in school houses when land was not available.

Dr. Ernest B. Hoag of Pasadena spoke of the admirable results in education obtained at the Theosophists' colony at Point Loma, California. The children were not in school more than two hours a day. They were divided into groups, each group having a teacher. Their play was so superintended as to be instructive. Hygiene was taught by making it a part of their life. Dr. Hoag was careful to state that while admiring the methods of education at the colony he was not a theosophist.

Dr. Emma B. Culbertson of Boston agreed with Dr. Hutchinson in protesting against the faddism of the modern schools, feeling that they were going to great extremes. She thought the great trouble before the public schools lay in the overindulgent method of the kindergarten. To her mind a kindergarten child was a child spoiled to study. She felt strongly that the study of Latin was a necessary foundation for the study of all other languages and a necessity for an accurate application of language to the expression of ideas. Personally she felt that she was a better physician, a better woman for this study.

Dr. M. G. Motter of Washington, D. C., was glad to hear the defence of the classics which he thought an absolute necessity in the preliminary training of physicians. In the present day system of public school education he felt there was too much instruction and not enough education.

Dr. Leartus Connor of Detroit spoke in defence of the study of Latin and Greek.

Dr. Edward Jackson of Denver said that the great supremacy of the playground over the schoolroom lay in the great value of spontaneous action on the part of the child. Illustrative of this he contrasted spontaneous muscular movement to movement in obedience to external influence. There might be, however, schools and teachers capable of giving all the advantage of that spontaneous effort by which the child is benefited in the playground. A principle of importance in the education of a child was the recognition of a certain need or the existence of a special aptitude, either natural, or acquired from teachers who had presented attractively studies in which they themselves were especially proficient. As in the girl of fourteen mentioned by Dr. Hall, she acquired easily that which she saw in others and desired. He felt that the importance of the child doing what he wanted to do should be recognized.

Dr. Thomas D. Davis of Pittsburg, who had been for more than twenty-five years on one of the school boards which he said were berated so continually, was anxious for practical information from any source. He had tried to carry out the so-called advanced ideas with the result that the school children were older when prepared for the high school than formerly. He took strong exception to Dr. Jackson's idea that children should be educated according to their natural bent, believing that if they were trained in the line of least resistance they would be narrow minded. If it were found that the playground would give the child a better all round preparation for life than the schoolroom he thought it well to get rid of the schoolroom.

Dr. Donly C. Hawley of Burlington, Vt., thought it true that to-day children were educated too much—not too well. He believed it better for the child to enter school later, probably at ten years and thought the time would come when half day sessions only would be held. Those not taking up a professional life he thought should not remain in school so many years as was the present custom. All children he thought should not study the classics, but agreed with Dr. Culbertson that the study brought the scholar in touch with the best thoughts of the best minds. Mathematics should be especially taught to the boy or girl who did not like them. Such child not having a logical mind would thus be developed in this trend of thought. He regarded the playground important in the child's education in putting him in touch with nature and with his kind, but did not believe in the extreme degree of the principle as presented by the author. He regarded it rather as a valuable accessory to the school.

Dr. Hutchinson, in closing, referred to instances in which the children kept out of school for two or three years or kept on half time had made the same progress as those in constant attendance. He asserted that the best pedagogical practice was in favor of giving the children an opportunity to grow up according to their natural tendencies. For those who liked the classics he would favor their study, but he would not compel every student to come up against this Chinese wall. He acknowledged the value of the study in its bearing upon the history of the ancients, but emphasized his belief that it tended to keep alive the desire for education, not for the sake of usefulness to others, but for the sake of self-culture and a certain air of distinction, an aim in his opinion purely selfish and opposed to the aim of science in its service to humanity.

The Social Education of the Child.—Dr. A. L. Benedict of Buffalo asserted that every child who was not defective should attend the public schools. He would not advise higher education unless the individual was liable to need it. The economic disadvantages of too high education for too great a proportion of the population were pointed out. What were called class distinctions he would have recognized to some degree. Important in the social education of the child the following items were mentioned: The avoidance of jealousies; the effort to change oneself rather than the world; care not to make principles out of prejudices; the greeting and entertaining of all acquaintances as if it were a pleasure to meet them, or else the avoidance of them altogether; the elimination from one's acquaintance of the low, selfish, demoralizing, unreasonable, and troublesome; the repayment of every debt, social as well as financial; the realization that being square is an important item in social success.

Insurance for Defectives.—Dr. James A. Spalding of Portland, Me., having been refused renewal of an accident policy, investigated the topic especially from the position of those who were like himself, deaf. He discovered that those who hear run many risks apparently more dangerous than those who are deaf. He found that many accidents occurred to all persons alike, and that in railroad accidents especially all were liable to serious accidents. For that reason, among others, the deaf and other defectives ought to have an adjustable insurance covering such accidents as were liable to all, and excluding special classes of accidents. Just as some companies asked higher rates for the syphilitic, in certain stages, so accident insurance should be more carefully overhauled, and better provision be made for the defectives. Standards should be set for a proper insurance both for accident and for life by going into the minute defects rather than into so many family defects which might be called gross.

Dr. James Evelyn Pilcher agreed with Dr. Spalding that defectives more than compensate for their lack in the added care taken, or in the added excitation of some other sense. He did not think it necessary that there should be an extra premium for the insurance of defectives, but could such insurance not be obtained otherwise, he thought a movement in this direction should be started.

The Soldier as a Total Abstainer from Alcoholic Beverages.—Dr. J. W. Grosvenor of Buffalo described what the soldier ought to be and dwelt upon his work and his needs. He should be a high type of man physically, mentally, and morally. Patriotism should stand out in all his military career. Reference was made to his clothing, recreation, and amusement. His pay should be adequate to furnish him largely with the comforts and conveniences which would be his in civil life, together with a pension for disability or old age. To the question whether or not the soldier needed alcoholic beverages it was stated that

science and experience give an emphatic negative. All scientists who had studied the qualities of alcohol and its effects on the human system declared in unequivocal terms that it had no utility in the development of the health of the human organism. Many quotations of scientists were given to this effect, among which was the statement of Kraepelin and Kurz, who have shown that "one ounce of alcohol diminishes the acuteness of all the special senses—sight hearing, touch, taste, and smell, and also retards the mental processes of reason, judgment, or sense of propriety, and memory." Equally convincing were the arguments shown against the therapeutic value of alcohol to the soldier. N. S. Davis, Sr., was quoted as saying that "step by step the progress of science had nullified every theory on which the physician administered alcohol." The writer was confident that not until total abstinence from alcoholic beverages had become the controlling rule in all departments of the army would there exist that freedom from drunkenness, desertion, crime, vicious habits, sickness, and inefficiency which should characterize the defenders of a republic whose rulers were its citizens, and who had a right to demand from the soldiers the highest efficiency and patriotic devotion.

Dr. James Evelyn Pilcher, from experience in medical service, during which time many thousand soldiers passed under his personal supervision, could say that the statements made in the paper were correct, asserting that there was absolutely no question, other things being equal, that the soldier who was a total abstainer was infinitely more efficient than the soldier who was in the habit of taking alcoholic stimulants. He paid a tribute to the American soldiers, the great majority of whom he said were beyond criticism in their general conduct. Among the officers the number of total abstainers was said to be very large.

Dr. Winfield S. Hall remarked that the statement concerning the small number of army officers who drank heavily was in harmony with the decrease in drinking among the other professions. In times past it had not been an uncommon thing for the family physician to be a heavy drinker and still maintain his position in the profession. The education of the public and of the profession at the present day, however, would not tolerate this.

Dr. John Chase of Denver spoke of the great difficulty encountered by men desiring to enlist in the National Guards of Colorado if they were users of alcohol. The utmost care was taken to exclude such men and the result was shown in the great enduring power of the guards, the men having been at times on duty for seventy-two hours without sleep. It had been found that the men did better by drinking tea than alcohol.

Dr. Leartus Connor believed that most men drank when they desired to forget some unpleasant experience or condition and that the conditions of life of the United States soldier tended to make him seek this forgetfulness. If the army were made a desirable place in which a man could serve his country he did not believe drinking would be largely indulged in.

Dr. James A. Spalding of Portland, Me., spoke of the effort of the Sturgis law in compelling the sheriff to enforce the prohibition law, the result of which was to bring about the pocket peddling of liquor. On one occasion an officer had found thirty per cent. of his men in the hospital from the cocaine habit. They had gone over the town and, not being able to get a little beer and because they did not want to drink bad rum, they had used cocaine. He questioned whether in taking away alcohol good would be done if cocaine were substituted.

Dr. Woods Hutchinson was in accord with much of the paper, but thought one point to be challenged was the statement that all medical men and scientists were in accord upon the uselessness of alcohol in health and disease, believing that the facts in the case did not support the statement. He asked why men drank. The normal man, he claimed, did not take alcohol as a food, but as a means of enjoyment. The Scriptures stated long ago why it was that men drank. The injunction of St. Paul to the youthful Timothy had been: "Drink no longer water, but use a little wine for thy stomach's sake and thine often infirmities." Again it was said: "Give strong drink to him that is ready to perish, and wine unto those that be of heavy hearts. Let him drink, and forget his poverty, and remember his misery no more." So long as conditions were unfavorable, so long as men were subjected to injustice, were placed under conditions of hardship, so long, Dr. Hutchinson believed, they would continue to resort to alcohol. This he thought was the aspect of which Dr. Grosvenor had not treated. This, he reasoned, was an argument for the retention of the canteen, for with the canteen alcohol was taken within certain limits and the opportunity was not offered for the soldiers to secure bad liquor.

Dr. Grosvenor, in closing, admitted that undoubtedly there were two sides of the question, stating that some people occupied one side, some people the other side. He firmly believed that he was on the right side, that many people were with him, and that more were coming than a few years ago. He thought all would agree that the better educated, especially the medical profession and the clergy, were coming to the opinion that total abstinence was the right thing for all normal individuals, for all who were sick, and the way to keep people from crime, immorality, and vicious habits, to a very large extent. He believed that the total abstinence opinion was growing in the country. He regarded Dr. Hutchinson's criticisms as not in accord with the tone of progress in his own paper of the morning, and urged that he come up onto the modern platform of the present day, the platform which was rising higher and higher, and in support of which Dr. Hutchinson could give valuable assistance.

Monday, June 3—Second Day.

A Medical Career and the Intellectual Life.—Dr. Casey A. Wood of Chicago took this topic as the subject of his Presidential Address. The most conspicuous want of the medical practitioner was said to be a useful and pleasure-giving recreation. What that particular form of occupation should be might well vary with the individual, but that it should be instructive—perhaps unconsciously instructive—seemed self-evident. Sir John Herschel was quoted in his eloquent estimate of the advantages of literary pursuit, saying that in books were found solace, refinement, and recreation. The physician, however, it was felt must have a feeling of unrest who was not engaged, even during his recreation, in work likely to add to the sum total of human knowledge. To meet this condition the pursuit of some branch of the natural sciences as the desirable recreation of the practitioner of medicine was advocated, and a plea made for the adoption of what might be called the "outdoor" sciences as the most useful and most valuable of all the recreations. The close relation between the natural sciences and the study and practice of medicine was briefly mentioned. Comparison was made of the values of investigations of science, and mere book learning and reference made to Herbert Spencer's essay on "Education," and to the "Lower Geology" of Rev. Charles Kingsley, whose name was dear to those who loved science, revered literature, and respected religion, because he lived them all in one fair life. Spencer in an endeavor to answer the query, "What knowledge is of most worth," believed it might be answered by an appeal to conduct tempered by knowledge and showed the conditions to be filled to a very large degree by a careful study of the natural sciences. All of the outdoor sciences were not enumerated, brief mention being made of botany, with its many subdivisions into agriculture, floriculture, arboriculture, forestry, etc.,

as offering a most varied choice to the scientific activities of the medical man.

The Relation of the Medical Profession to the Housing Question.—Dr. S. A. Knopf of New York City divided the subject of this paper into a consideration of the selection of proper ground for dwellings with a view of assuring proper drainage, proper ventilation, plumbing, the necessary cubic air space for each individual, light, sunshine, and heating facilities. The paper further discussed the general sanitary arrangements of rooms, internal equipment, hygienic measures, and precautions to avoid what is commonly known as indoor diseases, dwelling upon the precautions which should be taken in dwellings to diminish the existence of dust and its danger as a disease carrier. Even the so-called sterile or non-pathogenic dust the author said could be productive of disease and he considered it the duty of the physician, hygienist, and sociologist to ascertain what could be done to reduce the fearful morbidity and mortality caused by indoor and dust diseases and infirmities brought about by the unhygienic housing of the masses in general. To hope for any appreciable results the cooperation of statesmen, public educators, and philanthropists was considered an absolute necessity.

General Aspects of the Housing Question.—Dr. Gertrude U. Light of New York City prefaced her paper upon this subject by remarking that the making of Americans, with the marketing of alien labor and the housing of the alien's family, have furnished much of the social history of the generation to the communities affected. Intelligence has reluctantly admitted, however, that mere reception is not humanizing; that the sentiment of liberty must be worked in terms of sanity, if decency is to distinguish the naturalized product. The housing problem, therefore, has, certainly in the cities, resolved itself into the immigrant's problem. Treatment must proceed along parallel lines. First, the regulation, in respect to members and fitness of the arriving alien; second, such personal and legislative activity as shall procure the construction and maintenance of model dwellings, and present the wasteful repetition on the outskirts of the processes which have created the central slums.

Mr. Paul Kennaday of New York City said that just so long as the public generally would tolerate the dreadful conditions of the tenement house dwellers so long would they exist. Although the foreigner was a part of the general public, he had not the ability to express his need, and it was the duty of the educated citizen to study and remedy the evil. Prisons generally were spoken of as hotbeds of tuberculosis, but reference was made to the prison in New York to which prisoners with tuberculosis were now sent with the result of reducing the mortality. The necessity was emphasized of placing questions of this kind before the public through the public newspaper rather than through medical journals. In the tuberculosis movement about 1,500 copies of a press pamphlet had been sent each week to a large number of newspapers in New York City. The same could be done in regard to the tenement house problem.

Mr. John Martin, Corresponding Delegate to the Women's Trade Union League, considered the housing problem almost entirely a city problem, the problem in the village being rather one of information concerning the construction of the house. The crucial point in the difficulty was to prevent the crowding in of so many people on a stated area. The most elaborate sanitary devices and housing methods could not cope with an increase of 80,000 in population in the last five years, as there had been in the restricted area of the lower part of Manhattan. The solution he thought, lay in making the cities bigger. Following the suggestion of Mr. Devine, this could be done in part by forbidding the erection of factories upon areas already full. While this would take the crowds away from the city centers the question of transportation would arise. To meet this difficulty he suggested for scientific consideration, apart from political theories, whether it might not be wise, by taxation or other means, to take into the common exchequer a part of that unearned increment of land value and spend this upon freeing the transportation facilities in order that the people might be taken out of the hotbeds of disease and of crime and put upon the borders of the city.

Miss Claghorn of New York City thought that from some points of view the housing in small towns and villages was worse than in the cities. In the small towns the difficulty lay in improper sanitation; in the cities, in the covering of ground space and in the height of buildings. She suggested that there should be legislation regulating the height of buildings.

Dr. Woods Hutchinson of New York City thought the housing problem not one solely of the great cities or of the slums. The modern hotel and the Pullman car offered illustrations of glaring lack of facilities for ventilation. Another point was in reference to the prevalent dread by many of night air, which he regarded as absolutely nothing but a survival of the dread of the powers of darkness and of the prince of the power of the air who might swoop down upon them and carry off their souls to perdition if the wind blew upon them at night. Regarding the building of model tenement houses, he believed such could be erected to give the owners a fair return if only the greed of the landlord could be moderated, and he thought it not too much to say that the mass of the voters of the country would see that this moderation were brought about. He believed that a limit would be placed upon the possibility of individual aggregation of wealth and the taking of an unfair part of the earnings of the poor.

Dr. Edward Jackson of Denver agreed that the solution of the problem of overcrowding lay largely in taxation that should secure the best value of lands, and the maintenance of transportation that should allow men to spread out over the largest districts of the country and in the encouragement of large manufacturers to spread out over a larger part of the country. Railroad discrimination was largely responsible for the phenomenal growth of cities, and this point should claim the attention of citizens in the matter of politics. The restriction of buildings to a certain height should also be a matter of legislative concern in order that natural light might be preserved for city dwellers.

Dr. H. O. Marcy of Boston spoke of the splendid transportation facilities in his city. Notwithstanding this, immigrants from Southern Russia or Italy naturally wanted to remain in the colonies of their fellow men.

Dr. Thomas D. Davis of Pittsburg said that in his city they had taken the factories out of town with the result that trains were run to carry the people back to the crowded districts. Although nice houses were near the works the people would not occupy them, desiring rather to get back to the life of the city.

Dr. Charles McIntire said that Dr. Spalding, who had been obliged to leave, had asked him to say that in Portland they had very little of the housing problem because the prohibition law was lived up to, and with the removal of temptation men had more money and there was no slum district.

What Is the Primary Cause of Non-Legislation and Mal-Legislation with Regard to Medical Matters?—Dr. Thomas H. Shastid of Marion, Ill., claimed that there was much amiss in the way of legislation in this country with regard to matters medical. A central operative condition accounting for this was said to reside in the ridiculous character of the instruction (or the total absence of instruction) given to-day in the courses on legal medicine and allied topics in the vast majority of our schools of law. The extent and character of medical instruction as it ought to be imparted in the law schools was described. It was asserted that the extra time and effort required of the law

student to acquire a proper knowledge of medical matters would in the end be to him no burden, but rather a benefit.

The State Board of Medical Examiners.—Dr. Henry Beates, Jr., of Philadelphia, presented some suggestions relative to improvements in the legislative regulation of medical licensure.

The Necessity for Cooperation in the Movement for a National Department of Health.—Professor J. Pease Norton of New Haven said that the success of the movement for a Federal Organization of Public Health work required widespread cooperation among all learned, philanthropic, and fraternal associations. The appointment of a Committee of One Hundred was the result of a vote passed by the American Association for the Advancement of Science at its Ithaca meeting, June 30, 1906. Since that date Professor Irving Fisher, Chairman, had appointed such a committee, consisting of persons identified with the leading learned and philanthropic societies which held these objects at least in whole or in part. The purpose of this committee or council was to secure cooperation among many great associations capable of wielding vast influence and representing the power requisite for accomplishing the definite objects proposed. To work out the problem special committees had been appointed on legislation, finance, publicity, organization of health clubs, and cooperation. Beyond the work of these committees a far larger problem was the practical one of adequately presenting the movement. It was thought that $100,000,000 appropriated annually by the Federal Government would not be large for 80,000,000 population. To accomplish the thorough rousing of the people to the necessities of the movement, it was stated that no more effective means could be imagined than the endowment of a great International Institute of Health at the Hague. International conferences should be held. Great laboratories should be endowed and equipped for experts devising inventions and discoveries against disease and death.

Criminal Abortion.—Dr. Henry W. Cattell of Philadelphia regarded the criminal abortionist as one of the greatest menaces to civilized society. That he existed in numbers, both within and without the medical profession, could not be denied. He thought it important that the public should be educated as to the wide extent to which the practice was now in vogue in order that popular sentiment might be made to condemn its performance. He gave a summary of the work done by the special committee of the Philadelphia County Medical Society to aid the officials in bringing this class of criminals to the bar of justice. The formation of the Public Health Defense League and the Pennsylvania Health Defense Association was described. The medicolegal aspects of abortion, especially with regard to state and national legislation, was discussed and a plea made for revoking the license of any registered physician found guilty of performing criminal abortion.

General George M. Sternberg opened the discussion upon the foregoing papers, speaking more especially upon the subject of Professor Norton's paper. While not wishing to throw cold water upon the project of a National Department of Health, he pointed out some of the obstacles which might be expected.

Dr. S. A. Knopf, in regard to examination for permission to practise medicine in another State, thought it preposterous to expect that every physician after he has been in practice for ten or fifteen years upon going to another State must submit to certain examinations in chemistry, physiology, and anatomy. He, therefore, believed that an established bureau of health should make a standard for permission to practise throughout the United States.

Dr. Ernest B. Hoag of Pasadena, Cal., said the examination questions usually propounded he thought did not tend to ascertain the final result of a man's education, but what he remembered of the things that he ought to forget.

Dr. John B. Roberts thought that because a man had practised medicine ten or fifteen years ago he was not necessarily competent to practise at the present time; and he contended that any man with a good medical education who had been licensed to practise, who could not within six or eights weeks refresh his memory sufficiently to answer questions of the average examining board, had no business to try to practise medicine.

Dr. Edward Jackson of Denver asserted that in the Colorado State Board rules of the preliminary examination were drawn up, but the examiners were not tied down to a particular form of examination.

Dr. M. G. Motter of Washington, D. C., said that from the fact that every one before examinations balked at anatomy, chemistry, and physiology, it was evident that these three studies were not properly taught in medical schools.

Dr. Henry D. Holton of Brattleboro, Vt., felt that examiners should aim to ascertain the practical knowledge that a man had and thought the point was well illustrated in the incident of the surgeon with private practice taking an examination for army service. Asked what tissues he would cut through in operating upon indirect inguinal hernia, he replied that he would cut through the skin and superficial fascia. He hesitated, then repeated what he had said, again hesitated, grew a little more excited, and finally said, "and after that I would cut pretty damned careful." Dr. Holton told briefly his method of dealing with the question of abortion. To his Protestant patients he presented a convincing little book telling why abortion should not be done. His Catholic patients he always advised to consult the priest.

Dr. Ruth Webster Lathrop remarked upon the high percentage of students and applicants for license to practise who failed in physiology, and as a teacher he asked for cooperation in helping the students.

Dr. Gardner T. Swarts questioned whether a National Examining Board would be satisfactory to any number of States.

Dr. Leartus Connor claimed that before there could be any effective regulation of the practice of medicine the people must be educated regarding conditions that should prevail.

Dr. Edwin B. Harvey said that the crime of abortion was not a medical question; that he who committed abortion was not practising medicine, but committing a crime against the statute of every commonwealth in the country.

Dr. Shastid in closing said that a National Examining Board was a practical impossibility, the Federal Government having no power to appoint an examining board. This power could be given to the government by the individual States by amendment to the constitution, brought about by a two-thirds vote of the States. This, however, was practically an impossibility.

Dr. Beates in closing asked the influence of the Academy in the passage of a medical law acceptable to all commonwealths and in the education of the public on matters medical.

Dr. Winfield S. Hall of Chicago made a brief plea for rational examinations, not only before State Boards, but before hospital boards and in the departments of medical schools to advance students from one year's work to another. The whole subject of examinations, he thought, had been on a wrong basis and that the effort should be rather to ascertain the real knowledge of the one examined than a matter of memory of textbook instruction.

Dr. Cattell, in closing, congratulated Dr. Holton upon his novel method of preventing abortion, and hoped to give wide publicity to that which should be known as "Holton's Method of Preventing Abortion." Regarding

the Pennsylvania law on abortion, in the work undertaken in this connection the committee had been assured that no medical law should pass the legislature that did not provide for the revocation of license in the event of the performance of criminal abortion. This promise had been kept so well that the Osteopathic Bill which had recently been passed by the Senate had attached to it the provision for the revocation of license for the performance of criminal abortion.

The Medical Superstition of the Precious Stones.—Dr. ROLAND G. CURTIN of Philadelphia read this paper.

Officers.—The following officers were elected: *President*, Dr. Thomas D. Davis, Pittsburg; *Vice-presidents*, Drs. James H. McBride, Pasadena, Cal.; Frederick T. Rogers, Providence, R. I.; Louis S. McMurtrie, Louisville, Ky.; *Secretary and Treasurer*, Dr. Charles McIntire, Easton, Pa.; *Assistant Secretary*, Dr. Alex R. Craig, Philadelphia.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, May 27, 1907.

WALTER LESTER CARR, M.D., PRESIDENT, IN THE CHAIR.

Memorial Address: George B. Fowler, M.D.—Dr. FRANK VAN FLEET reviewed, in this address, the life of Dr. Fowler, dwelling particularly upon his professional career in this city.

Presentation of Apparatus for the Continuous Administration of Nitrous Oxide Gas and Oxygen.—Dr. JAMES TAYLOE GWATHMEY presented this apparatus, explaining that the method is not applicable to all cases. Middle-aged persons and those who are weak and worn out from any cause were best suited for the continuous administration of nitrous oxide gas and oxygen, while the cases to be avoided were able-bodied men, athletes, and alcoholics. Dr. Gwathmey advocated giving morphine or atropine one-half hour before giving the anesthetic. According to this method the administration of the anesthetic could be prolonged sufficiently for the performance of any radical operation. He had given it continuously for two hours and the patient had gotten up from the table with no nausea and no vomiting.

Dr. JAMES IVES EDGERTON cited a case in which he had removed a fibroid tumor weighing thirty-six pounds from a colored woman whose condition was such that ether could not be administered. The operation was done under the combined nitrous oxide and oxygen anesthesia, administered by Dr. Gwathmey, the patient being in the reversed Trendelenburg position. The abdominal muscles were perfectly relaxed and though the anesthetic was given for two hours the patient had no subsequent vomiting or other disturbance.

The Differential Diagnosis of Imbecility and Dementia Precox.—Dr. A. R. DIEFENDORF of Middletown, Conn., read this paper. The differential diagnosis of imbecility and dementia precox could be summed up in a few words if the discussion be limited to the more exact definition of imbecility, *i.e.* lighter grades of arrested mental development, acquired or congenital. The question might be asked of such an originally defective individual who has reached the age of predilection for dementia precox, and of the development of whose symptoms no reliable history is obtainable, whether the patient be suffering from dementia precox and is now in a state of deterioration, whether his mental condition will become progressively worse, or whether he will remain permanently in his present condition. The question was one not easily answered, because terminal states of deterioration of dementia precox might not be unlike the original defects of imbecility. The difficulty was particularly apparent in the cases of insidiously developing dementia precox, which at no time presented hallucinations or delusions, but which exhibited a simple progressive deterioration of the mental life. Dr. Diefendorf cited a case of this type of dementia precox. In such cases the differentiation depended chiefly upon the fact that in dementia precox the patient had acquired and retained school knowledge, while the imbecile had been able to acquire such knowledge to only a moderate degree. Furthermore, the imbecile might be incoordinate in his movements, but natural movements were not peculiarly modified, as was the case with dementia precox patient. The differential diagnosis was rendered more complicated by the fact that from seven to nine per cent. of all cases of dementia precox develop on an imbecile basis, so that it was difficult to determine where imbecility ends and dementia precox begins. The difficulty was still further complicated by the fact that imbeciles not infrequently present brief exacerbations, the symptoms of which are quite like those of dementia precox. The differentiation here depended upon two factors, viz., first, that with the imbecile the active crazy symptoms are of comparatively brief duration (rarely over a few days or weeks), and second, that emotional deterioration, the characteristic symptom of dementia precox, is lacking, the exacerbation leaving the imbecile patient no worse than before. When the term imbecility was used in a broader sense and included certain of the constitutional psychopathic states, and of the psychopathic personalities, there were several groups of cases which might appear like cases of dementia precox, as for example, cases of constitutional despondency, constitutional excitement, and the so-called unstable personalities. The differentiation of these states from cases of dementia precox rested chiefly upon the absence of deterioration in the former.

Remarks on the Medicolegal Aspect of Imbecility.—Dr. L. PIERCE CLARK, in presenting this subject, called attention to the fact that twenty-eight States have no adequate provision for the feeble-minded, and that of the 140,000 such individuals in the United States only 6,000 are cared for in the twenty-seven institutions for the feeble-minded in this country. The difference between medical and legal definitions added artificial difficulties to those inherent in all that pertained to insanity and to imbecility as well. The term imbecility in law included not only arrested development, as in idiocy, but dementia, or the breaking down of intellect by disease or old age. In law imbecility was to be distinguished from lunacy in that it was without delusions or lucid intervals. The legal test of imbecility consisted in the inability of the subject to transact the ordinary affairs of life, to understand their nature and effect, and to exercise will in relation to them. There was, however, no single test of imbecility, and every case had come in medicolegal matters to be judged upon its own merits, in which tests of memory, judgment, emotional balance, personal conduct, and morals played important parts, as in medicine proper. The medicolegal distinction between idiocy and imbecility was quite as arbitrary as in ordinary medicine. The two states merged one into the other. From the sociologic point of view, however, it might be said that the imbecile is a much more dangerous member of society than the idiot. The imbecile might be said to be antisocial, while the idiot was extrasocial. Once the condition of imbecility was established before the law, the status of the imbecile was clear. The imbecile or feeble-minded person could execute no contract or conveyance; he was, in fact, under the same legal restrictions as a minor. It was interesting to note that this did not pertain with reference to epileptics, the medicolegal aspect of ordinary epilepsy concerning itself only with the mental state during the time of the fit. There were many reasons why mental incompetence in epilepsy should have a broader foundation than the fit period. The impropriety of permitting imbeciles to vote upon public questions was often manifest, but such individuals could not be refused the franchise so long as their defection had

not been legally declared. The law required less mental power for the execution of a will than for the making of a contract, and considerable distinction was made between important and common affairs, large and small properties, relative to the disposing power in wills. The just position of the Civil Code regarding limited responsibility for testamentary capacity offered a valuable and potent argument for the recognition of conditions of limited responsibility in criminal action. Laws prohibiting marriage of imbeciles and epileptics were on the statute books, but legislation was not sufficient to prevent procreation by and of idiots, and the idea of the castration of male epileptics, imbeciles, and idiots had not advanced beyond academic discussion. The legal status of the moral imbecile was less definite and fixed. Such antisocial factors were found in insane asylums as cases of moral insanity, cases of dementia precox, and paranoid states; in institutions for the feeble-minded as cases of imbecility with moral perversion; in reform schools and prison as incorrigibles and habitual criminals; in vagabondage as petty thieves and tramps, and among the better classes of society in homes and sanatoria for borderland psychoses and drug addictions. Dr. Clark strongly advocated suitable protective measures for the defective individual and for society. Humane segregation and not punishment should be aimed at. The establishment of juvenile courts presaged a juster and saner outlook for feeble-minded children who suffer moral perversion and who, through the commission of criminal acts, come into contact with the law.

The School Training of Backward Children in the New York City Schools.—Dr. Charles E. Atwood read this paper, in which he outlined the work accomplished in the so-called ungraded classes of the New York City schools. Of the nearly two million defectives in the United States, over one hundred thousand were feeble-minded, in contradistinction to the idiot or insane. The percentage was greater than in England, France, or Germany, and greater in New York City than in any other city. Of the seven thousand children in New York who were suitable for the ungraded classes, nearly all were foreign born, or native born of foreign parentage. The careful training given these defectives in the ungraded classes, together with the removal of adenoids, correction of visual defects, etc., had improved conditions to a remarkable degree, but there remained much yet to be accomplished. Mental defectives should be sent to a neurologist, who should determine whether such individuals should be sent to institutions or allowed to continue in the ungraded classes. Dr. Atwood recommended the cooperation of the County Medical Society and the Academy of Medicine with the Board of Education in perfecting the training of mental defectives.

Dr. Smith Ely Jelliffe advocated a better classification of mental defectives. Schools for backward children, idiots, and imbeciles were working in the right direction, and when such schools were properly located, properly manned, and equipped a great deal could be accomplished for these unfortunate individuals. The side of the question particularly interesting to the psychiatrist was what should be done with the constitutional inferiors, the constitutional psychopaths, those on the wavering edge between responsibility and irresponsibility, between mental health and mental illness. This was also a subject of greatest moment to the penologist. It was a question for the psychiatrist rather than for the penologist. The fitting of the punishment to the crime should be done with more skill and with more reliance upon the teachings of psychiatry.

Miss Elizabeth E. Farrel, instructor of the ungraded classes of the public schools, expressed appreciation for the cooperation of the County Medical Society with the Board of Education in the work of training the defectives of the city schools. It was only by cooperation of the medical profession with the school authorities that such work could be carried on as it should be. She dwelt upon the fact that a child was placed in the ungraded class only after careful study by a competent teacher, who goes into the home of the suspected child, who learns something of the economic status of the family, something of the family history, and of the child's previous history. After the teacher had obtained this information by personal, friendly visits, the medical examiner was called into requisition, and the child was given a thorough physical examination according to the methods employed in clinics. Mental tests, also, such as are employed in clinics and private practice by neurologists, were applied. Furthermore, a child was never placed in an ungraded class until he had had a fair and square test in the regular grades. She did not agree with those who hold that training such children was merely brightening up those who will become criminals.

Dr. Maximilian P. E. Grossmann said that the physician approaches the subject from the purely pathological point of view, while the educator approaches it from the educational point of view. Both views were one-sided, and it was only through correlation of the two that the end could be accomplished. He emphasized the importance of the proper diagnosis and proper classification of these cases. Epileptic and feeble-minded children had no place in ungraded classes, but should be segregated. Every school should have connected with it an alienist and neurologist, who should cooperate with the teacher in the proper placing of the child.

Dr. Adolph Meyer said this subject had been brought to his mind in connection with the work done at the dispensary of Cornell University Medical Department, where it was the endeavor to meet some of the conditions described. In the dispensary, however, one was at a great disadvantage, in that the child must be examined rapidly, out of his environment, and such examination was apt to be inferior to the efforts of the common-sense teacher. The child must be examined by the physician in its environment. The greatest advantage that they had been able to bring to the child at this dispensary was, in the first place, the opportunity to see the parental management of the child, and in the second place, the removal of adenoids, correction of visual defects, etc. Another advantage lay in the decision as to whether the child should be recommended to a special school for feeble-minded. The best work of the physician, however, was to be done in the schools themselves and not in the dispensary, and consisted in encouraging the teacher and trying to train the parents. Better diagnosis would improve the work. Many cases of terminal dementia had their beginning in school. The actual beginning of the disorder could, as a rule, be demonstrated to be a habit disorganization—habits which were very small in the beginning, and which were considered practically irrelevant.

Anesthetizing.—Gwathmey says that whenever possible the patient should be anesthetized on the operating table. There is no good reason why all operating tables should not be supplied with wheels. The patient could then be wheeled from the anesthetizing to the operating room, thus avoiding the lifting and jolting, and with no intermission as regards the anesthetic. If the patient is anesthetized in the operating room, every one should refrain from conversation until the patient is well under; neither should the patient be touched by any one until ready for the operation. Also the patient's room should be darkened, and quiet observed, after the operation. When the gas-ether sequence is used, surgeon, assistants, and nurses should be ready before the anesthetic is started. Surgical anesthesia is usually reached in three or four minutes, and the operation should begin at that time.—*Illinois Medical Bulletin.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

West Virginia State Board of Health.

November 13, 1906.

BACTERIOLOGY AND HISTOLOGY.

1. Mention three diseases of microorganismal origin and describe the organism of each.
2. Give three pus-producing organisms.
3. Which of the above in questions 1 and 2 is most widely distributed? Which is the most virulent, and why?
4. Through what channels do the organisms of tuberculosis, tetanus, anthrax, diphtheria, and typhoid fever enter the body?
5. What becomes of pathogenic bacteria in a dead body?
6. Where in the body is adipose tissue never found normally?
7. Name structural elements of nerve tissue.
8. Of what is a tooth composed?
9. What is a Peyer's patch?
10. What is periosteum, and how many layers?

HYGIENE.

1. What hygienic guards would you throw around a bottle-fed infant?
2. Why were the disabilities and deaths from disease so much less in the Japanese armies than in the American in the recent wars?
3. How would you prevent ophthalmia neonatorum?
4. What influence has the purity of water upon its power of dissolving lead?
5. Name five of the best disinfectants and explain their action and method of use.
6. Tell how you would prevent the spread of the following: Typhoid fever, diphtheria, scarlet fever, and smallpox.
7. What instructions would you give in a case of tuberculosis to prevent other members of the family from contracting the disease?
8. Describe your ideal for a sleeping-room from a sanitary standpoint.
9. What instructions would you give as to the toilet of mother and child in the first week after confinement?
10. Name some of the diseases whose germs are carried by water, and those carried by air. How may they be destroyed?

PRACTICE OF MEDICINE.

1. Practice of medicine. Define it. Is the use of patent medicines legitimate?
2. Differentiate between true croup and laryngismus stridulus; treat the latter.
3. Name four of the eruptive diseases and give period of incubation of each.
4. Hiccough: causes, symptoms, and treatment.
5. Differentiate between diabetes mellitus and diabetes insipidus; give urinary analysis of the former and some of the things found in it.
6. Differentiate between cancer and ulcer of the stomach.
7. Describe the clinical thermometer; give three methods of using it and variations.
8. Scabies: describe and treat.
9. Biliousness: give causes, symptoms, and treatment.
10. Warts and corns: describe and treat—nonsurgical.

PHYSIOLOGY.

1. Describe lymphatic circulation. What does it do and how does it do it?
2. Give function and description of various blood corpuscles. What regulates blood pressure and how measure it?
3. How does bone grow? Purpose of Haversian canals? Function of marrow and periosteum?
4. Describe development, construction, and use of teeth. What glands are affected by mastication?
5. What is function of the vagus nerve?
6. Locate and give function of thymus, thyroid, and suprarenal glands.
7. Describe the portal circulation.
8. Describe prostate gland and detail its functions. How does ovum get to uterus?
9. Detail minute anatomy of skin and function of each part.
10. Describe the process and purpose of respiration. Why an involuntary act?

ANATOMY.

1. Locate and describe the ileocecal valves.
2. With what bones does the malar articulate?
3. What muscles form the tendo Achillis, and where is the tendon inserted?
4. Name the branches of the abdominal aorta.
5. How is the eye supplied with blood?
6. What constitutes the brachial plexus?
7. How are the saphenous veins formed, and where do they empty?
8. Give the anatomy of the bladder.
9. Describe the ankle joint.
10. Name the arteries and veins passing to and from the kidneys.

CHEMISTRY.

1. What is a molecule?
2. Define an acid, a base, a salt.
3. What is the most common element in nature?
4. What is uric acid? Tell all you know about it.
5. Name five acids used in medicine, and give their formulæ.
6. Name five preparations of mercury used in medicine.
7. Define distillation and sublimation and give examples.
8. What is the therapeutic value of alcohol?
9. Give color, reaction, and weight of normal urine.
10. Give a reliable test for albumin, bile, blood, and sugar in the urine.

OBSTETRICS AND GYNECOLOGY.

1. Give the diameters of the true pelvis.
2. What is the perineum? How should it be protected?
3. How is the semen carried to the ovum?
4. Give various changes which take place in ovum after impregnation.
5. Name the different presentations of the fetus at the end of gestation. Which are normal, which abnormal?
6. What are the indications for instrumental delivery? Would you call help?
7. How long would you remain with patient after delivery? What symptoms would cause you to delay your going?
8. Give symptoms, diagnosis, and treatment for chronic endometritis.
9. Give symptoms, diagnosis, and treatment of a small fibroid of uterus growing from margin of internal os extending upward in wall of uterus.
10. Diagnose and treat a case of placenta previa—central, marginal.

SURGERY.

1. What is hemorrhage? Divide anatomically and clinically; treat mechanically and therapeutically.
2. Describe, differentiate, and treat furuncle and carbuncle.
3. Describe, give symptomatology, and treatment of dislocation of inferior maxillary bone.
4. Exarticulate humerus, give steps, and tell all you know.
5. Trephining, give indications, precautions, and complications.
6. Define gonorrheal urethritis, give complications, sequelæ, and treatment.
7. Mention the dangers of anesthesia, and treat case of chloroform, ether, and cocaine poisoning.
8. Give form of historical examination.
9. Differentiate piles, fistula, and fissure; treat each.
10. Differentiate phimosis, paraphimosis; treatment.

MATERIA MEDICA, AND THERAPEUTICS.

1. What per cent. are the two classes of tinctures in the new pharmacopœia?
2. Give the official preparations of mercury, and the diseases in which its use is most indicated.
3. Name the three best teniacides and the dose of each.
4. What is meant by coaltar derivatives, and what is their action in general?

*It is proposed in this department to publish from time to time the examination papers of the various State Boards, in order that a candidate may become familiar with the character of the examination and so in some measure free himself in advance from the nervousness and dread which the unknown inspires. In furtherance of the same object answers to some of the questions will be published in order to show the candidate what the examiners expect of him. Not all the questions of all the papers will be so treated, for the answers to many, especially in the anatomical papers, are obvious or can be found in the index of any textbook on the subject; the answers to other questions, especially in the surgical papers, must sometimes be omitted because of the space they would demand. The candidate for a medical license will not find in these answers a short and easy road to success in the examination, for he is not likely to meet the same questions in the papers placed before him by the examiners. The object of publishing the questions and answers is only, as noted above, to acquaint the candidate with the general character of these examinations and to inspire him with confidence in the result of his trial.

5. Mention the ingredients of citrine ointment; what is its official name?

6. State the effects of the bromides on the respiration and on the action of the heart; what effect is the long-continued use of the bromides liable to produce on the mental functions?

7. Write a prescription for a four-ounce mixture containing an expectorant, a sedative, and a tonic of which the dose is a teaspoonful every two or three hours.

8. Give the composition of the compound cathartic pill; state the dose.

9. Define hemostatics; their mode of action, the best local hemostatic; therapeutics.

10. What are counterirritants? Explain their action and the rationale of their use in diseases; enumerate four in the order of efficiency.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

WEST VIRGINIA STATE BOARD OF HEALTH.

November 13, 1906.

BACTERIOLOGY AND HISTOLOGY.

1. (1) Typhoid fever, caused by the *Bacillus typhosus* of Eberth; (2) tuberculosis, caused by the *Bacillus tuberculosis* of Koch; (3) diphtheria, caused by the *Bacillus diphtheriæ* (Klebs-Loeffler bacillus).

2. (1) *Staphylococcus pyogenes albus;* (2) *Staphylococcus pyogenes aureus;* (3) *Streptococcus pyogenes.*

3. The *Staphylococcus pyogenes aureus* is the most widely distributed; the *Streptococcus pyogenes* is the most virulent, because it is the most active in the production of soluble toxins.

4.

ORGANISMS OF:	ENTER THE BODY BY THE FOLLOWING CHANNELS:
Tuberculosis	Respiratory tract, alimentary tract, skin, and mucous membranes.
Tetanus	Wounds of skin and mucous membranes.
Anthrax	Wounds of skin and mucous membranes, mouth, and respiratory tract.
Diphtheria	Mouth, nose; wounds.
Typhoid fever	Mouth.

5. Most of them die; some, because they can hardly exist at any other than the temperature of the living body; others, because they cannot obtain suitable nutriment from dead tissues. Others, again, are rapidly killed by other organisms with which they come in contact and against whom they are powerless to compete. Some may eventually enter another host.

6. Adipose tissue is never found normally in the penis, scrotum, eyelids, nymphæ, cranial cavity, and the lungs (except near the root).

7. The structural elements of nerve tissue are:—(1) The nerve cells (consisting of protoplasm, nucleus, nucleolus, axis cylinder process, and dendrites); (2) the nerve fibers, (*a*) *medullated,* consisting of axis cylinder, medullary substance, and neurilemma or sheath of Schwann; (*b*) *non-medullated;* (3) the supporting tissues and neuroglia.

8. A tooth is composed of dentine, enamel, cementum, and pulp.

9. Peyer's patches are oval groups of lymph follicles, packed closely together, and held in place by diffuse adenoid tissue; they are situated chiefly in the ileum, and are found in the mucous and submucous layers.

10. Periosteum is a tough fibrous membrane surrounding a bone. It consists of two layers.

HYGIENE.

2. Because:—The Japanese expected war and were prepared for it; they knew that disease was more fatal than bullets, and had their medical department thoroughly well prepared and organized and under the absolute control of well equipped medical officers; the soldiers had suitable rations, which were purchased, inspected, and transported without political or civil interference; all the medical (and military) appointments were made on the basis of skill and experience, and whatever the health and sanitary condition of the soldiers required was promptly provided, without being dependent on the vanity, ignorance, or political aspirations of the military officers; in a word, politics was absent.

3. Ophthalmia neonatorum can be prevented by:—(1) Taking the utmost precaution to prevent sepsis during and after labor, and (2) instilling into the eyes of every newborn infant one drop of a one or two per cent. solution of nitrate of silver.

4. As a rule, the purer the water the more liable it is to dissolve lead.

10. Diseases whose germs are carried *by water*:—Typhoid, cholera, dysentery; sometimes also diphtheria. The germs may be destroyed by boiling the water used either for drinking or for washing vessels, etc., used in connection with food or cooking.

Diseases whose germs are carried *by air*:—Tuberculosis, scarlet fever, smallpox, measles, pneumonia, influenza, diphtheria, and erysipelas.

The germs may be destroyed by the proper use of antiseptic solutions.

PRACTICE OF MEDICINE.

1. *Practice of medicine* may be defined as all that appertains to the knowledge, prevention, and cure of disease.

The use of patent medicines is legitimate.

2. *True croup* is either laryngeal diphtheria or a streptococcus infection. In either case there is a prior stage of malaise, accompanied by chills, fever, and sore throat. The fever may become high. A membrane forms, in which are found the Klebs-Loeffler bacillus or streptococci. The child is hoarse, suffers from dyspnea, and may expectorate shreds of false membrane; there is prominence of the suprasternal notch and of the sternomastoid muscles.

In *laryngismus stridulus* the child holds his breath, the face becomes congested and cyanotic, the glottis is closed, inspiration is suddenly arrested, and ends in a shrill crowing sound; there may be spasms or convulsions; the attack is sudden, and may be repeated; there is no fever, coryza, nor cough.

Treatment of laryngismus stridulus:—Cold water should be dashed on the face and chest; ammonia may be applied to the nostrils; an emetic may be administered, bromides or chloral should be given; attention must be paid to the diet and general hygiene of the child.

3. Typhoid fever, incubation period two to three weeks; measles, ten to fourteen days; scarlet fever, one to ten days; erysipelas, one to five days.

4. *The cause of hiccough is*:—Sudden clonic spasm of the diaphragm, with closure of the glottis. This may be due to:—(1) Irritation of the stomach or lower end of esophagus by food, or indigestion; (2) irritation of the phrenic nerve by pressure of a tumor or aneurysm; (3) hysteria or various neuroses; (4) diseases of the gastro-intestinal tract; (5) various constitutional diseases.

Symptoms:—Hiccough is itself a symptom.

Treatment:—Cold drinks, ice, brandy, pressure or cold on the epigastrium, emetics, the induction of sneezing, inhalations of chloroform or nitrite of amyl, hypodermic injection of morphine, pressure or galvanism over the phrenic nerve have all been tried with and without success.

5. *In diabetes mellitus* the urine has a high specific gravity and contains glucose; complications are many and frequent.

In *diabetes insipidus* the urine has a low specific gravity and does not contain glucose; complications are rare.

Urinary analysis of diabetes mellitus shows:—Great increase in the amount voided, high specific gravity, pale color, sweetish or aromatic odor, sweetish taste, increase in the amount of urea. Glucose is present; acetone, diacetic acid, and beta oxybutyric acid may be present.

6. *Cancer of stomach* does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs sometime after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; there is progressive emaciation; severe anemia and cachexia are also present.

Ulcer of stomach is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

7. Three methods of using the clinical thermometer:—(1) In the *mouth*: The thermometer should be placed under the tongue and to one side, and the patient should keep his lips closed. It should be kept in the mouth for about three minutes, and the patient should not have taken a very hot or a very cold drink for some time before the taking of the temperature. (2) In the *axilla*: The axilla should be dry, and the bulb of the thermometer be placed in the hollow; the elbow should be placed against the thorax, and the forearm brought across the chest. No clothing should be in the axilla or in contact with the thermometer. Five minutes is required to take the tempera-

ture. (3) In the *rectum*. The rectum must be empty; the thermometer is oiled and inserted two inches; it should remain in five minutes.

The temperature will vary according to the place where it is taken. Thus, if the temperature is 98.6° F. in the mouth, it will be about 98.2° F. in the axilla or groin; about 100.2° F. in the rectum, and a little higher in the vagina.

8. "Scabies is a contagious, animal, paracitic disease due to the *Sarcoptes scabiei*, characterized by burrows and a multiform eruption, and attended by severe itching. The eruption usually occupies certain areas where the skin is thin; these are the interdigital spaces, the flexor surface of the wrist and arm, the anterior and posterior axillary folds, the mammæ and nipples (in women), the umbilicus, the buttocks, the penis, the inner side of the thighs and legs, and the toes. The face is exempt except occasionally in infants. The itching is intense and worse at night. The affection is curable, but dermatitis may result from over-treatment.

"*The treatment* consists in a protracted bath with soap and hot water, followed by the application of sulphur ointment (℥ 1 to ℥1) or other parasiticide every night for one week. In the meantime, the bed linen and underclothing should be sterilized by heat. At the end of a week another bath should be taken and some sedative ointment or lotion should be prescribed. Sulphur may be substituted by beta-naphthol, balsam of Peru, styrax, tar, staphisagria, etc." (Gould's and Pyle's *Cyclopedia of Medicine and Surgery.*)

PHYSIOLOGY.

1. The lymphatic circulation is, strictly speaking, not a circulation at all; since the lymph flows only in one direction, namely, toward the heart. The lymph capillaries take up any excess of the blood plasma which is not required for the nutrition of the tissues. These capillaries consist of a single layer of epithelium, and empty themselves into vessels very like the veins. The lymph vessels are well provided with valves, which are so closely approximated as to give the vessels a beaded appearance. All the lymphatic vessels, except those of the right upper half of the body, empty into the thoracic duct, which terminates in the left subclavian vein, where the left internal jugular vein also enters. Those from the right upper half of the body discharge into the right lymphatic duct, which, in turn, empties into the right subclavian vein at its junction with the right internal jugular vein.

The forces concerned in the circulation of the lymph are: (1) The pressure of the blood in the blood-vessels; (2) thoracic aspiration; (3) muscular contractions of the voluntary muscles; (4) contractions of the intestine; (5) the action of the valves in the lacteals and lymphatics.

2. The *red corpuscles* supply the tissues with hemoglobin; the *white corpuscles* serve as a protection to the body from the incursions of pathogenic microorganisms, they take some part in the process of the coagulation of the blood, they aid in the absorption of fats and peptones from the intestine, and they help to maintain the proper proteid content of the blood plasma.

The *red corpuscles* are biconcave discs, about 1/3200 of an inch in diameter; they are non-nucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They contain hemoglobin.

The *white corpuscles* are spheroidal masses, varying in size, having no cell wall, and containing one or more nuclei; there are about 7,000 to 10,000 of them in each cubic millimeter of blood. They differ much in appearance, and are divided into (1) small mononuclear leucocytes, or lymphocytes, (2) large mononuclear, (3) transitional, (4) polynuclear, or polymorphonuclear, or neutrophile, and (5) eosinophile. They are all more or less granular, particularly the last two varieties named.

There are also *platelets*, which are very small, colorless, irregular shaped bodies; they are about one-fourth the diameter of a red corpuscle. Their function is not determined; it is possible that they take some part in the coagulation of the blood. In number they vary from about 200,000 to more than 500,000 in each cubic millimeter of blood.

Blood pressure is *regulated* by:—(1) The force and frequency of the ventricular systole, (2) the quantity of blood contained in the vessels, (3) the elasticity of the walls of the arteries, and (4) the resistance in the capillaries.

Blood pressure is *measured* by the aid of a manometer or U-shaped tube containing mercury, one limb of which is attached to a lateral branch of the blood-vessel in which the blood pressure is to be measured. This attachment is made by means of a non elastic tube and canula filled with a watery solution of sodium carbonate or magnesium sulphate. The blood, through this solution, forces the mercury up in the distal tube of the manometer. The blood pressure is the difference in the height of the mercury in the two limbs of the manometer.

3. Bones grow *in length* at the two ends of the shaft; this is due to the process of ossification in the cartilage situated between the epiphysis and diaphysis. Bones grow *in thickness* by the development of successive layers beneath the periosteum.

The *Haversian canals* contain the blood-vessels, lymphatics, and nerves of the bone.

The *function of marrow* is:—The formation of the red blood corpuscles.

The *function of periosteum* is:—(1) The nutrition of the bone, (2) the growth of bone, and (3) the regeneration of bone.

4. The glands affected by mastication are:—The salivary glands (parotid, submaxillary, and sublingual) and the gastric glands.

5. *Functions of the vagus*:—"Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . . it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc." (Kirkes' *Physiology.*)

6. *The thymus gland* is found only in infancy and childhood; it is *situated* in the lower part of the neck and in the anterior mediastinum, behind the sternum, and resting upon the pericardium.

The *function of the thymus* is not settled; it is said:—(1) to be a blood forming organ; (2) to have influence on growth and nutrition; (3) in hibernating animals it is supposed to store up materials which can be utilized during the period of inactivity.

The thyroid gland is situated on the anterior and lateral surfaces of the upper part of the trachea.

The *function of the thyroid* is not definitely settled; (1) it has some trophic function; (2) it is supposed to antagonize toxic substances; (3) it produces an internal secretion.

The suprarenal glands are situated in the back part of the abdominal cavity, behind the peritoneum, and above and slightly to the front of the upper part of each kidney.

The *function of the suprarenals* is not definitely settled; they produce an internal secretion which is probably necessary to life; it is supposed that they are able to destroy or remove some toxic substance produced elsewhere in the body.

8. The *functions of the prostate gland* are:—(1) The secretion of the prostatic fluid; (2) to act as an involuntary sphincter to the bladder; (3) its muscular fibers are also involved in the contraction that expels the semen during ejaculation.

The following theories have been held to account for the conveyance of the ovum to the tubes and uterus:—(1) That the fimbriated extremity of the tube becomes erectile and, aided by muscular contraction, grasps the ovary; (2) that the ova are ejaculated from the follicle into the tube; (3) that the ova are carried along in the serum by currents generated by the ciliated epithelium which covers the fimbriæ of the tubes; (4) in a certain number of cases there is a migration of ova, which pass across the abdominal cavity and come down the opposite tube. (From Edgar's *Obstetrics.*)

CHEMISTRY.

1. A molecule is the smallest quantity of a substance (either element or compound) that can exist in a free state.

2. An *acid* is a compound of an electro-negative element or radical with hydrogen, part or all of which hydrogen it can part with in exchange for an electro-positive element, without the formation of a base.

A *base* is a ternary compound capable of entering into double decomposition with an acid to produce a salt and water.

A *salt* is a substance formed by the substitution of an electro-positive element for part or all of the replaceable hydrogen of an acid.

3. Oxygen.

4. Uric acid, also known as lithic acid, is a dibasic acid, and has the formula $C_5H_4N_4O_3$. It occurs in the urine, and in smaller amounts in the blood and tissues. It is not found free, but as sodium urate; it is derived from the purin bases of the nucleoproteids. About 6 to 9 grains are voided in the urine daily. Pure uric acid is odorless, tasteless, and very slightly soluble in water; it crystallizes in small colorless rectangular or hexagonal plates or in

rectangular prisms; crystals from the urine are lozenge-shaped and are colored.

5. Sulphuric acid: H_2SO_4; nitric acid: HNO_3; hydrochloric acid: HCl; acetic acid: CH_3COOH; phosphoric acid: H_3PO_4.

6. Mercurous chloride; mercuric chloride; mercurous oxide; mercuric oxide; mercuric iodide.

7. *Distillation* is the conversion of a liquid into a gas, followed by the reconversion of the gas into a liquid. *Example*:—The distillation of water.

Sublimation is the conversion of a solid into a gas (without passing through the liquid state) and the reconversion of the gas into a solid. *Example*:—Sulphur can be sublimed by heating in a suitable apparatus.

8. "Though decidedly injurious in health, in disease alcohol is a most valuable remedy in appropriate cases. In *vomiting* of yellow fever, seasickness, etc., iced champagne is useful. *Atonic indigestion* of nervous and depressed subjects, cautiously. *Phthisis*, it does good if it promotes digestion and assimilation; otherwise it is very injurious. *Cholera infantum, diarrhea, etc.*, Cognac brandy in full doses. *Cardiac failure*, brandy in small doses repeated as fast as oxidized. *Chloroform anesthesia*, ℥ j-ij of whiskey beforehand, to sustain the heart, and prolong the chloroform narcosis. *Poisoning* by cardiac depressants and snake venom, alcohol freely, to sustain the heart. In snake poisoning it is given *ad libitum*. *Diphtheria*, whiskey or brandy in small doses frequently from the commencement, and dilute alcohol sprayed into the throat, is very efficient treatment. *Adynamic fevers*, small doses frequently are often of great value. *Gonorrhea*, Niemeyer is said to have done a lucrative business by treating this affection with injections of tannic acid in port wine. *Insomnia* from cerebral anemia may be prevented by small doses of some alcoholic stimulant at bedtime. *Wounds*, no better dressing than strong alcohol, to prevent putrefaction and protect the surface by coating it with a coagulum of its own albumen. *Bed sores* if threatening, alcohol locally, to harden the tissue. *Cold* from exposure, may be prevented by a moderate dose of alcohol, to restore the balance of the circulation and prevent internal congestion, by relaxing the vessels of the periphery." (Potter's *Materia Medica*.)

9. Normal urine varies in color from a very pale yellow to a brownish orange; the reaction is acid; the quantity voided in twenty-four hours is about fifty ounces.

10. Test for *Albumin*.—The urine must be perfectly clear. If not so, it is to be filtered, and, if this does not render it transparent, it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid, and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Test for *Bile*.—Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

Test for *Blood*.—To the urine add a solution of potassium hydroxide to distinct alkaline reaction; heat nearly to boiling (do not boil). A red precipitate is produced.

Test for *Sugar*.—Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. (Witthaus' *Essentials of Chemistry*.)

OBSTETRICS AND GYNECOLOGY.

1. The pelvic diameters are easily remembered from the following table:

	Antero-posterior	Oblique	Transverse
Brim	4 inches	4½ inches.	5 inches.
Mid-plane	4½ "	4½ "	4½ "
Outlet	5 "	4½ "	4 "

3. Immediately after coitus, the cervix of the uterus is normally immersed in a pool of seminal fluid. Some of this passes up into the uterus, and it may or may not be assisted by the suction or aspiration power of the uterus. The spermatozoa travel by virtue of the vibratory motion of the tail or flagellum.

5. The different presentations are:—
   1. Head: including vertex, brow, and face.
   2. Breech: which may be breech, knee, or foot.
   3. Transverse: including shoulder, arm, and head.

Of these, the vertex (when the occiput is anterior) is the normal presentation; the others are abnormal.

6. *Indications for the use of forceps* are: 1. *Forces at fault*: Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2 *Passages at fault*: Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault*: A. Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications*: Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both. (From Jewett's *Practice of Obstetrics*.) I should certainly seek assistance.

7. The physician should remain with his patient, or at least be within call for an hour or more after the completion of labor. A pulse near or over 100, or inadequate uterine contractions, should cause the physician to delay his departure.

SURGERY.

1. *Hemorrhage* is loss of blood from some part of the arterio-venous system.

The *anatomical varieties* are:—Arterial, venous, and capillary.

The *clinical varieties* are:—Primary, intermediate or recurrent, and secondary.

Mechanical treatment includes:—Elevation, pressure, torsion, ligation, compression, acupressure, and forced flexion of limb.

Therapeutic treatment includes the use of:—Heat, cold, styptics, and the cautery. The constitutional symptoms must also be treated:—lower the head, inject normal salt solution, administer alcohol, strychnine, digitalis, morphine.

MATERIA MEDICA AND THERAPEUTICS.

1. In the new pharmacopœia the official tinctures vary in strength from 0.4 per cent. to 50 per cent. By far the greater number fall into two classes:—10 per cent. for the more powerful substances and 20 per cent. for the others.

2.

Official Preparations of Mercury	Chiefly Indicated in:
Ammoniated mercury	Ozœna psoriasis, tinea, and other skin affections.
Bichloride of mercury	Syphilis, anemia, summer diarrhea.
Calomel	Syphilis, biliousness, dropsy, dysentery.
Red oxide of mercury	Syphilitic sores, chronic skin diseases.
Yellow oxide of mercury	Indigestion, syphilitic sores, chronic skin diseases.
Red iodide of mercury	Syphilis, acute tonsilitis.
Yellow iodide of mercury	Chronic Bright's disease, syphilis.
Solution of mercuric nitrate	Epitheliomata, warts, lupus.
Ointment of mercuric nitrate	Chronic skin diseases.

3. Aspidium, dose of the oleoresin gr. xxx; granatum, dose of the fluid extract, ♏xxx; kousso, dose ℥iv.

4. Coal tar derivatives are substances derived from the aromatic or closed-chain series; they are synthetic products.

Their action in general may be said to be:—(1) Antipyretic; (2) stimulating to the nervous system, but later on causing paralysis; (3) antiseptic; (4) irritant and toxic to the cells and tissues of the body; (5) they also tend to produce methemoglobin and to disintegrate the red blood corpuscles.

5. The ingredients of citrine ointment are:—A hot solution of mercury, nitric acid, and lard. Its official name is *Unguentum Hydrargyri Nitratis*.

6. The bromides cause a slowing of the respiration, and a weakening of both the force and frequency of the heart. Their long-continued use causes an impairment of the mental functions, with melancholia or hallucinations, and sometimes a suicidal tendency.

7. ℞ Strychninæ sulphatis gr. ss.
   Codeinæ sulphatis gr. viij.
   Syrupi scillæ ℥jss.
   Glycerini ℥ss.
   Aquæ destillatæ q. s. ad ℥iv. Misce.
   Sig: Take one teaspoonful every three hours.

8. The compound cathartic pill consists of:—Calomel, about one grain; compound extract of colocynth, about one and a quarter grains; resin of jalap, about half a grain; and gamboge, about one-quarter of a grain. The dose is two pills.

9. Hemostatics are agents which, on being administered internally, arrest hemorrhage. Agents which act in this manner on being applied locally are called styptics. The former act by causing the vessels to contract; the latter sometimes in the same way and sometimes by promoting clot formation in the mouths of the wounded and bleeding vessels. Ergot, gallic acid, digitalis, hamamelis, and ipecac are hemostatics. As styptics may be named the actual cautery, acids, nitrate of silver, alum, collodion, and vegetable astringents.

10. Counterirritants are substances which, on being applied to the skin, produce more or less vascular excitement, and exert some beneficial reflex influence on a part remote from the site of application.

"The entire basis for the employment of counter irritation rests upon reflex action, or the conduction of a nervous impulse to a center, which, when so stimulated, sends out an impulse to the part of the body which is diseased.

"The use of counterirritation may be divided into four parts or purposes: The first is for affecting inflammations or congestions; the second for causing the absorption or removal of inflammatory deposits after true inflammation has ceased; while the third purpose is for the relief of pain; and the fouth for the effect which can be exercised upon the general system by blisters in systemic disease." (Hare's *Practical Therapeutics.*)

Four counterirritants:—Cantharides, capsicum, mustard, ammonia.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATS.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.		
Alabama*	W. H. Sanders, Montgomery.	Montgomery		
Arizona*	Ancil Martin, Phoenix	Phoenix	October	7
Arkansas*	F. T. Murphy, Brinkley	Little Rock	October	8
California*	Chas. L. Tisdale, 1870 Sutter Street, San Francisco	Los Angeles	Dec.	3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	October	1
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov'ber	12
Delaware	J. H. Wilson, Dover	Dover	Dec'ber	10
Dis. of Col'bia.	W. C. Woodward, Washington	Washington	October	10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov'ber	20
Georgia	E. R. Antbony, Griffin	Atlanta	October	8
Idaho	J. L. Conant, Jr., Genesee	Boise	October	1
Illinois	J. A. Egan, Springfield	Chicago	October	23
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	October	22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Sept'ber	17
Kansas	T. E. Raines, Concordia	Topeka	October	8
Kentucky*	J. N. McCormack, Bowling Green	Louisville	October	22
Louisiana	F. A. Le Rue, 211 Camp Street, New Orleans	New Orleans	October	15
Maine	Wm. J. Maybury, Saco	Portland	Nov'ber	12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec'ber	3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov'ber	12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Lansing	October	8
Minnesota	W. S. Fullerton, St. Paul	St. Paul	October	1
Mississippi	J. F. Hunter, Jackson	Jackson	October	8
Missouri	J. A. B. Adcock, Warrensb'g.	St. Louis		
Montana*	Wm. C. Riddell, Helena	Helena	October	1
Nebraska	Geo. H. Brash, Beatrice	Lincoln		
Nevada	S. L. Lee, Carson City	Carson City	Nov	4
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	January	14
New Jersey	J. W. Bennett, Long Branch	Trenton	October	22
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec'ber	2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo	October	1
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May	1907
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	October	1
Ohio	Geo. H. Matson, Columbus	Columbus	Dec'ber	10
Oklahoma*	J. W. Baker, Enid	Guthrie	Sept'ber	2
Oregon	B. E. Miller, Portland	Portland	January	8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	Dec'ber	—
Rhode Island	G. T. Swarts, Providence	Providence	October	3
S. Carolina	W. M. Lester, Columbia	Columbia	June 9,	'08
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	January	8
Tennessee*	T. J Happel, Trenton	Memphis / Nashville / Knoxville	May,	1908
Texas	G. B. Foscue, Waco	Fort Worth	October	21
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	October	7
Vermont	W. Scott Nay, Underhill	Montpelier	January	14
Virginia	R. S. Martin, Stuart	Staunton	Dec'ber	10
Washington*	C. W. Sharples, Seattle	Spokane	January	7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg	Nov'ber	12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	January	14
Wyoming	S. B. Miller, Laramie	Laramie	Oct.	9

* No Reciprocity recognized by these States

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Missouri.—The new medical practice act passed by the last legislature became effective on June 15. Under the provisions of this act anyone desiring to practise medicine in this State must have a license from the State Board of Health, and none but graduates of reputable medical colleges may appear before the board for examination for a license to practise.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending August 31, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	392	149
Diphtheria	227	28
Measles	141	9
Scarlet Fever	112	10
Smallpox	..	..
Varicella	16	..
Typhoid Fever	164	17
Whooping Cough	21	14
Cerebrospinal Meningitis	22	9
Malarial Fever	..	..
Totals	1095	236

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended September 6, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
California, General	July 1–31	..	2
Colorado, Colorado Springs	June 1–30	2	..
Illinois, Winslow	July 1–Aug. 3	25	..
Iowa, Ottumwa	Aug. 18–24	1	..
Louisiana, New Orleans	Aug. 18–24	2	..
Michigan, Saginaw	Aug. 18–24	3	..
New Jersey, Newark	Aug. 18–24	2	..
South Dakota, Sioux Falls	Aug. 18–24	1	..
Wisconsin, Milwaukee	Aug. 4–10	11	..

SMALLPOX—FOREIGN.

Algiers, Algeria	July 1–31	..	5
Austria, Galicia	July 28–Aug. 3	1	..
Vienna	Aug. 2–10	3	1
Brazil, Para	June 28–Aug. 17	40	14
Canada, Halifax	Aug. 18–24	1	..
Chile, Iquique	July 16–21	..	Present.
China, Chefoo	July 1–27	1	..
Hongkong	June 23–July 6	6	5
France, Marseille	July 1–31	..	98
Paris	Aug. 3–10	19	5
Great Britain, London	Aug. 4–10	1	..
India, Calcutta	July 14–20	..	4
Italy, General	Aug. 13–19	7	..
Genoa	July 1–31	2	..
Naples	Aug. 11–17	1	1
Turin	Aug. 5–11	1	..
Java, Batavia	July 7–20	1	..
Madeira, Funchal	Aug. 12–18	10	2
Mexico, Aguos Calientes	Aug. 18–24	..	2
Mexico City	July 1–3	..	18
Portugal, Lisbon	Aug. 4–10	4	..
Russia, Odessa	July 28–Aug. 3	2	..
Warsaw	July 28–Aug. 3	..	4
Spain, Malaga	July 31	..	6
Valencia	Aug. 6–18	31	5
Turkey in Asia, Constantinople	Aug. 5–11	..	3
Turkey in Europe, Bassorah	July 27	..	Present.

CHOLERA.

India, Calcutta	July 14–20	..	38
Cochin	July 6–10	..	13
Madras	July 20–26	..	2
Rangoon	July 14–20	..	1
Russia, Astrachan	Aug. 8–14	..	Present.
Saratoff	Aug. 5–14	..	Present.
Straits Settlements, Singapore	June 30–July 13	..	4

YELLOW FEVER.

Brazil, Para	July 28–Aug. 17	9	8
Cuba, Cienfuegos	Aug. 14–20	12	5
Campo Florida	Aug. 28	1	..
Habana	Aug. 30	1	..
Ecuador, Guayaquil	Aug. 4–10	..	1

PLAGUE.

Argentine, Cordova	June 4	..	Present.
China, Amoy	July 20–27	1	1
Foo-Choo	July 20–27	..	Present.
Hongkong	June 22–July 6	45	46
Egypt, Alexandria	Aug. 2–15	22	16
Port Said	Aug. 2–15	1	1
Province of Behera	Aug. 3	3	1
India, General	July 14–20	3,411	2,760
Calcutta	July 14–20	..	11
Japan, Yokohama	July 9–15	2	2
French-Indo-China, Saigon	July 12–18	10	10
Madagascar, Majunga	Aug. 26	..	Present.
Peru, Callao	July 25–Aug. 7	1	1
Chosica	July 25–31	1	..
Ferrenhafe	July 18–24	1	..
Lima	July 18–31	5	3
Puira	July 25–Aug. 7	5	1
Quererotillo	July 25–Aug. 7	1	..
Truillo	July 18–Aug. 7	21	15
Straits Settlements, Singapore	July 6	1	1

PLAGUE—UNITED STATES.

California, San Francisco	Aug. 30–Sept. 12	7	1
(Total from Aug. 14–Sept. 4, 17 cases and 8 deaths)			

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Original Articles.

THE OPERATIVE TREATMENT OF FRACTURES INVOLVING THE ELBOW JOINT.*

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With development of the aseptic method of operation has gone hand in hand an increasing tendency to interfere by open operation in the treatment of fractures. Formerly it was bad enough to have the accident furnish the compound fracture, and such a thing as rendering a fracture compound for therapeutic reasons was carefully avoided except under unusual and extreme provocation. As the experience with compound fractures accumulated, it became apparent that the treatment as a whole was based on certain universally accepted principles, no matter what the detail variation might be in different medical centers of the world.

The favorable results with reference both to function and restitution of normal anatomical relationship naturally gave rise to attempts to improve the condition of patients who were afflicted with fracture effects impairing the use of the affected member. In due course of time it became an established custom to operate upon pseudoarthrosis and nonunited fractures. Clinical experience soon showed that certain simple fractures would better be operated practically at the time of injury. Except for a few bold pioneers, there was a tendency to avoid rendering compound any extremity fracture which involved a large joint.

After Blumhardt's bilateral arthrotomy in 1847 for vicious fracture of the elbow, the cases are scattered, and few, until with Lister's writing of the patella, in 1878, the start was given to the open method of treating fractures involving joints. At the present time every surgeon has had some experience, and particularly during the last five years there has been much interest shown throughout the surgical world, as evidenced by the numerous case records reported and monographs bearing on this subject. In spite of the success, one is forced by analysis of clinical experience to conclude that open operation is not always indicated, although there be considerable deformity and interference with function or the prospect of obtaining a fairly good result by conservative treatment seems slight.

In children particularly one must remember that a good acting joint and useful member results frequently after months of waiting, when at the time of injury it did not seem possible to preserve even a part of the normal arc of motion. When attacking old joint fractures one must also be able to decide that, all things considered, the chances are greatly in favor of improving the patient's condition.

*Read before the Surgical Section of the New York Academy of Medicine, February 1, 1907.

On the other hand, when interfering in fresh breaks, one is permitted to consider as a satisfactory result a useful member with motion over and above what is to be expected from nonoperative care. In old fractures, any improvement at all is success.

Before taking up more in detail the group which interests us in particular this evening, it may be well to call to mind some of the anatomical facts of surgical interest. We shall omit all description of the individual fractures as being elementary.

The anatomy of the child's joint is complicated by the existence of epiphyses in various stages of ossification, a knowledge of which, both with reference to shape, position, and progress of ossification, is essential.

Wilms has pointed out that the nucleus of the eminentia capitata appears at $2^1/_2$, the epitrochlea at 9, the trachlea at 10, the epicondyle at $10^1/_2$; and Wendt states that the shadows of the nuclei appear as follows: eminentia capitata at 1 year, the epitrochlea at 7-8 years, the trochlea at 10 years, the epicondyle at 12 years. The nucleus of the head of the radius at 7, the olecranon at 9. Oberst states that bone is formed in the olecranon at 12, and, according to Henle, a second or even a third nucleus appears later. At 15 the eminentia capitata trochlea and epicondyle form one piece. The nucleus of the epitrochlea is separate up to 19 years, and the trochlea separate from diaphysis up to 18 years. Wolff states that the rotula and trochlea are separate up to 13, and that the diaphysis unites with the epiphyses as a whole at 18.

We have examined 54 elbows, of which *x*-ray prints are at our disposal, and find that as far as the appearance of the shadow is concerned, no definite time applies to all cases. In a general way the data are as given above by Wilms and Wendt. There is, however, a margin of two to three years in all cases, both with reference to the time that the nucleus throws a shadow and to the time at which the various nuclei unite with each other and with the diaphysis. It is far more important to recognize a nucleus, when seen in the plate, and be able to state whether or not it is in its correct anatomical position. For this reason the study of the shape and relative position of the nuclei as shown by the *x*-ray plate is essential to the proper interpretation of shadows.

With the exception of the triceps, brachialis anticus, and anconeus, the muscles are of importance more as groups than as individuals.

It must be borne in mind that the synovial membrane reaches up about 1 inch above the coronoid fossa in front, whereas behind it stops at about the level of the top of the olecranon fossa, the difference in height being about 1 inch. On the inner side behind, the synovial membrane extends out close to the epitrochlea, whereas in front there is a free surface of bone about $^3/_4$ of an inch wide. Externally there is a narrow rim of synovial membrane in front and behind which is continuous below with the pouch about the head of the radius.

It is also important to remember that the median

nerve passes over the middle part of the trochlea and the radial nerve lies over the inner part of the capitulum. The ulna nerve in its groove is in close contact with and lies upon the capsule of the joint for a distance of about 1½ inches.

With regard to instruments, two things are essential beyond all others: the first a quickly acting drill, easily managed; the second, proper material for the fixation of fragments. Of drills, the electric drill, devised by Hartley and Kenyon, of this city, is, as far as I know, the best. Martin, of Philadelphia, has already emphasized that if wire is to be used, phosphor bronze is the best, being stronger and more pliable than silver. If silver is to be used it must be heated until red hot and then allowed to become cold before using. Specially constructed screws and bone or ivory pegs are also used, and for most work about the elbow strong No. 4 chromic gut, or the above-mentioned bone pegs, will be found sufficient to retain fragments in place after once reduction has been accomplished. Silk has also been used with success by Ajraghi, who reports a series of olecranon fractures treated in this manner.

Hartley uses several small aluminum wads inserted into the cortex as far as possible. Anderson of England has invented ingenious spikes and clamps. Lambotte, of France, has prepared a series of six forceps, serving various purposes, as well as special screws. Lane, of England, has also constructed various clamps and combination screwdriver and holder, which aid materially the manipulation of bone fragments. Another type of powerful forceps has been advocated by Rochet.

Lambotte lays stress upon the accurate establishment of anatomical relationship, and has termed the technique of the operative procedure osteosynthesis.

The first step is to expose the break; the second, temporary fixation in reduced position; the third, permanent fixation and closure of the wound. As Lambotte justly points out, and for which purpose his above-mentioned clamps were constructed, the temporary fixation should be accomplished before and maintained while the drillings and subsequent steps of permanent fixation are in progress. Any other procedure is inaccurate. In my experience it has not always been possible to fix before drilling.

The position of the patient, although largely a matter of personal choice, will nevertheless influence the ease of operating. It has been our custom to make anterior incisions with the arm abducted at a right angle and with the forearm supine. Posterior operations are to our way of thinking more easily accomplished with the arm flexed across the patient's chest, the forearm being prone.

Method of approach.—Just as the patella side of the knee is the route of election when operating on this joint, so the olecranon side of the elbow is the region of choice when interfering in the majority of fractures involving this articulation. Weber has aptly pointed out that the keystone to the elbow joint is the olecranon. The incisions applicable to the individual cases will be considered in connection with the types of fractures discussed.

Compound fractures will not be touched upon in this paper, inasmuch as they constitute a class of accident worthy of separate consideration by virtue of the varying indications, depending upon the character of each injury. All subsequent remarks refer to simple fractures.

The time of operation.—With the exception of a fracture which is complicated by injury to the brachial artery, no fracture about the elbow is immediately operable. It might be possible, perhaps, for a fragment to become so wedged in as to be practically immobile, and at the same time press upon the skin, threatening at any moment to render the injury compound. An epicondyle or internal condyle might do this, but if it does happen it certainly is a rare occurrence and would justify action at the time of injury.

Extreme hemathrosis does occasionally demand aspiration of the joint. Nerve symptoms occurring at the time of injury do not constitute an indication for immediate operation.

Ollier maintains that operation should be deferred until the eighth or tenth day. The delay is for the purpose of allowing the immediate reaction following the trauma to subside and give the tissues time to gather headway in the direction of repair before subjecting the region to fresh insult and exposure to infection.

In a previous communication wherein the results of 150 operations for fractured patella, performed by numerous surgeons of this city, were compared, I determined that infection following operation was eight times more common in cases operated before the fifth day than in cases after the fifth day following the injury, and that after the fifth day the risk was small. It seems to us that the same rule should hold good for the elbow and that no fracture should be operated upon certainly before the sixth day, and in many cases not until after the lapse of greater time, even more than the ten days mentioned by Ollier. Hereafter, then, when speaking of immediate operation, it is understood that at least six days have elapsed since the injury.

This arrangement permits of the division of operable fractures into two large groups: (*a*) fractures demanding immediate operation; (*b*) old fractures, demanding operation, operation after osseous repair is complete or for pseudarthrosis. (*a*) fractures demand immediate operation (six days): (1) because of interposed tissue; (2) because of the impossibility of holding viable fragments in such a position as to insure a useful joint; (3) because of the nonviability of the fragment; (4) because of persistent nerve paresis or paralysis.

If these nerve symptoms be due to pressure from interposition, the case belongs in Class 2; if due to nerve division, it is properly treated in connection with nerve surgery and will not be discussed here.

To decide whether or not it is possible to hold fragments in such a position as to insure a useful joint is distinctly a matter of expert opinion, and no man is ever justified on purely theoretical grounds and an *x*-ray plate in advising operation upon a recent fracture, unless he has at his command the abundant clinical data which enable him to compare the late results of non-operated fractures with the late results of those which have been operated upon.

(*b*) Old fractures of the elbow are operated upon: (1) because of nonunion, either due to interposition of tissue or not; (2) to increase the arc of motion; (3) because of nerve lesions.

The class of cases operated to increase motion may be subdivided according to whether the object is to provide motion in a practically ankylosed joint; whether it is desired to bring the forearm to right angles with the humerus, even at the risk of losing such motion as there is with the arm in a position which renders the extremity practically useless; or whether an attempt is to be made to increase the arc of motion in an arm having motion through an arc however small, which includes the position where the forearm is at right angles to the humerus.

To decide in the first two classes of cases is an easy matter, comparatively. The arm will not be made worse as far as function goes, and may be improved. This does not take into consideration, how-

ever, in the almost ankylosed variety that, if resection should be resorted to as a primary operation, a flail joint might follow as the result.

To decide upon operation in the class of cases where it is desired to increase the arc of motion in an arm already of fair service, demands the same expert judgment as in the instance of advising operation upon a fresh fracture for the purpose of retaining fragments in place.

Any motion present is precious—to lose any or all of it is disaster—so that here again an operation can be advised only by one thoroughly familiar with the actual final outcome of an operation, such as is proposed in a case belonging to this class.

Olecranon.—Fracture in this region is very often the subject of operative interference, more often than any other break about the elbow. There are three distinct ways of treating an olecranon break; each method being the procedure of choice under given circumstances. There is first, the splint and strapping treatment, and Bardenhauer's extension apparatus; second, the massage treatment; and third, treatment by open operation.

The first two do not interest now.

Operative interference is indicated immediately after injury in cases where there is much tearing of the secondary extension apparatus combined with wide separation of the fragments. This presumes that there is no contraindication of an incidental character, and that the age of the patient is such that the advantage of accurate adjustment is of adequate importance to justify the risk. Most of the patients are adults, although Ajarghi reports the case of a boy thirteen years of age, Abadie a case sixteen years old, and Monnier even reports a longitudinal olecranon break in a boy eleven years of age.

The skin incision which we prefer is the longitudinal cut a little to one side of the olecranon, preferably to the outer side, so that the stitching of the muscle tear may be easy. We do not see any advantage in the "U"-shaped incision used by Ranzi, and object to the division of fascia in this region other than in the direction of the fibers.

It is unnecessary to go into details with reference to the removal of interposed tissue. We prefer to push off in one piece the semi-organized clot adhering to the fracture surfaces, by means of a piece of gauze. The thus exposed bone needs no curetting.

The method of uniting fragments depends on the condition of the injured parts and upon the seat of fracture. All methods resemble closely the operations which have been recommended for repair of the patella.

If the break is transverse, and the periosteum fascia and other soft parts in good condition, chromic gut sutures at either side of the olecranon with reinforcing sutures on the surface, will be found sufficient. It is frequently found necessary to take stitches in the rent at either side, particularly in the anconeus, to the outer side (see Case I). This method is practically the method recommended by Blake of this city for fracture of the patella.

Provided there is much destruction of the tissue which is expected to receive these lateral stitches, it is better to make use of the method recommended by Berger, in 1901, called "cerclage," or circling, a method also used by Quénu.

Berger passes a strong silver wire about the upper fragment. This wire perforates the tendinous insertion of the triceps. In the diaphyseal fragment a transverse hole is bored through which the wire passes. Tightening the wire brings the fragments in apposition. Berger used a longitudinal incision.

The method of periosteal suturing with bronze, as recommended by Piqué in 1906, seems to us inferior to the "cerclage" method of Berger.

Murphy of Chicago, in 1906, modified the Berger operation in that he passed his wire through punctures in the skin, much after the method Ceci used for subcutaneous suture of the patella. There are four punctures at the corners, as it were, of the olecranon. Although the result in the case reported by Murphy was excellent, we are of the opinion that Berger's method is to be preferred. The advantage of the subcutaneous suture is offset in any case where there is ground for suturing by the disadvantage in not being able to remove organizing blood clot and soft parts from between the fragments. It is also impossible to accurately control the position of fragments. These objections in case of the patella were sufficient to practically displace the subcutaneous operation to the favor of the open method.

When a fracture is comminuted, as in the case reported by Abadie and Délage, the condition of the individual case will decide the steps to be taken, whether cerclage or, as was done in this instance with good result, wiring of the individual fragments after drilling.

When the base of the olecranon is broken, the line of fracture is usually oblique, extending down the shaft of the ulna. In such cases, even with slight separation, it is well to consider open operation, because of the great tendency to displacement at the seat of break, and because of the secondary increase in the amount of callus throughout. (See Case II.) This type of break is often associated with other injury, the most common being backward displacement of the head of the radius.

Anterior dislocation has also been observed, as in the case mentioned by Stolle. In the case reported by Prat, the neck of the radius was broken.

Bérard, in 1904, reports three cases, two women at 50 and 79 years and one man of 40. In only one was what Bérard terms the rational treatment, which consists in resection of the head of the radius, carried out. The result was good. In one case Bérard sutured the head of the radius to the ulna, in an attempt to keep the radius in position. Subsequently he was forced to resect.

I am able to add two other cases, men, 27 and 51 years of age. In the younger case the injury was of five years' duration. There was motion amounting to only a few degrees with the limit of flexion at about 135 degrees. The head of the radius was resected and motion obtained from about 70 degrees to 145 degrees. (See Case III.)

The second case sustained his injury six months previous to operation. His arm could be moved about 20 degrees, the limit of flexion being at 100 degrees. The displacement of the ulna was back and out. The operation was seven weeks ago. At the present time he is still under treatment, with passive motion from 60 degrees to 170 degrees; that is, about 110 degrees. Of this fully half causes pain, and voluntary motion amounts to only about 50 degrees, which is, however, to either side of a right angle position. (Case IV.)

Bérard reported a case of double fracture of the ulna and dislocation of the head of the radius. Resection of radius and suture of olecranon gave excellent result. Abadie and Délage report a case similar to Monnier's, in which the upper fragment was divided in two by a longitudinal break. This individual was 40 years of age. We have had a similar case. (See Case V.)

The oblique breaks extending down the shaft are hard to hold, and in our experience chromic gut is not strong enough. The suture material must have greater fixing power, and we therefore consider

delta metal or bone pegs more suitable. In either event the holes bored are to be at right angles to the break.

When operating upon these badly displaced fractures at the base of the olecranon, combined with displacement of the head of the radius, it is well first to resect the radius, then mobilize the ulna, and finally, if conditions demand, divide and resect the olecranon. As a rule this will not be necessary. In the second case above referred to, orteotomy was necessary because of marked angulation in the union of the ulna fracture. We made the mistake by trying to correct the angulation first and subsequently had much trouble in liberating the olecranon.

Old fractures of the olecranon are often operated to increase the arc of motion. In Case V, above referred to, we were unable to move the olecranon and even though the position of the fragments did not seem bad, we decided upon open operation because of the fact that the arm was in a position rendering it practically useless. Not being able to liberate the upper fragment, we resected subperiosteally, but are not in a position as yet to report the final outcome.

Stolle reports three cases of practical ankylosis following too long use of plaster-of-Paris in fracture of the olecranon. Should it be impossible in such cases to improve the condition by forcible manipulation under ether, then resection would be considered, a subject beyond the scope of this paper. The data to be found bearing upon the results of operation upon old fractures of the olecranon with wide fibrous union and restriction of motion, especially of extension, are scant, and personally I have had no experience with this type.

Ajarghi reports a case in which the fragment had retracted 8 cm. at the end of six months. As it was impossible to bring it down, strands of the triceps tendon were united to the periosteum of ulna. The final outcome was satisfactory.

The same author mentions another interesting case where four months after oblique fracture of the olecranon, not operated, a sharp, bony protuberance caused so much pain on motion that osteotomy and removal of the exorboses became imperative.

After operating, whatever the method employed, it is well to place the arm in some retention apparatus at an angle which represents the maximum amount of flexion possible without putting strain on the suture. This angle will be found in fresh cases to be about 160 degrees, and in older breaks nearer complete extension. Massage should be commenced as soon as the stitches are out and passive motion at the end of two weeks. However, passive motion must be conducted with great care in case of the olecranon because of the amount of leverage on the long forearm, while to the short lever is attached the triceps. We have recently had the unfortunate experience of reseparating the fragments by passive motion. This caused practically no pain to the individual.

As a rule, it is safe to permit patients to return to their occupation at the end of two months. There is apt to be some limitation of extension, but flexion is satisfactory even in the cases where the olecranon was comminuted. Union is bony, as a rule. We have not been able to find a case where after operation the union stretched and thereby indicated the fibrous character, although we see no reason why this should not occur occasionally, just as in case of the patella.

Routier mentions an interesting case where refracture occurred nearly two years after suture of the olecranon with silver. The wire was shown by the x-ray plate to be broken. After this refracture a good result was obtained by massage, and Routier raises the question whether bony union had ever existed—a query which is justified by the repeated observation that the presence of metallic suture material seems at times distinctly to retard the progress of bony union.

Coronoid.—We have been unable to find any case of coronoid fracture which necessitated operation. Scattered cases of fracture of the process are reported, but in none was there any indication to interfere by open operation.

Radius.—Fractures of the head and neck of the radius are operated upon to remove a nonviable fragment acting as a foreign body in the joint and interfering with motion, or to place and maintain a viable fragment in such position as to insure a useful joint. When there is a nonviable fragment the line of break may be transverse through the neck, with or without division of the head into two fragments by a fracture in the coronal plane.

In another group there is no transverse break of the neck, the line of fracture being in the head alone. A small piece may be chipped from the margin of the head, or a large part of the head with the anterior portion of the neck may separate. The displacement of the fragment is in the vast majority of the cases anterior. Operative cases have been reported by Prat, Rèchon, Destot, Vallas, Latarjet. Prat mentions a case of this sort operated upon in which the displacement of the head was outwards. Displacement does occur in other directions than anterior and external, but we are not familiar with any cases which have been operated, except the above and two personal observations, one of which belongs to this class: Male, 29; fall on extended hand; limitation of flexion and extension to a few degrees; arm at right angles; displacement anterior; two fragments of head; transverse of neck. (Case VI.)

The reason for operating is the great limitation of flexion and extension with moderate limitation of prostration and supination. Where the fragment is displaced anteriorly and inwardly, lying at the side of the biceps tendon, as in Latarjet's case, the incision is best made immediately over the fragment at the inner margin of the supinator longus. If the displacement be outward, as in one of Prat's cases, the fragment lies beneath the skin and is easily removed. After removal of the head it is always well to smooth the end of the radius. In the class of cases where it is impossible to retain a viable fragment in such position as to insure a useful joint, the fragment is wedge-shaped, anterior, and attached to some portion of the anterior part of the neck. The fragment stands off, as it were, in some cases being at right angles to the neck. These fragments, although viable, being connected to the remainder of the radius by periosteum, cannot be returned to their normal position, because of interposed tissue, and inasmuch as the faulty position is associated with great limitation of motion, they had better be moved. The incision in these cases is best made over the outer side of the head of the radius. We recently operated upon a case of this sort, male 31, who had limitation of flexion to about 60 degrees, and limitation of extension to about 135 degrees. The limitation of extension was found to be due to adhesions passing between the seat of fracture and the capsule just above the eminentia capitata, and widening of the head of the radius, combined with thickening of the anterior portion of the joint capsule in this region. (Case VII.)

Lane of London reports a case of split in the radial head and neck, in which he obtained a good result by wiring the fragment in place, a unique pro-

cedure, as far as I am able to ascertain. In such cases of fracture of the radius as are operable, there is always much limitation of motion, and, just as in operable fracture of the olecranon, the results here are very satisfactory, there being in most cases almost complete restoration of motion. Limitation of pronation and supination persists longer than that of flexion and extension. Removal of the head does not seem to influence the strength of the joint, and is not followed by valgus deformity. In fact, it has been observed and shown by Prat, in one of his cases, a man twenty-four years of age, that there may occur quite a remarkable formation of bone to replace the lost head. Prat's case was examined by *x*-ray four months after operation. This corresponds to what is well known to occur in long bones deprived of physiological opposition; the bone lengthens.

In the case of a man twenty-seven years of age who had a posterior dislocation of the radius for many years, we resected the head to increase motion. This head, instead of being concave on top, was convex, conical as it were, projecting about half an inch beyond the usual margin of the head.

We now turn to a far more difficult class of fractures, those of the lower end of the humerus, and shall consider, first,

The External Condyle.—Cases of fracture of this portion of the humerus which demand operation are not common. Monnier, Piechaud, Koenig, Starr, and Beck have reported cases, to which I would add a further observation (Case VIII.) Immediate operation may be demanded, because of such vicious displacement that it is impossible to return the fragment to its proper place, because of nerve involvement, or because a small chip has been broken off and acts as a foreign body in the joint. This condition which Koenig calls attention to may initiate secondary changes in the joint. The rare cases of fracture of the capitelum itself belong in this group. They are surgical curiosities with which we, personally, have had no experience, and about which we know nothing, except what has been reported by Hahn, Kocher, Steinthal, and Cotton. The case records are to be found in the publications of these authors. When the fragment was loose it was removed with good subsequent result.

In Steinthal's case the capitelum was displaced up and anteriorly on to the external condyle, and firmly fixed. Motion amounted between 135 degrees and 150 degrees. After resection and removal of the head of the radius the motion was from less than 90 degrees to 160 degrees—a very satisfactory result. Kocher's cases are well known, and the original communication by Hahn in 1853 is of interest because of the fact that four years after the injury, which with the resulting deformity is accurately described, Hahn procured on autopsy the specimen, the only one in existence, as far as I am able to ascertain.

When the external condyle, as a whole, is broken off, the fragment generally having a small piece of trochlea, it is usually displaced up and back, or up and anteriorly. Cases of this variety have been mentioned by Piechaud of France and Starr of Canada. Our case was a boy of seven. The condyle was completely rotated out, so that the fracture surface was beneath the skin. This fragment was attached by a few strands of periosteum only (Case VIII). It was removed through an external incision, as in the similar cases reported by Kocher and Beck.

At the present time—six months after the operation, which was performed July 14, 1906, two weeks after the injury—there is no limitation of motion, and no increase of valgus or lateral motion. Even when on operation it is possible to replace the fragment, it may be difficult to hold it there, as in Koenig's case where the displacement recurred immediately. In our case, there were fibers of the anconeus attached, and we are of the opinion that part of the mechanism of the cases where rotation of the fragment occurs is due to contraction of this muscle. In Starr's case, where rotation was not complete, the displacement present was rotation upward and forward of the articular surface. If the displacement had been carried a little further the fragment would have been in the position reported in Kocher's, Beck's, and in my own case.

In old cases in which the fragment has healed with marked upward displacement, varus deformity and marked interference with motion, linear osteotomy along the line of fracture may be done to advantage, as in the cases reported by Tilanus, Piechaud, Kocher, and others. The results were satisfactory. In these cases it is unnecessary to suture the fragment in place; the arm is simply put up at an acute angle.

Koenig states that such experience as has accumulated indicates that early operation is absolutely indicated in external condyle breaks, especially with rotation back of the fragment, and supports the statement with the report of several cases operated with successful results. It is of course understood that this remark applies here, as in connection with all other fractures, only to cases presenting irreducible displacement of the fragment. There is no objection to suturing through the cartilage if needs be, even with nonabsorbable material, for it has been shown by autopsy, long after operation, that the wire becomes imbedded in the cartilage and smoothly buried.

If there is faulty position of the fragment there is danger of the musculo spiral being caught in the callus. This demands interference, which may even prove advantageous, as in one of Beck's cases, where the paralysis had existed a sufficient length of time to cause such secondary contraction of the tendons as to demand elongation.

The incision used for operating upon the external condyle depends somewhat on the conditions in the individual case.

If a fragment, such as a piece of the eminentia capitata, is displaced anteriorly and upward, it may be convenient to use an anterior incision along the inner margin of the supinator longus and extensor carpi radialis longior coming down onto the outer margin of the brachialis anticus. The depth of the wound and the presence of vessels and nerves render this approach much more difficult than approach to the posterior surface. We can see no reason, anatomical or clinical, for Ruruik's transverse incision in front.

Access to the external condyle, and in fact to the joint in general, is obtained without any question with greatest ease by Kocher's posteroexternal incision, downward at the side of the triceps, and then inward to the olecranon, the anconeous being pulled down. Weber has suggested a valuable addition in division of the outer half of the triceps to the apex of the olecranon in such cases as demand more room. We have had occasion to use Kocher's incision in connection with Weber's modification, and consider the combination better than the addition suggested by Ollier, which consists in tenotomy of obstructing triceps fibers. Weber's incision is quite adequate for most elbow joint exploration in lesions affecting the outer and middle thirds of the joint. After removal of a fragment, there is no reason for immobilization longer than is necessary to insure healing of the

wound. For self-evident reasons, then, it is essential to institute early passive motion.

The Epitrochlea.—This fracture very rarely demands interference. When operation is necessary it is because the fragment is displaced in such a manner as to interfere with the motion of the joint, or threatens to puncture the skin, and finally because of the ulna nerve. When displaced it may be found in the olecranon fossa of the humerus, as in the case reported by Barbat of San Francisco. In my cases the displacement has been downward. The arm was ankylosed. After fixing in place, motion was obtained from less than right angles to almost complete extension.

Kocher is quoted by Koenig as stating that the displaced fragment, when interfering with motion should be excised. It is certain, judging from such case-records as are available, that if the displacement is allowed to remain for but a few days only, the contraction of the attached muscles makes it almost impossible to restore the fragment to its usual position. One very good reason for suturing this fragment in place is that the ulna nerve is very apt to cross upon the line of fracture. If there is much displacement, there is more callus, and therefore danger not only of having the nerve caught between the fragment, but also danger of involvement in the surrounding callus.

It is easy and tempting to approach the condyle from in front, but inasmuch as the position of the ulnar nerve is one of the main reasons for interfering, and because of the fact that even when not caught in callus or between fragments, habitual recurring dislocation of the ulna nerve has been observed secondary to valgus deformity and callus. It is, therefore, wise to approach from behind, and, after restoring the epitrochlea to its place, safeguard the nerve in such a way that this accident cannot occur.

Internal Condyle.—It is an extremely unusual occurrence to be obliged to operate upon an internal condyle fracture as such, and find on exposing the seat of injury that there is no other involvement of the humerus. We have operated twice for presumably internal condyle alone, and on operation found that the line of fracture was not confined solely to the thin section of the humerus. These cases will be referred to later. (Cases IX. and X.) Shiller operated because a fragment broken from the trochlea interfered with motion of the joint, and Weber successfully replaced an internal condyle which was badly rotated back and could not be held in position.

Hoffman has called attention to the fact that, although the amount of motion in the joint may not be considerably interfered with, yet the varus deformity consequent to union of the internal condyle in a faulty position, interferes greatly with the carrying power of the arm. With the exception of an occasional operation because of nerve involvement, most of the internal condyle injuries operated upon are old cases, with marked varus. Such have been referred to by Derscheid, Delcourt, Kocher, Tilanus, Koenig, Piechaud, and Davis of Philadelphia. Davis mentions three cases in which he obtained good results. The operative procedure advised by him is the application of McKewen's operation on bow legs, to the elbow. A fine osteotome divides the humerus, above the joint on the inner side, to the extent of half the diameter of the bone. The remainder is broken, and the arm put in the normal position. Any attempt to proceed by osteotomy in the line of fracture, with subsequent replacing of the fragment, involves much division of soft parts, combined with opening the joint, which, to our way of thinking, is a risk quite out of proportion to the probable advantage gained. This procedure can be made use of only in cases where an internal condyle, having united in faulty position, has led to the formation of sufficient callus to provide great limitation, or fixation of the arm in a position, rendering the extremity practically useless. The faulty position itself, without excess of callus, may be productive of this degree of disability. Stimson is of the opinion that the varus deformity is largely due to a dropping down of the fragment in external breaks because of the right angle position—the forearm rotates with this fragment in the sense of supination. The excess of callus filling the gap is then responsible for the subsequent deformity. In internal condyle breaks, Stimson believes that there is a transverse break through the lower end of the humerus, and that the excess of bone is again found on the outer side. In both instances this authority prefers a wedge-shaped osteotomy on the outer side, a preference surely justified by the pathology of the injury.

The method of approach when operating upon recent fractures of the internal condyle is not a matter of indifference. As already mentioned, the anterior approach, along the inner margin of the brachialis anticus, gives easy access to the internal portion of the condyle and to the epicondyle, without opening the joint. However, the wound is deep, and many vessels are encountered. Inasmuch as safeguarding the ulna nerve must also be thought of, besides replacement of the dislocated fragment, it seems to us that the posterior route is better suited, the incision being carried down close to the triceps, leaving the ulna nerve to the inner side. In a few cases, such as that reported by Brun, where a very oblique internal condyle fracture produced symptoms referable to the median nerve, one might be obliged to prefer the anterior incision. We have tried both, and prefer the posterior route, because of the fact that in children, especially, one may discover on operation quite an unexpected comminution and displacement of the cartilaginous portion of the humerus, demanding an extension of the incision, which will be discussed in connection with dicondyle and comminuted breaks. We prefer to hold the fragment in place by means of chromic gut sutures passing through drill holes perforating shaft and fragment anteroposteriorly, unless, after placing the forearm in position which it is to occupy, it is found that the unavoidable pressure on the fragment is in excess of what might reasonably be expected of the gut until the time for passive motion massage arrives.

When there is difficulty in retaining the fragment, bone pegs may be preferred. Princeteau has used the latter with success, and calls attention to the fact that there is ample clinical evidence that metallic suture material may tend to delay union; cases bearing on this point having been published by Stephen Waltz of Baltimore, Dujarrier, Courtin, and others. It would seem that whenever more resistant material than gut is demanded, bone or ivory pegs should be resorted to in preference to wire or screws.

Supracondyloid Fracture.—Although this is comparatively a common break, at least the extension variety, immediate operation is rarely indicated, and in this event is usually resorted to because of the interposition of tissue. The nerve injuries will be referred to later. The brachialis anticus is the common offender in cases in which the diaphyseal fragment pierces the muscle.

Bolles and Lund of Boston have operated upon recent cases with good result, and Lane has called attention to the fact that the triangular fragment of diaphysis adhering to the posterior part of the lower fragment in extension breaks should be carefully preserved, as of value in holding suture material. In my cases the obliquity of the break was not sufficient to affect materially the holding of suture material. No case of operated flexion break has come to my notice.

Most of the reported operations were in old cases which had been allowed to heal with the lower fragment of the humerus in faulty position. That exuberant callus in the anterior region of the joint may interfere with flexion because of opposition to the coronoid process is well illustrated by the cases reported by Mouchet, Kirmisson, Bardenhauer, Tilanus, Monnier, Tuffier and Beck. In children exostoses forming about the line of fracture may be the cause of interfering. When dealing with callus masses limiting flexion one should remove until the coronoid process is not obstructed, even if it is necessary to perforate the humerus. Stimson believes that much of the limitation of motion is caused by the changes in the muscles—particularly the triceps.

When there is motion with the arm in a relatively useless position, as in one of Stommer's cases, excision of callus may be of advantage and result in great improvement. In the instance above referred to the patient could finally flex to 90 degrees with very little limitation of extension.

Cotton has called attention to the frequency of varus deformity after supracondyloid breaks. The method of treating this deformity has already been referred to. Yudet has shown in a series of cases that, although varus is more common than valgus, still the latter is not an uncommon occurrence, and may even be sufficient to demand operation, as is well shown by a case reported by Tilanus.

Whenever complete ankylosis is found after supracondyloid fracture, little is to be expected from any operation which aims at regaining motion without loss of bone. In such cases excision of the displaced fragment is to be preferred.

Partial resection will be referred to in connection with dicondylar and comminuted breaks. There is some difference of opinion as to the best incision for treating supracondylar breaks. Lane and Monnier have used anterointernal incisions with success; Tuffier and Tilanus, anteroexternal incisions; and Gaudier resected a badly displaced lower fragment of a supracondylar break through bilateral incisions, such as are recommended by Nicoladoni and Eiselsberg.

We are of the opinion that the anterointernal incision gives best access to callus obstructing the coronoid process; that for the purpose of liberating the lower fragment preparatory to resetting and fixation, Kocher's posteroexternal incision, or with extension to the tip of the olecranon, as done by Weber, and that for partial resection—this same incision should be first tried, and, if found insufficient, it may be combined with an anterointernal incision.

This combination of posteroexternal of Weber, and anterointernal, gives the greatest access, with the minimum amount of damage to vessels and muscles, and at the same time avoids all of the nerves, median, radial, and ulna.

Dicondylar and Comminuted Breaks.—Many of these cases are compound, the force producing so extensive an injury being sufficient to drive the fragments through the skin. The doubtful prognosis as to function following injuries of this character is well known, and it is therefor that we examine with more than usual interest cases such as are reported by Bristow of Brooklyn, Starr of Canada, and Tuffier.

Bristow operated upon a dicondylar break with comminution of the trochlea and sutured the remnants of the condyles "as best he could." The ultimate result gave 4/5 of the normal range of motion. Starr operated through a Langenbeck division of the triceps, removed several pieces of bone, and wired the condyles separately to the shaft, obtaining a final result of about 90 degrees motion. Tuffier reports two cases of "T"-fractures without comminution, the triceps interfering with reduction. In both he transfixed the condyles with calf bone pegs and obtained excellent results.

We would add a further observation: A boy of fourteen years of age, with a Y-fracture, and division of the internal condyle, into two pieces, because of separation along the line of the epiphyses. The upper triangular piece was dislocated backwards, penetrating the triceps, and being stripped practically free of periosteum, was removed. The remaining fragments were sutured with chromic gut. Six weeks after the injury he had flexion to 60 degrees and extension to about 130 degrees. (Case IX.)

In this instance we made use of Langenbeck's longitudinal division of the triceps. The reason for operating was the impossibility of reducing the fragments. On the strength of observations such as these, we believe that in dicondylar breaks, and other comminuted fractures, one should operate immediately when it becomes apparent that the fragments cannot be properly held in place. Having used Kocher's posteroexternal incision with Weber's division of the outer half of the triceps repeatedly in other types of fracture, we are of the opinion that this incision is preferable in ordinary cases to either the posterointernal or Langenbeck's incision.

In cases where the amount of destruction is very great—as in Case IX. of my series—we believe that the following modification of the Kocher posteroexternal incision is to be preferred to Weber's. The incision is carried to the side of the olecranon and the olecranon divided and turned up. This incision completely exposes the entire joint and allows easy access to every part. When the maximum trauma is on the inner side the vertical portion can be made on the inner side, but even if made to the outer side this method exposes most satisfactorily the inner condyle. We have tried these incisions and found the exposure most satisfactory, and feel that we can recommend this procedure, but only in cases where the damage of the primary trauma is so great that the question is whether or not resection of the lower end of the humerus is to take the place of adjustment of fragments. The additional division of the olecranon in such cases is a small matter compared with the problem present in the lower end of the humerus.

Volker and Trendelenburg have used the transverse incision with liberation of the ulna nerve, and Tilung modified this by going through the tendon of the triceps for the purpose of being able to use a flexed splint. The disadvantage of the latter method needs no comment, and we agree with Weber that the modification of Kocher's incision, by dividing the outer half of the triceps, is also preferable to the transverse incision with division of the olecranon. In the extreme cases the combination of longitudinal incisions with division of the olecranon gives the best exposure.

We understand that in comminuted breaks Weber recommends primary resection of the lower end of the humerus. It does not appear that cases such

as the above referred to justify so radical a procedure. Especially in children it is essential to remember that improvement is always possible far and above what theoretical considerations might lead us to expect. We are of the opinion that in children where the epiphyses are still active, even partial resections are to be avoided unless it would mean leaving the arm in a practically useless position not to do so. In adults Weber's proposition can be resorted to with advantage much more freely.

Orthopedic resection of the elbow, for ankylosis in adults, is the last resort. It is best done at the level of the lower margin of the head of the radius. Abadie claims that arthrotomy and partial resection have no place in these cases, notwithstanding the views of Nélaton and Kirmisson. It is his opinion that ample resection gives far better results.

We shall omit any reference to the technique of excision as being too extensive a subject to enter into.

Separation of Epiphyses.—Injuries of this type demanding operation are very few. It occasionally happens that the separation of epiphysis is carried far back, and with such effusion, into the joint as to make reduction of the fragment impossible. This happened in Princeteau's case. Separation of the component parts of the epiphyses, with displacement of the ulna, is another cause for immediate interference.

Tuffier reports operating for this condition with good result, a month later motion being very slightly limited. Dollinger recommends immediate operation when other methods fail to hold the epiphysis in place. I have operated upon a boy 2½ years of age who appeared to have a break of the internal condyle which could not be reduced. On exploring it was found that the trochlear epiphysis had separated from the condylar epiphysis and that the trochlea epitrochlea and triangular piece of diaphysis formed one piece which was tilted upwards anteriorly. Even after exposure it was impossible to push the diaphyseal fragment into place until the internal intermuscular septum had been divided. After this the diaphysis was drilled and the cartilage sewn into place. (Case X.) The *x*-ray plate in this instance gave no evidence of the displaced portion of the epiphysis, because trochlea nucleus does not show at that age. The nucleus of the condyle showed in its proper relation to shaft and upper end of radius. At the end of fourteen days passive motion amounting to 45 degrees was obtained.

When marked limitation of motion follows union of a displaced epiphysis in faulty position, it is necessary to expose the region and replace the fragment. This has been done successfully by Broca and Monnier. In Broca's case the result was good, but in Monnier's it was not satisfactory as to function, the injury having occurred in a paralytic arm. There is no doubt that the bone pegs are most suitable to fasten these epiphyseal fragments in place, provided there is no possibility, as in the author's case, of suturing with chromic gut.

Félizet calls attention to the fact that after epiphyseal separation at the lower end of the humerus, it is not uncommon to have exostoses develop just above the epiphyseal line. This author reports three such observations. There was much limitation of motion, which was completely relieved by the removal of the bony outgrowth.

The incisions necessary for convenient approach to these regions have already been considered.

In the treatment of all operative fractures, there is one thing to be remembered, namely, that the operation is only half of the treatment, the other half being careful prolonged orthopedic after-treatment, and that the first without the second is apt to result in failure. Early massage, early and frequent passive motion, and discarding of all fixing apparatus just as soon as the conditions of the individual case permit, should be the aim of post-operative care. Passive motions must not be carried beyond the point of pain, otherwise a sprain is produced.

Nerve injuries following fracture at the lower end of the humerus are not uncommon. In Von Brun's statistics of 58 cases of nerve lesions of the upper arm, thirty-three are due to injury at the elbow, the order of frequency being musculospiral (radial), ulnar, and median. Broca and Mouchet emphasize the frequency of nerve lesions in supracondyoid breaks. Of thirty-five cases, seven had nerve complications. Primary division of all three nerves has been observed.

Payre reports recurrent dislocation of the ulnar nerve due to valgus deformity. Paralysis may be primary, secondary, or late. Primary is never the cause for interfering, inasmuch as compression cannot be distinguished from division. Secondary paralysis should always be operated, and, of course, primary, which does not improve. Even when primary ceases to improve, operation is indicated.

The details of treatment are beyond the scope of this paper. Neubauer states that the prognosis is good under proper operative care, which corresponds to the statistics of Kramer, quoted by Reisinger. Of thirty-five cases there were only three with absolutely unsatisfactory results. Bush reports a case of complete recovery after sixteen months. We have liberated the ulnar twice, the median and musculospiral once each. Both ulnas regained function, the median showed no improvement, and the musculospiral some improvement.

According to Kramer, the average time for recovery is one year, and, inasmuch as the last two cases have been operated only about four months, there may be some improvement yet.

Reithous emphasizes that primary paresis, not increasing, should be treated expectantly. We consider that the expectant form of treatment also applies to secondary paresis, having seen ulnar paresis occur, deepen, and finally disappear in the course of a supratrochlear fracture. Lambert reports an interesting case of late ulnar paralysis following a neglected olecranon break, with increase in size of the fragment and exostosis as shown by *x*-ray. Most late ulnar pareses or paralyses are secondary to extreme valgus deformity.

Secondary muscle symptoms have been reported by Littlewood of England, but inasmuch as the symptoms described correspond to those seen after the use of too tight apparatus, and inasmuch as Littlewood states that the majority of the ten cases he reports had pressure sores, we consider that the condition is to be laid not at the door of the fracture, or even to the unavoidable muscle changes, but rather to a disregarding of the fact that severe injuries have severe swelling and must be bandaged accordingly.

Whether Bier's autoinjection of blood between the fragments of non-uniting bones can be made use of in elbow fractures remains to be determined. Loehrer has reported success in the treatment of a leg fracture. Observations to the effect that venous hyperemia increases the size of bones, date back to Stanley, in 1849; Paget, 1853; Broca, 1856; but whether Bier's artificial hyperemia by autoinjection treatment will be possible in the region of a joint has, as already mentioned, not yet been determined.

In closing, may I call attention to the fact that the above remarks on operative treatment of fractures about the elbow apply only to cases where there is no doubt whatsoever about the advisability of operation in a given case. When there is doubt it is best to wait. Even when particularly interested and keenly alive to the disastrous effects of meddlesome surgery in this region, one must still bear in mind the fact so tersely put by Mouchet: Time often proves the best and most economical surgeon.

Case I.—M. R., female, 26; September 23, 1906, hit arm on back of chair; fracture of olecranon, nearly transverse, with ¾-inch separation. On examination under ether, inability to force fragments together completely. September 29, incision to outer side of ulnar; blood clot from between fragments removed. Lateral tear in anconeus, with laceration of muscle. Lateral chromic gut sutures in capsule and muscle interrupted, plain gut. October 9, stitches out. P.P. union; passive motion. December 28, motion; sl. limited in flexion and extension. Still improving.

Case II.—J. W., 61; February 17, 1906, coming downstairs, fell and hit elbow. Treated ten months in right angle splints. December 19, 1906, few degrees of motion in elbow; backward displacement of radius. Callus on ulnar 2 inches from tip of olecranon; angular deformity. Posterior incision along callus, osteotomy, in line of fracture which involves lower part of joint. Ulnar straightened. Olecranon firmly adherent. Mobility with aid of strong, sharp hook. Ulnar wired with silver external incision, and resection of head of radius. Arm put up at 160 degrees. P.P. union. Motion at end of five weeks 90 degrees to 160 degrees; no increase in extension beyond what was present after straightening elbow at time of operation.

Case III.—October 25, 1905. M. McE., male, 27; five years ago, fall, method of landing unknown. Position: forearm semiprone. Flexion at elbow limited at 135 degrees, about 15 degrees extension. Very little pronation and supination. Bony deformity in region of olecranon; convex posteriorly; head of radius displaced backwards, close to side of olecranon. October 27, 1905, head of radius resected. November 3, 1905, stitches out, P.P. union. November 8, 1905, passive motion. November 30, 1905, motion, 70 degrees to 145 degrees.

Case IV.—P. M. male, 51 years; fell over backwards, landing on elbow, six months before operation. December 9, 1906; arm at obtuse angle; limitation of flexion at about 100 degrees; amount of motion, 20 degrees. Backward and outward displacement of diaphysis of ulnar on olecranon; angulation slight. Head of radius displaced backward and outward. Operation: Resection of head of radius; brisement forcé of elbow. Put up at right angles. Passive motion tenth day. Seven weeks after operation passive motion from 60 degrees to 170 degrees, one-half of which is painful; about 50 degrees voluntary motion, including position at right angles.

Case V.—J. B., 62; about one year ago fell and hit elbow. At present time much thickening about olecranon. Arm at obtuse angle with few degrees of passive motion, if forced. January 25, 1907, incision to outer side of olecranon. Old oblique fracture downwards and outwards from base of olecranon. Attempts to move arm failed before incision resorted to. Longitudinal division of triceps, insertion and subperiosteal exposure of olecranon which was found to be divided longitudinally by callus indicating seat of fracture. Olecranon fragments removed subperiosteally; outer fragment included a piece of coronoid. The intraarticular adhesions were very firm, binding the olecranon fragments firmly to the humerus. P.P. union. As yet no passive motion tried.

Case VI.—F. S., male, 29; August 12, 1906. Five days ago fell "with arm under him, and extended." Exact method of landing unknown. Slight swelling; limitation of motion in every direction; arm held fixed at right angles. *X*-ray plate shows neck of radius broken transversely and head divided into two pieces; one piece displaced anteriorly and inwardly—the smaller; the larger, anteriorly and out. Both pieces rotated so that articular surface faces outwards. External incision; pieces removed. P.P. union. Passive motion tenth day; discharge on twenty-first day, with flexion from 140 degrees to about 70 degrees. Pronation and supination one-half normal. Has not been examined since.

Case VII.—M. L., male, 34; October 12, 1906. Five weeks ago, fall on hand, followed by swelling of elbow. Arm treated in right angle splint. At present time, marked limitation of pronation and supination. Extension to about 135 degrees; flexion to 60 degrees. Thickening in region of head of radius. Operation: External incision; splint in coronal plane of head and neck of radius. Head widened anteroposteriorly. Firm adhesions to capsule just above eminentia capitata. Anterior part of capsule thickened. Adhesions removed and joint moved. Flexion, pronation and supination limited by increased anteroposterior lengthening of head. Piece chipped off by injury removed. P.P. union. December 17, 1906: Extension normal; flexion very little limited; pronation normal; supination the same as before operation, that is, much limited.

Case VIII.—W. M., male, 7; June 21, 1906, fell from ladder, hit on elbow. *X*-ray shows complete rotation of external condyle; fragment not easily moved; cannot be reduced. Motion, limitation in every direction. July 14, 1906, external incision, immediately over fragment, which is slightly displaced anteriorly; removed easily. Fibers of anconeus attached—divided. Fragment has small piece of trochlea. July 24, 1906, stitches out; P.P. healing. July 26, 1906, wound solid; passive motion. January 21, 1907, no limitation of motion; no increased lateral mobility; no valgus deformity.

Case IX.—R. H., male, 14; November 17, 1906, swinging on parallel bar, slipped, fell backward on elbow; much swelling. November 21, *x*-ray showed internal condyle divided in two fragments; external condyle broken off; line of fracture joining internal line of break, at about line of epiphysis. Whole lower end of humerus tilted to inner side and displaced up. Diaphyseal fragment of internal condyle rotated back and displaced. Considerable separation between other fragments. November 29, 1906, operation, Langenbeck incision; diaphyseal fragment projecting back into triceps removed subperiosteally; remaining fragments sutured with chromic gut into place. Method of exposure, bad. Arm put at right angles. December 8, dressed; P.P. union. December 12, 1906, passive motion. January 27, 1907, motion from 60 degrees to 130 degrees. Resistance, elastic. Much thickening about lower end of humerus. Region of excised bone filled in.

Case X.—J. McM., 2½; January 10, 1907. Two days before entrance, fell; hit elbow. Direct violence. P.E.: Much swelling of whole elbow; motion limited in every direction because of pain. *X*-ray shows internal condyle break with upward and backward displacement. Reduction impossible.

Operation, January 14, 1907. Anterointernal incision at side of brachialis anticus. Line of fracture through internal condyle to diaphyseal line, then along diaphyseal line outwards, and finally obliquely through outer part of trochlea. This fragment is tipped forward below and backwards above, being displaced as a whole inward and upward. *X*-ray plate showed only backward and upward displacement. An attempt to push fragment down unsuccessful, until internal intermuscular septum divided, then fell easily into place. Diaphysis bored and fragment fastened in place with No. 4 chromic gut, passed through cartilage in epitrochlea region. P.P. union. Passive motion ten days; at end of fourteen days 45 degrees motion. Note: Seen February 6, 1907; motion about 60 degrees.

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THE ADMINISTRATION OF PROTEIDS IN TUBERCULOSIS.

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THE nitrogen that enters into all forms of life is the most important constituent of our food. Every tissue and organ owes its reconstructive and formative properties to this element, which is contained in the proteids. It has been clearly demonstrated that in a very short time after the absolute omission of proteid from the food, life becomes extinct. If this form of food did not exist, life in its present form would cease and a new form would possibly come into existence whose laws of reproduction, growth, nutrition, and decadence would be entirely different.

With the normal healthy individual there is a constant utilization of protein matter required in growth and repair. Our every mental effort or muscular action consumes some part of our total available food or tissue supply. While energy may possibly be better derived from the other forms of foodstuffs, the tissue to be replaced must have this nitrogenous element. In disease the tissue destruction is naturally greater, and the constructive requirements, under most pathological conditions, are decidedly increased over the normal.

It is surprising how little proteid is necessary for the maintenance of body activities. Chittenden,[1] in his painstaking experiments upon himself, showed that less than forty grams sufficed to maintain the body during a long period of considerable mental activity. It is true that exercise demands a greater supply of proteid, but not so much as might be supposed. In observations made upon athletes and soldiers performing a great amount of work, fifty-five grams were found sufficient. In tuberculosis the patients exercise to only a comparatively small extent; although they excrete a slightly increased amount of nitrogen, they do not require as much as the normal active individual.

The figures of Chittenden are far below those given to us by any other investigator. This may lead us, upon superficial observation, to doubt their value; but when we compare the exhaustive and thorough methods of this observer with those of others, we are quite convinced that accuracy and thoroughness are all on the side of his experiments. No investigators have made the painstaking and convincing experiments that have been performed by Chittenden. His work should be a monumental guide in our treatment of this disease, tuberculosis. This author brings clearly before the practitioner the important fact that economy should be practised in the administration of proteid, and indeed leads us to believe that there is considerable danger in giving an excessive amount. The tendency of recent scientific observation, based upon more thorough methods, leads us to believe that the ingestion of excessive amounts of proteid in the treatment of tuberculosis is not only unjustifiable but harmful. This opinion is held by Folin,[2] who seems to have a keen insight into the demands of the economy. His observations have been confirmed by others, who show that the organism thrives and continues in a state of nutritional equilibrium when but small quantities of proteid are administered.

Unfortunately, advantage has not been taken of these recent advances in the treatment of tuberculosis. Nothnagel[3] recommends the consumptive to take in excess of one hundred and twenty grams; Thompson[4] states that in the sanatorium at Bridge-of-Weir, the diet, until recently, contained one hundred and fifty grams of proteid, but of late there

has been a very slight reduction from this amount. The amount of proteid recommended by the various contributors to this subject varies from one hundred to one hundred and fifty grams. Many authorities increase the total amount of food intake to as much as six thousand calories, and increase the amount of proteid proportionately. At a sanatorium in this country the individual is given a diet consisting of an increase of 10 per cent. over that required by a healthy man at hard labor.

In the various sanatoria there are definite methods of feeding, and in nearly every instance the exact energy-producing value of the diet is carefully estimated. However, in private practice the physician is frequently anxious to increase the amount of nourishment given the tuberculous patient. He supplies large quantities of milk, eggs, meat, and other forms of nutritious foodstuffs, with no regard for the proteid content; and it is very likely that many persons with tuberculosis treated under these conditions ingest a very much larger content of proteid than one hundred and fifty grams daily. To illustrate this I would cite a case reported by King[5] of a young man whose physician advised him to eat all the meat and as much milk and raw eggs in addition as he could stand, and King roughly estimated that this patient was daily taking into his stomach three hundred and seventy-five grams of proteid with a corresponding increase of the other constituents. It has been clearly demonstrated that the normal individual requires a quantity of proteid far less than that recommended by these authorities. Reasoning upon a similar scientific basis, the same facts apply to tuberculosis.

It is commonly believed that more proteid matter is needed in diseases of a wasting nature, such as tuberculosis, than in health; and while this may be true, at the same time we are apt to neglect the fact that a normal individual leading an active, healthy mental and physical life, such as those reported by Chittenden, require nearly or fully as great a nitrogen supply as the tuberculous patient. It seems probable that only a comparatively small proportion of the proteid is really utilized for the purpose of tissue repair and growth, and the remainder goes to supply heat and energy which could be more readily obtained from the easily oxidizable fats and carbohydrates.

Even more conclusive is the fact that proteids are not stored in the body, and when consumed in excess the products of their destruction flood the circulation and have to be eliminated by the kidneys. Folin[6] says that "we clearly have at present no reason for assuming that anything like the one hundred and eighteen grams of proteid demanded by standard diets is either necessary or advantageous." Further, Labbe and Vitry[7] state that in general the power to assimilate albuminous material is subnormal in tuberculous subjects. This is particularly true according to the same writers[8] in the second and third periods of the disease.

A fact of great importance, that should not be overlooked in this connection, is the harmful action of products which result from the partial breaking down of the proteids not utilized by the body cells. The urea, uric acid, xanthin, creatinin, and many other like products certainly have a most detrimental effect and are instrumental in causing many diseases. Circulating in the system, they irritate and cause degenerative changes in the heart, blood-vessels, kidneys, and indeed every active structure. Chittenden[5] says: "We must not overlook the great loss of energy to the body in handling and getting rid of the surplus of unnecessary food of whatever kind introduced into the alimentary tract, to say nothing of the danger of intestinal putrefaction and toxemia when, from any cause, the system loses its ability to digest and absorb the excess of food consumed. Further, the strain on the kidneys and other organs must not be overloked. To an unprejudiced observer, one not wedded to old-time tradition, it would seem as if a great effort was being made to sustain the claims of high-proteid intake. It is surely well to be careful, but it is certainly not necessary to manify imaginary dangers to the extent of suppressing all efforts toward the establishment of physiological economy."

Many authorities assert that the large proteid content is justified on account of the higher percentage of nitrogen eliminated in the urine. This is not primarily due to increased tissue destruction, but rather to a breaking down of the excessive proteid ingested. If in such cases the amount of proteid were lessened, the nitrogen output would be lowered. Drawing conclusions from the facts already given, it is certainly reasonable to believe that the large amounts of proteid usually advocated in the treatment of tuberculosis are not justified physiologically and that they will rather exert an untoward influence on the disease by producing other pathological conditions.

In this connection it might be well to state that certain clinicians have made the statement that the metabolites of proteid exert a specific action upon the disease. French[9] leans to this belief and says that "if the theory that uric acid in the blood antagonizes the tubercle bacilli be true, there is no better way of securing this condition of the blood than by an exclusive meat diet or a near approach to it." Dixon,[10] in his endeavor to substantiate this theory, advances the argument that in lithemia there is an excess of xanthins, and in tuberculosis a deficiency of this series, and consequently favors the administration of such groups as will increase the xanthin output. This may readily be obtained by an increase of the proteid intake, which increases the amount of xanthin formed. Lastly, it is claimed by the supporters of this theory that persons with the uric acid diathesis seldom contract tuberculosis.

It is a well-known fact that the susceptibility to tuberculous infection gradually increases from infancy to the age of twenty-one, from which point the danger of infection decreases. The uric-acid diathesis, on the other hand, does not usually produce manifestations before the age of twenty-one and gradually increases with succeeding years, so that the time of greatest uric-acid involvement is coincidental with the period of minimum danger of tuberculous infection.

This demonstrates that the infrequency of tuberculosis in lithemia is purely incidental. Indeed, as we carefully scrutinize the statements of these men we find that they advance arguments of a like nature, too general in character to have a scientific meaning, and in no way showing that the end-products have any beneficial effect upon the progress of the disease. This means that advocates of the theory must rely mainly upon clinical evidence rather than scientific reasons. But even here the bulk of the medical profession have not substantiated their observations.

Recently investigations have been made by numerous experimenters[11] upon animals in which an Eck fistula has been established. By this means the portal circulation is deviated from its regular circuit and the blood is sent directly into the vena cava. The portal blood, in consequence, does not flow through the liver. Under these conditions ammonium carbamate, an antecedent of urea, is formed, the result

of proteid catabolism. This metabolic product is extremely poisonous, causing convulsions and even death. Although urea, which is normally formed, is not nearly so poisonous, yet in large doses it is certainly pernicious in its effects upon the activity of the various organs. The ingestion of much proteid means an increased amount of urea production, with its concurrent tendency to these effects. But there is also formed—the result of the breaking down of the ingested proteids—other substances which, although produced in comparatively small quantities, are far more powerful in their poisonous action than urea. Creatin and creatinin belong to this group, and have been found by Mallet[12] to have a decided pharmacological action, their most marked effect being a retardation and depression of the heart. Another substance of like nature is adenin, one of the purin bases, which, according to Minkowski,[13] exerts a most toxic action upon the circulation.

It need hardly be mentioned in this connection that uric acid, which is markedly increased in quantity when the proteid intake is great, also has a detrimental effect. The uric-acid diathesis, lithemia, and gout are all directly or indirectly attributed to an excessive amount of this compound in the circulation. Allbutt and Rolleston,[14] considering the products of proteid destruction in general, state that they produce high blood-pressure, arterial degeneration, and renal disease.

When these facts are taken into consideration, it is certainly dangerous to increase the amount of proteid in the diet, even though the nitrogenous waste products in the economy may have a specific action. The scientific evidence in this connection does not justify us in accepting the empirical conclusions of a few clinicians. It is manifest, when all the facts are studied from a physiological standpoint, that excessive proteid diet is useless, as has been stated by Liebermeister[15] and Ebstein:[16] and when pathologically considered a detrimental effect seems more than probable.

When we take into account that it is possible for the normal individual at hard work to retain his full mental and physical vigor on an intake of fifty-five grams or less of proteid daily, it is a matter of wonder that the increased metabolism of proteid matter that is usually expected of the tuberculous patient is not more disastrous. The energy consumed in the system in the digestion, absorption, and elimination of almost three times the amount normally required, certainly constitutes an additional drain on the patient's already weakened and overtaxed store of activity.

While we should fully realize the absolute necessity and great value of the proteid content of the daily ration of our tuberculous patient, we should endeavor to keep this amount within the bounds of purely physiological demands and not administer a single gram over this quantity, as determined by the most careful study of the patient's nutritional equilibrium; for every particle of excessive proteid matter given will unquestionably not only interfere with the favorable termination of the disease, but will be productive of pathological conditions which we have been prone heretofore to charge to the account of the tubercle bacilli. It is not beyond reason to believe that there are some cases of tuberculosis that have died of renal involvement, cardiac insufficiency, toxemia, and other pathological conditions whose life might have been prolonged through the proper equilibrium of proteid metabolism.

Wight: *Am.*

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ADVANTAGES AND DISADVANTAGES OF SIMPLE EXTRACTION OF CATARACT.*

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Before discussing the advantages and disadvantages of the simple method of cataract extraction as opposed to the combined method, or extraction with iridectomy, it is understood that the Pagenstecher or Indian method of extraction (*i.e.* in the capsule) is excluded from consideration. We shall assume that the patient is healthy, the field of operation is normal as to bacterial content, the aseptic precautions are thorough, and the patient is tractable.

In justice to the operation and to the operator certain cases should not be included in any statistical table, as neither one is blameworthy. This refers to very old patients who are liable to pain and shock, hypostatic pneumonia, postoperative delirium, and death from suicide or disease, to dislocated lenses or fluid vitreous discovered after the operation is begun, to collapsed eyeballs (frequent in elderly persons and when cocaine has been too often instilled) and to hemorrhage from the choroid or retina. Nor should cases be included in which the patient is uncontrollable during operation and squeezes the lids, causing escape of vitreous.

Strictly speaking, pyogenic infection should not be charged against a method, though it is customary to do so, liability to infection being proportional to the number of instruments employed and to carelessness in asepsis.

The steps of the simple method of extraction are as follows: (1) Introduction of speculum; (2) section of cornea; (3) capsulotomy; (4) extrusion of lens; (5) toilet of wound, which includes the removal of cortical lens substance and replacement of

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the prolapsed iris (if it occurs); (6) removal of speculum.

Every step, including the use of a speculum, is debatable, and results may vary according to the judgment of the operator in performing the different steps of the operation. Thus the section of the cornea may be variously placed or include a flap of conjunctiva. The amount of effort made to remove cortical debris and replace the iris may be a potent factor in the result. The speculum may be removed after the capsule is opened or the lens is delivered, or it may be dispensed with entirely.

Having in mind, then, all these variations possible (and all have not been mentioned), let us consider the advantages of simple extraction:

1. There is no unnecessary traumatism to the eye, *i.e.* only such procedures are employed as are absolutely necessary to remove the lens. The burden of proof lies with those who advocate anything more than is strictly essential to the end in view.

2. A minimum of mutilation means a minimum of danger of infection.

3. The number of instruments required for this operation is the smallest possible for removal of the lens. Ordinarily only two instruments are introduced into the eye—the Graefe knife and the cystotome. This may be reduced to one if the capsule is incised during the passage of the knife through the anterior chamber. In some cases a spatula is necessary to reduce the primary prolapse of the iris.

4. The fewer the number of instruments introduced into the eye the less is the liability to infection.

5. The anterior chamber is free from blood and the various steps of the operation are clearly visible.

6. The iris protects the wound from tags of capsule and particles of lens matter; hence these are less liable to get into the wound and cause delayed union, or by their presence act as foreign bodies and excite irritation. Infection, glaucoma, sympathetic ophthalmia, iridocyclitis, and cystoid scar may result from this incarceration.

7. The iris serves as a curtain to prevent prolapse of the vitreous.

8. Simple extraction takes the shortest possible time in removing the lens. Brevity of time means less exposure of the eye to pyogenic infection.

9. No assistants are required to perform simple extraction. The danger of infection is thereby diminished, and there is no fear of prolapse of the vitreous from undue pressure by unskillful assistants.

10. Convalescence is shorter by virtue of less traumatism.

11. The iris responds to stimulus and serves its purpose as a diaphragm in an optical sense.

12. Visual results are better. When the pupil is round, spherical aberration of the peripl ery of the cornea and of the correcting lens is cut off.

13. Some writers claim that the field of projection is better with a circular pupil.

14. Better vision and better projection mean less confusion, and together afford greater safety to the patient.

15. Cosmetic reasons. The result is ideal. The pupil is round and central, and the eye presents a normal appearance. Sensitive persons do not, therefore, suffer by exciting remark and attention.

16. It is the easiest method of extraction.

The disadvantages charged against this method are:

1. The method is not adapted to all cases.

2. The corneal section must be more carefully placed to avoid secondary prolapse of the iris. While this is true, operators who cannot control the location of their corneal section have no right to operate by any method.

3. The corneal section must be larger to permit the exit of the lens as the iris is prolapsed into the opening and diminishes the available space.

4. Capsulotomy is not so easily performed in a small pupil. If peripheric capsulotomy is attempted, the instrument must be out of sight during the opening of the capsule, and, because it is unseen, undue pressure may cause dislocation of the lens and difficulty in its extraction, as well as prolapse of the vitreous. The point of the instrument may become entangled in the iris.

5. More pressure is required to tilt the lens and cause its extrusion through the pupil and corneal wound, hence greater liability to rupture of the zonular ligament and prolapse of the vitreous. This is debatable. Statistics do not prove it.

6. There is difficulty in delivering the lens through a small (and perhaps rigid) pupil and through the corneal section encumbered with iris. Moderate pressure will cause the sphincter of the iris to relax by the advancing lens, and if the operator's manipulations are deliberate and not too hasty the delivery of the cataract can be accomplished with ease.

7. The iris is bruised during the delivery of the lens causing subsequent iritis and synechiæ. This is not proved by statistics, and while convalescence may be delayed by iritis, subsequent vision is not impaired.

8. The iris frequently becomes caught in the corneal section and must be replaced. This is not a difficult procedure, and does not affect the result.

9. The toilet of the wound is difficult because cortical remnants remain behind the iris. It is probably true that thorough cleansing of the eye of cortical matter is more difficult, but the few small masses remaining do not get into the wound and cause irritation and delayed union, but are gradually absorbed.

10. Prolapse of the iris is a frequent complication and causes delayed union and necessity for another operation which is either painful or may require a general anesthetic for its abscission, results in anterior synechiæ or cystoid scar, and renders the eye liable to suppuration, iridocyclitis, glaucoma, and sympathetic ophthalmia.

Dr. Knapp calls iris prolapse the "bête noir" of simple extraction, and Gifford says "if it were not for prolapse of the iris, simple extraction would be employed."

Prolapse of the iris is usually traumatic in origin. The wound closes, and then some traumatism reopens the wound, causing a rapid escape of aqueous carrying the iris with it.

Small prolapses frequently require no treatment, and even the large ones often flatten down and cause no subsequent disturbance. Certain it is that with all the danger of prolapsed iris the relative proportion of suppuration, iridocyclitis, glaucoma, and sympathetic ophthalmia, is not so large as that resulting from other methods of operating.

By careful exclusion of unmanageable patients, by making the corneal section rather well into the cornea, by keeping the eye quiet by a simple occlusive bandage without exercising undue pressure on the eye, by avoiding excitement, by keeping the patient quiet and free from pain, if necessary by the use of morphine, and by careful attention to the bowels, to avoid straining at stool, the proportion of prolapse will probably be reduced to a minimum.

It may be objected that a corneal section means delayed union. Delayed union does not, however,

mean prolapse, as may be readily proven by statistics.

11. Patient must be unusually quiet to avoid prolapse.

12. Early inspection is necessary to discover prolapsed iris. The existence of prolapse may usually be diagnosed before the bandage is removed. The patient's statement of sudden pain with a gush of warm fluid from the eye is usually diagnostic. If such a history is not obtained, the eye may remain bandaged. It is my preference, however, to examine every eye at the end of twenty-four hours. I have yet to learn of a prolapse or a suppuration directly attributable to early inspection of the eye.

13. Astigmatism is higher after iris prolapse.

14. The pupil is not always round and movable. This is due to posterior synechiæ, the margins of the cut capsule becoming adherent to the iris. Careful performance of the capsulotomy in the periphery of the lens, together with the judicious use of atropine, will do much to avoid synechiæ.

15. Retroversion of the iris. This occurs very exceptionally after prolapse of the vitreous, and affects only the cosmetic appearance of the eye.

16. Secondary cataract is not so easily treated. With the pupil dilated with atropine there is usually ample room to perform discission. If the pupil is small from posterior synechiæ, a sufficient opening may still be easily made if discission is performed within two to six weeks after the cataract extraction, and before the capsule has become tough.

If now we consider the operation of simple extraction from the operator's view-point, it is my opinion that the "personal equation" enters largely into the method which an operator adopts. Good operators will probably select the operation which affords the most perfect result. Operators who are handicapped by some inability to perform some step well or to handle certain instruments skillfully, will naturally follow the method which does not expose their weakness. An operator will, therefore, select that method which gives him the best results according to his skill.

From the patient's standpoint the desiderata are: first and most important, integrity of the eye and sight; second, cosmetic result; and third, time. These, I believe, are best conserved by simple extraction.

To sum up, then, I quote Dr. Knapp's statement that "simple extraction is not only the best but also the safest operation for senile cataract and many other cataracts."

If now we compare the simple and combined methods of cataract extraction, the following objections to the method with iridectomy may be raised:

1. Iridectomy is an unnecessary mutilation and the burden of proof rests with those who employ it.

2. The cosmetic results are not pleasing.

3. Visual fields and acuity are impaired by a keyhole pupil.

4. It is a more difficult operation. It is simple extraction plus iridectomy.

5. Cutting the iris is frequently painful, causing the patient to squeeze the lids or to pull away, tearing out the iris or causing prolapse of the vitreous.

6. Iridectomy is often imperfectly performed and the pillars of the coloboma are not properly replaced.

7. Blood in the anterior chamber from the cut iris obscures the field of operation and may necessitate immediate lavage of the anterior chamber with its attendant danger of traumatism or infection, or may require postponement of extraction to another time. Blood in the anterior chamber may organize, causing thickened capsule with its consequent troubles.

8. Tags of capsule and particles of lens substance are more liable to get into the corneal wound and cause infection, delayed union, cystoid cicatrix, iridocyclitis, sympathetic ophthalmia, and glaucoma.

9. Prolapse of the vitreous is much more frequent than in simple extraction and is more dangerous. Retinal detachment and hemorrhage are liable to result from escape of vitreous. Impaired vision, if not actual loss of the eye, may follow.

10. Iritis is more common than in simple extraction and synechiæ frequently result. Iritis spells delayed convalescence.

11. More instruments are required, hence more danger of infection.

12. The operation is longer, therefore greater risk of infection is incurred.

13. An assistant is necessary whose skillfulness may not always be dependable.

These objections to the combined operation may be confirmed by the statistics of Dr. F. W. Ring (MEDICAL RECORD, February 23, 1895), who collated the results of 1,032 combined extractions and 1,123 simple extractions made by operators of recognized ability in America and Europe.

The comparative table reads as follows:

	Simple	Combined
Prolapse of vitreous	4.27%	7.23%
Average vision after vitreous prolapse	0.29	0.23
Incarceration or iris	4.00%	4.82%
Prolapse of iris	8.60%	None.
Iritis	11.82%	13.15%
Suppuration	1.30%	1.91%
Discission	33.04%	27.61%
Perfect success	90.82%	88.08%
Partial success	6.30%	7.45%
Failure	2.88%	4.47%
Average vision	0.48	0.34

These figures show that in spite of the dreaded iris prolapse, perfect success and average vision are greater in simple extraction, while iritis, prolapse of vitreous, suppuration and total failure are more common in the combined method.

To quote Dr. Knapp: "If we allow 10 per cent. for iridectomy as indicated by various unfavorable conditions; that iris-prolapse must be excised in another 10 per cent; and there are 10 per cent. of posterior synechiæ, there are still 70 per cent. of ideal recovery and the other 30 per cent. are much in the same condition as an equal number of combined extractions."

In conclusion, let me say that while both methods have their respective fields of usefulness, simple extraction is the best method of removing mature, senile cataract.

16 EAST FORTY-THIRD STREET.

THE HEPATIC FUNCTIONS, THEIR PATHOLOGY AND TREATMENT.

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THE importance of the proper functioning of the liver to the well being of the organism is apparent, it being the largest organ of the body; through it pass all the substances absorbed from the intestinal tract, whether nutritive or toxic, upon which it has to pass judgment, selecting, modifying, eliminating by the bile into the intestine, or storing them up within itself to be passed into the general circulation

according to the needs of the organism; it is a reservoir for the blood, upon which it acts as a depurator. The functions of the liver are in direct relation with the intestine, the pancreas, and the spleen; it has excretions and secretions which have a chemical activity of vital importance to the organism. It is impossible in the short space of this paper to go into the detail of the various hepatic functions and the far-reaching pathological effect of their insufficiency. For the blood, the liver acts as a reservoir, as a destroyer and as a manufacturer of erythrocytes, especially in fetal life; it is the storehouse for the iron; it controls the coagulability. The alimentary functions are glycogenic; it acts by its secretion, the bile, upon the fats in the intestine, storing them in its cells; it is probably the organ where sugar and fats are formed from proteids, and where fats are formed from carbohydrates and carbohydrates from fats; it is the organ which transforms the toxin into a nontoxin, arresting and eliminating them by the bile into the intestine; in fact the liver may be considered as a chemical laboratory in which a number of oxidative and hydrolytic processes are going on and as the depurator of the body. It is with the antitoxic function of the liver and the secretion and excretion of bile with which this paper is concerned.

Many of the functions of the liver are independent of life, that is to say, they occur in the liver when separated from the body, and in many cases the reactions can be produced by extracts from the glands. For example, if the extirpated liver be divided, and a part kept under aseptic conditions for several days, it will be found upon analysis that the amount of urea is very much greater in the latter than when the liver was fresh, showing that urea was formed after death in the liver cells (Ch. Richet). Chassevant showed that if the liver was heated to 100° C. it was inactive; that if the extract of liver was precipitated by alcohol the precipitate had the power of forming urea, and that this ferment, though present in man, dogs, and rabbits, was absent in birds, which do not excrete urea but uric acid. When ammonium carbonate and carbamate, amidoacids, xanthin, hypoxanthin, uric acid, leucin, and tyrosin, are fed to animals an excess of urea in proportion to the amount of substance taken is eliminated; Richet has been able to produce urea from many of these substances by means of the ferment extracted from the liver; all these bodies are more or less toxic. Any failure of the liver to transform them into urea must necessarily produce an autointoxication, they being much more toxic than urea, which, according to Bouchard, is forty times less toxic than ammonia, besides being a powerful diuretic. The formation of uric acid from ammonia has been demonstrated in the goose, but it is not safe to deduct that the same reaction takes place in mammals.

The salphoconjugation of the phenols is another function of the liver which is of great importance; the phenols are markedly toxic, but when combined as sulphates their toxicity is very slight. Carnot, Chassevant, and others have found ethereal sulphates in the bile, so that it is by the bile they are eliminated from the liver, where the combination takes place when not in too great quantity, and it is only the excess which appears in the urine.

The transformation of certain alkaloids by the liver is of great interest. Vergoogen found that on triturating hyoscyamine with frog's liver the alkaloid lost its mydriatic power, which was transmitted to the liver extract, but disappeared on heating to 70° C.

The depuratory rôle of the liver goes still further. The elimination of poisons by the bile has been established by Haidenhaim, Wertheimer, and other experimenters. The elimination of lead, copper, mercury, arsenic, etc., by the bile has been definitely demonstrated, the liver holding the metals as they come to it in the circulation and eliminating them in small quantities by the bile. Coloring matters are also eliminated by the bile—fuchsin, anilin red, indigo carmine, etc. Bilirubin, the normal coloring matter of the bile formed from hemoglobin, it being hemoglobin minus iron, is most decidedly toxic, producing many of the symptoms in jaundice; according to Roger, Carnot, Gilbert, Lereboullet, and others, when present in the proportion of 1 to 15,000 in the blood plasma it produces marked toxic effects.

Most of the toxins eliminated by the bile are retained for a certain time in the liver and eliminated in very small quantities so as to immunize the system, rendering their presence in the general circulation harmless. Potassium iodide and sodium salicylate are eliminated by the bile, but not so rapidly as by the urine. Many of the alkaloids (strychnine, curatine, caffeine, etc.) have been found in the bile after their administration, but the action of the oxidizing ferments of the liver usually converts them into unrecognizable substances.

Insoluble substances are arrested by the liver and absorbed by the cells, as shown by Carnot, and are either eliminated by the bile or are carried by the endothelial cells of the hepatic capillaries to the blood and thence to other organs. Its bacteriopexic as well as granulopexic power has been demonstrated. Gilbert, Lion, and Yersin showed that *B. tuberculosis*, when injected into a vein, accumulates in the hepatic spaces, remaining unchanged until the fourth day, when it begins to multiply; on the ninth day tubercles commence to form. The protective power of the liver against bacteria has been shown by Roger. Injection of anthrax into the aorta or peripheral vessels caused death in from 37 to 40 hours, but the animal survived if the injection was made into the portal system of a quantity of bacilli sixty-four times greater than would kill by the peripheral vessels. Lemaire is of opinion, supported by experiment, that the endothelial cells of the hepatic capillaries have greater phacocytic power than the leucocytes of the blood. According to Hanot and Gilbert, the liver has a cytopexic power, viz., embolic cancerous cells, arriving at the liver by way of the portal vein, are arrested by the hepatic capillaries at the periphery of the lobule, where they are either destroyed or give rise to secondary cancer of the liver.

The liver then acts as depurator to the system of soluble and insoluble substances, endogenous and exogenous toxins, it is also granulopexic, cytopexic, and bacteriopexic by virtue of the action of the hepatic cells, of oxydases and reductases, and by a special chemiotaxis of the endothelial cells of the hepatic capillaries, producing chemical changes, rendering the substances nontoxic and capable of elimination by the bile or other eliminators. Upon these functions of the liver depend the whole theory of autointoxication as an etiological factor in disease. Strictly speaking, experimental proof of autointoxication is wanting except in a very few instances, viz., when the toxin is found in the intestine and in the urine, and when injection of the isolated toxin produces the same symptoms in a healthy subject; but such a proof can be obtained only under almost impossible conditions of similarity and with toxins of very marked symptomatic effect.

There are but three ways by which the living cell can be injured, viz., starvation, intoxication, and traumatism; any two or all three may be combined in producing the cellular condition which gives rise to the clinical symptoms. To simulate autointoxication in the laboratory, the intoxication must be continuous, not intermittent or remittent, as in the hypodermic injections of toxins at certain intervals, between which the system has time to recuperate and eliminate; the poison must enter the system continuously, over long periods of time, gradually overcoming the immunization against it, varying in quantity and effect consequent on the varying conditions of environment. Autointoxication must be due to some lesion of some organ or loss or partial loss of some function, which in the laboratory experiment it is impossible to imitate, except by the excision of whole organs, as in the case of cachexia strumipriva, the result of ablation of the thyroid. In certain exogenous intoxications (alcohol, lead, arsenic, etc.) we have an approach to these conditions, employment or habit intoxications, which produce a very different clinical picture from acute poisoning with the same drugs. The facts taken advantage of in therapeutics, that small doses frequently repeated are more effective than one large one, and that each drug has two physiological actions, that following minute doses being the opposite to that of a large dose, applies to autointoxication; in the body autointoxication is due to small doses continuously given; in the laboratory the experiments are with large doses given at long intervals.

If we admit that the liver has antitoxic functions, we must also admit that if it ceases to functionate these toxins will enter the general circulation and produce pathological conditions. So evident does it seem that autointoxication is possible that the *onus probandi* as to its nonexistence must rest in this case on the negationists; the old harbor of refuge, "reflex action" from the abdominal nervous system can no longer be considered conclusive, for to have a reflex action there must be stimulation; if there is stimulation there must be a stimulant; if the stimulation is not physical it must be chemical, and if chemical it must be toxic if it gives pathological results.

The treatment of autointoxication is really the problem to be solved, few clinicians doubting that it is a potent factor in disease. In acute cases thorough flushing out of the alimentary tract with calomel and magnesium sulphate is usually sufficient, but in those cases of neurasthenia, nervous breakdown, nervous dyspepsia, etc., more is required in long, careful dietetic and medicinal treatment. Attention to the biliary secretion is of the utmost importance. The intimate association of the bile with the emotions has been accepted by the laity at least, the name melancholia, "black bile," having been given at a very early date to that form of insanity in which depression is the most evident mental symptom. The bile contains the coloring matters, bilirubin, etc., end products of hemoglobin disintegration; cholesterin, a substance which appears to be an end product of nerve metabolism, is held in solution by the bile salts, any diminution of the latter causing its precipitation and consequent formation of gallstones; mucus and the various end products of hepatic metabolism and the toxins arrested by the liver, either in their original form or chemically altered so as to render them soluble in the bile and inert in the intestine. The active principles of the bile are glycocholate and taurocholate of sodium, which hold the cholesterin and bilirubin in solution, preventing the formation of gallstones, as well as the chemical products of the liver; without their presence the bile ceases to flow, the liver becomes congested and insufficient, the organism suffers from starvation on account of the cessation of the nutritive functions of the liver, and also becomes intoxicated from the nonelimination and chemical conversion of the toxins. Nature is extremely conservative of the bile salts; after being eliminated into the intestine, where they materially assist in the absorption of fats, indirectly increasing peristalsis and inhibiting the growth of bacteria, they are resorbed from the intestine to be neutralized by the liver in the elimination of waste products. It is evident that in diseased conditions, after cleaning out the alimentary tract, the purgation of the liver and the stimulation of the functional activities of its cells is of importance. Nature's method—and we can never do better than imitate and assist her, is to increase the quantity of bile. The so-called cholagogues of the Pharmacopœia have been proven by numbers of physiologists not to increase the formation of bile, and the only cholagogue is Nature's, the bile salts, sodium glycocholate, and tauroglycocholate. The administration of sodium glycocholate mass, which contains taurocholate of sodium, by the mouth, it being absorbed from the intestine, increases the flow of bile, at the same time stimulating the liver cells. (Sodium glycocholate C P is not well borne by the stomach, producing nausea, burning, and painful diarrhea.)

The increased amount of bile salts dissolves, especially if given with high enemas or full doses of water containing sea salt in isotonic solution, the accumulated impurities in the liver, stimulating the liver cells according to Croftan, who uses them in nephritis, thus purifying the blood, enabling it to oxidize and removes the end products of metabolism from other organs. This is especially evident in the icteroid condition observed in cholemia; after the administration of sodium glycocholate mass for a few weeks the complexion clears up, and the yellow-brown spots disappear, leaving a normal, healthy complexion. Recently Gilbert and Lereboullet have called attention to the fact that certain symptoms, such as epistaxis, purpura, hematemesis, and hemoptysis, are often associated with the presence of traces of bilirubin in the plasma, and that under appropriate treatment by diet and stimulation of the biliary secretion improvement takes place.

The diet in hepatic disease, and especially in autointoxication, is of great importance. In the first place the quantity of food taken should be small; secondly, it should be easily digested, and must, therefore, as far as possible, correspond with the patient's tastes or the psychic stomach juice will not secrete; thirdly, it must contain no substance which is itself toxic or which will produce a toxic substance during metabolism; fourthly, it should be a bad culture medium or contain some inhibiting substance for the growth of bacteria

Rest is the best medicine for any deranged physiological function, and starvation is rest for the liver. The food should therefore be reduced to the minimum quantity required for physiological needs, about 3 ounces of proteid per diem; no soup should be allowed, as it contains the extractives and but little nutriment, and the former throw extra work both upon the liver and upon the kidney; carbohydrates in any form, well cooked, preferably using lactose, instead of cane sugar, should be the principal diet.

So far intestinal antiseptics have proved inefficient. In very acute diarrhea I have had good results with the administration of iodoform in full

doses as long as the diarrhea lasted. I give it with calomel in typhoid fever, but it has to be carefully watched, owing to its toxic properties if absorbed; if the bowels are kept moving freely very little is absorbed. Aristol is not so objectionable, nor is it so efficient. Salicylic acid, salol, bismuth, and the whole gamut of the drugs of the Pharmacopœia have been tried and found wanting. Probably the use of metallic colloids, owing to their ferment-like action, may be found valuable when better understood; brewers' yeast is decidedly effective; it can be administered as cheese or as weissbeer. The lactic acid bacillus has also a powerful antiseptic action in the intestine; it is for this reason that milk diet is antiseptic, the lactose not being a good culture medium for bacteria; for the same reason lactose as a sugar is a good antiseptic, reducing the amount of ethereal sulphates in the urine.

Chemical antidotes have not been found for the organic toxins, which are an ever-present menace to health. Our greatest hopes rest upon the action of oxidizing ferments, and as the oxydases, which introduced into the intestinal tract or into the circulation well oxidize the toxins, thus rendering them inert. Sieber has shown that the vegetable oxydases will destroy the diphtheria and tetanus toxins, both *in vivo* and *in vitro*.

Autogenous and exogenous intoxications are factors in producing the symptom complex of nearly all diseases, and are to be combated by stimulation and purgation of the liver, which can be brought about by the administration of sodium glycocholate mass and a careful and abstemious diet.

A CASE OF VERY LARGE DILATATION OF THE CECUM.

By THOMAS W. HARVEY, M.D.

ORANGE, N. J.

Mr. D., married, U. S., merchant, age 62, with an alcoholic history, was taken sick on March 6, 1907. His previous health had been good, except that he had recently fallen on the ice and hurt his back and right side, for which he received treatment by manipulation. A recent examination of the urine showed a "trace of albumin and narrow hyaline casts."

On March 6 he had a catarrhal cold; on March 8, Dr. English, his attending physician, discovered signs of pneumonia in the upper lobe of the right lung. Temperature 102.3°, pulse 85, respiration 30.

On March 10, temperature 103°, pulse 92, respiration 25. He had passed large quantities of gas from his bowels and had had several fluid stools. On this day his abdomen commenced to swell.

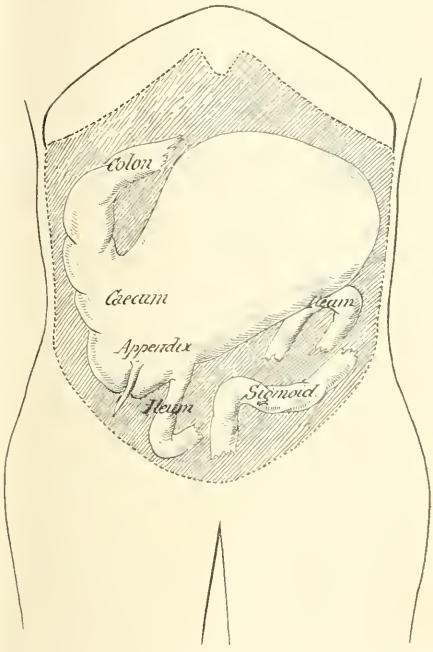
His temperature varied between 102° and 104° until March 16; he had cough, expectoration of brownish sputum, pulse varying from 85 to 100. On March 16 his temperature dropped to 100°, and remained between 99.4° and 100° until March 22. His pneumonia symptoms gradually disappeared, but his abdominal distention continued.

On March 23 I examined him with Dr. English. There were râles present in his lungs, and it appeared that the pneumonia was in the period of resolution. His abdomen was distended, tense, and tympanitic everywhere. It was very sensitive to pressure over the left side, and he complained of severe pain in his epigastrium. Temperature 102°, pulse 108, and feeble. He presented the appearance of a man with peritonitis. There was constipation, but no obstruction; fecal matter came away with enemata, and through movements were obtained by cathartics. He would pass flatus, but evidently could not empty his intestines. He had vomiting, but it was not stercoraceous.

His temperature dropped on the next day and remained low, about 100° in the rectum, until just before his death, on March 30, 1907. His pulse became more rapid and feeble as his heart grew weaker, and he developed a pulmonary edema which was soon fatal.

The question of laparotomy was raised, but an artificial anus seemed the only thing that might be indicated. It is doubtful from the autopsy if any operative measure could have helped him.

Autopsy.—Abdomen greatly distended and tympanitic. When the abdomen was incised gas escaped from the abdominal cavity. Inspection showed a large, distended sac in the abdomen full of gas; this was adherent to the diaphragm and the abdominal wall on the left side, and to a coil of small intes-



tine at the lower left hand edge; this sac extended from side to side, and from the diaphragm to the rim of the pelvis; adhesive peritonitis was present everywhere. At first sight this sac looked like a largely dilated stomach, but the fact that the omentum and the transverse colon could not be found in their usual relation negatived this idea. A small perforation was found near the attachment to the diaphragm; we were in doubt as to whether this perforation was the result of our manipulation, or had existed before death; certainly manipulation enlarged it.

The sac when opened was found to contain gas and a small amount of fecal matter. The adhesions having been separated, the stomach and omentum were found behind the sack, also the transverse and descending colon which were contracted and empty. A coil of small intestine was firmly adherent to the lower border of this sac, and a small amount of pus was found between the coils at this point, but there

was no perforation. Further examination of the sac showed that on the right side the ileum emptied into it with a normally formed ileocecal valve, that the appendix, which was somewhat enlarged at the base, was, relatively to the ileocecal valve, in its normal position, and that the ascending colon opened out from the upper right hand corner of the sac without obstruction. It seemed like a huge diverticulum or lateral dilatation of the cecum. The wall was similar to the normal intestinal wall, only much thinned. The liver was cirrhotic and the kidneys enlarged, and the right showed sclerotic changes.

The large intestine beyond the hepatic flexure was empty and contracted, but there was no evidence at any point of obstruction. This was due to the persistent and successful use of high enemata during the last few days of life.

The small intestine was normal, and showed no evidence of abnormal distention. The tympanites was due to the great dilatation of the cecum and to a moderate amount of free gas in the abdominal cavity.

Cases of dilatation of the intestine are frequent in medical literature. Many are due to definite obstruction, such as fecal impaction, growths, strictures, or twists of the bowels, intussusception, adhesions, bands, etc. Others are really dilated diverticuli, but these are usually small, and Meckel, after whom these have been named, insisted that they are found only in the small intestine. Then there have been many cases of so-called idiopathic dilatation, usually of the large intestine, reported by capable observers, in which a definite obstruction has not been found beyond the dilatation. Some of these cases have been very acute. These dilatations have been usually found in the descending colon or the sigmoid. In this case there was a partial dilatation of the cecum. In Allbutt's "System of Medicine" it is stated that these partial dilatations of the intestine are similar to the dilatations of the stomach that occur without pyloric stenosis.

It has been suggested that a partial dilatation, such as this, may have been due to paralysis of the nerves supplying this part of the gut. If this is so, then it will be of interest to inquire as to the causative relation of the accident that preceded his illness.

In his inaugural dissertation at Göttingen, Ernest Cordua describes a monstrous blind pouch in the large intestine which was given off from the ascending colon. The swelling of the abdomen appeared early in life, and the patient, whose death occurred at twenty-two years of age, had been under observation for thirteen years. At the autopsy two large coils of the large intestine were observed, filling the abdomen. These were filled with gas and feces. On incision it was found that one of these coils was a blind pouch communicating with the colon at the hepatic flexure. It was 1.2 meters in length. Cases of doubling of the large intestine have been described, and Cordua's case has been regarded as an abortive attempt at a doubling of the colon.

Other cases are described as "saeculations of the colon," in which there is a bulging of the inner coat of the bowel through the muscular coat due to some defect in the muscular layer.

Dilatation due to obstruction, in my experience, has always been of the whole diameter of the gut, and in the case that I have seen, the ileocecal valve has not offered any resistance to the dilatation extending to the small intestine. In this case the ileocecal valve was competent to prevent any reflux from the cecum, and there seems to have been a dilatation affecting only one side of the cecum.

Treatment of Sciatica.—Dr. E. S. McKee of Cincinnati advises the following: First, a calomel purge, then salts; in constitutional disease as soon as possible introduce treatment for the cause. One should use caution with morphine, in rheumatic cases salicylate preparations, in syphilis iodides, in gout colchium and saline mineral waters. Hypodermic injection of sterilized air. Naturally, care must be taken that the hypodermic syringe needle be not run into a blood-vessel, which might easily occur. Gentle massage should follow this procedure till the air is all absorbed. The rest cure is in some cases very successful, especially in those whose means of livelihood has been an active one. Massage along the nerve, though quite painful, often breaks up adhesions, which are the cause of the disease in many instances. It is a rule, however, that in true neuritis massage is not followed by good results. Massage, and especially vibrations, are of especial worth in chronic cases with beginning atrophy. Hydrotherapy systematically used deserves due consideration. The wet pack over night diminishes the pain remarkably, as well as having a favorable influence on the neurotic process. The next morning the leg is unpacked, washed with warm water, and massaged. Ten or twelve of these applications are usually sufficient. In subacute cases the half steam bath is of service. Patient sits in a steam container which reaches only above the hips. This half-steam bath does not weaken the patient, and allows of a higher temperature. 44° C. can be endured for 10 to 15 minutes without discomfort. Afterwards the patient is put in a bath of 35° C. for eight minutes and douches the diseased hips with water at 40° to 44° C. This procedure can also be combined with swimming baths, and very often the drinking of large quantities of water is advisable. Electrotherapy, the galvanic current applied directly to the nerves for from 4 to 8 minutes, highest 3 to 5 milliamperes. Also the interrupted galvanic current stimulates the muscles in a mild way, holds the tissues in a good condition, and prevents atrophy. The static douche, with positive pole on the painful part, is followed by good results. The apparent anodyne action of faradism in sciatica is due to its alterant action on the muscular tissue, and through that on the circulation. The current should not be increased to painfulness. Surgical treatment: In long standing cases one is often led to make an exploratory incision, lay the nerve bare, and separate some adhesions. In bloody nerve stretching, we find good and bad experiences. This operation is directly contraindicated when neuritis is present, as in these cases myelitis not infrequently follows. There is also a so-called bloodless nerve stretching, wherein the patient is under ether, the thigh is forcibly flexed on the hip joint with the leg extended at the knee, which position is maintained for some minutes. The cure is easier when the patient is not too old and does not suffer from other diseases. The principal thing in the treatment consists in the careful observation of the patient, so that nothing is overlooked. The physician shall at once in the beginning commence with a systematic cure, and, if it does not go forward, seek for his failure, for failure lies somewhere certainly. Exact diagnosis of the condition of the patient is the first and last means of treatment.—*Blätter für klinische Hydrotherapie.*

Treatment of Erysipelas.—As an internal remedy quinine in 4 to 8-grain doses, according to the temperature, may be given three or four times daily, and the following may be used as a local application: Perchloride of mercury 1 grain, lanolin and vaselin, of each, half an ounce.—*The Hospital.*

Acute Appendicitis.—Ochsner says that all practitioners of medicine and surgery, as well as the general public, should be impressed with the importance of prohibiting the use of cathartics and food by mouth, as well as the use of large enemata, in patients suffering from acute appendicitis.—*Journal of the Michigan State Medical Association.*

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HEART CLOT IN PNEUMONIA.

In the older text-books the occurrence of cardiac thrombosis was recognized as one of the dangers in pneumonia, and indeed as a not infrequent cause of death in this disease. At the present time, however, largely owing to the teaching—or rather, we may say, the silence—of pathologists regarding the phenomenon, there is little insistence upon this complication; indeed it is almost ignored by the majority of writers. In an article in the current issue of the *American Journal of the Medical Sciences*, Beverley Robinson notes this fact and quotes a number of personal communications from some of the leading pathologists in this and other cities, showing that there is a general disbelief among them in the frequency or the importance of ante-mortem clot in pneumonia. Clinicians, on the other hand, are still for the most part of the opinion that cardiac thrombosis constitutes a very real danger in pneumonia, and Robinson is himself convinced that this is true. He holds that this complication may be overlooked by reason of the presence of the alarming symptoms due to the extensive pulmonary lesions and the profound toxemia, but the sudden occurrence of grave cardiac symptoms and the rapidly fatal termination of the disease point to it unmistakably. The heart clot, he says, may occur during the acute stage of pneumonia when other symptoms are grave; it may occur just after the crisis, when everything appears hopeful; and it may occur during convalescence, when all danger is seemingly passed. Pulmonary thrombosis also is usually present in connection with the heart clot. In private practice it is often impossible to confirm the assumed presence of heart clot by post-mortem examination; and even when an autopsy is made, the pathologist finds structural changes in the heart muscle to which he attributes the fatal termination, the heart clot being regarded as merely a result of these changes and of minor importance. But Robinson argues that these myocardial changes are probably no greater than in other cases in which death is obviously due to some other cause, and that they are even less pronounced than in some other acute infections, typhoid fever for instance, in which death from the heart is less frequent than in pneumonia.

The importance of this insistence upon the not infrequent occurrence of cardiac thrombosis in pneumonia is in relation to the therapy of the disease. If heart clot is a common, or even an occasional, cause of death in pneumonia, the indication is clearly to reduce the coagulability of the blood. Todd (*New York Medical Journal*, March 20, 1905) recommends six to eight ounces every two hours of a solution of 2½ grains of sodium chloride and 1 grain of potassium bicarbonate to the ounce. The addition of lemon juice makes the mixture more palatable and probably also increases its efficacy. Lemonade itself is useful, and Robinson recommends it, not only as an agreeable refrigerant drink, but also because of its action in diminishing the coagulability of the blood whenever there is reason to dread heart clot. The remedy which he especially urges is, however, ammonium carbonate. In former days this constituted a routine part of the treatment of pneumonia, but it was given chiefly for its stimulant effect. Robinson does not give it for that purpose, regarding alcohol as preferable, but he does look upon it as a valuable prophylactic remedy in relation to heart clot. Quoting from a former communication, he says that keeping the blood fluid is, in the grave forms of pneumonia and where there is extensive pulmonary consolidation, a very important matter, and he adds that he has seen many patients in whom, before death and at the autopsy, he is convinced that heart clot avoided would possibly or probably have meant a life saved.

The evidence of the value of specific medication in pneumonia is too strong to be ignored, and the first duty of the clinician is to attack the disease—to jugulate it if possible, to restrain the activity of the pneumococcus, and to antidote or dilute its toxins. But whatever method may be adopted with this end in view—sweating combined with diuretics and saline infusions, open air, creosote carbonate, the salicylates, etc.—the special dangers of the disease are always to be borne in mind, and one of these, perhaps the most formidable in its suddenness and fatality, is heart clot. To guard against this, as Robinson says, carbonate of ammonium is one of the most efficacious of the remedies at our command.

THE MEDICAL INSPECTION OF SCHOOL CHILDREN.

In all parts of the civilized world the public conscience is awakening in regard to the neglect of the health of the young. Perhaps, however, a more apt mode of expressing this change of front would be to say that the public has become alive to the fact that a healthy population is necessary to the physical, mental, moral, and material welfare of a nation. The latest country to recognize in a practical manner that the good health of her school children is a national asset of great value has been Great Britain. It goes without saying that no country has such good cause to care for the health of her rising generation. The population of Great Britain is now mainly urban, and it is obvious that city life does not tend to preserve the health of the young. Furthermore, the birth rate of Great Britain is steadily declining, so that she has need to keep the fewer children born in good health, not to mention that it is incumbent upon her to rear adults who will be able to produce a healthy stock. The contention that those countries in which the inhabitants live chiefly in towns must use every effort to bring up children in as hygienic conditions as possible is one which requires little insisting upon. It is, in short, a case of national preservation, and the country which can raise the healthiest citizens in body

and mind, in the long run must be the most successful.

Of course, medical inspection of schools is an important factor tending in this direction. Every country in which it has had a fair trial on more or less systematic lines has reaped great benefit from its introduction. Statistics show that the adoption of systematized medical inspection of schools is followed by a considerable decrease in infectious diseases. European countries, especially Switzerland and Sweden, have amply demonstrated this fact. Great Britain is, curiously, behind all nations of the civilized world as regards medical inspection of schools. Even Russia, with more than 90 per cent. of her rural population unable to read or write, has medical inspection of schools, and Chili, Argentina, Servia, and Bulgaria have all a fairly elaborate and effective system of school inspection.

At the International Congress of School Hygiene held recently in London, the subject in which the greatest interest was taken, and, to speak truly, the only one which was keenly discussed, was that of medical inspection of schools. The discussion was carried on by distinguished delegates from all parts of the world, and for this reason was especially valuable, in that the interchange of views threw fresh light on the matter. Although thus far Great Britain has been lethargic, it seems now that she intends to move with decision, albeit with discretion. A bill for the medical inspection of schools in Great Britain has passed already the House of Commons, and will undoubtedly become law during this session, that is to say, before the end of this year. Hand in hand with inspection will come into force in the elementary schools of Great Britain the teaching of hygiene. Sir John Byers, in an address delivered before the Congress of School Hygiene, sketched a scheme of such teaching, which will probably be closely followed by the framers of the bill. He said: "Children while at school should be taught both by example and precept the simplest rules of how to live, the necessity for fresh air, and for pure water, and for healthy homes, and the relative nutritive value of various kinds of foods which are ordinarily used. They should be instructed in the simple and ordinary laws of health and temperance, and in the importance of such matters of personal hygiene as cleanliness, the care of the skin and of the mouth (not more than 3 per cent. of all children of school age in England have sound teeth), how to deal with sudden emergencies, and how much can be done to prevent the onset and spread of infectious disease."

Great Britain will indeed, to a great extent, follow the lead of New York City in her scheme for the care of school children. This advance in school hygiene will be watched with great interest in this country, for, as pointed out above, no country presents so favorable a field for an experiment of this nature as does Great Britain.

TREATMENT OF RACEMOSE ARTERIAL ANGIOMA.

This form of neoplasm occurs more frequently in the arteries of the head than elsewhere, and is characterized by a tumor mass, consisting of newly-formed, dilated, convoluted, thickened, and pulsating arteries. Microscopically, the media and intima, both of the newly formed and already existing vessels, are found to be thickened by reason of newly formed connective and elastic tissue. The clinical features are usually marked; at the periphery the dilated arteries are visible and can be distinctly felt, often feeling like a bundle of earthworms. The tumors pulsate and the skin over them is thick or thin, with a light blue, or even dark blue color shining through it. They rarely give rise to difficulty in diagnosis, arteriovenous aneurysm and pulsating sarcomata being excluded by the presence of separate elastic tubes filled with blood. While these angioma are, as a rule, not accompanied by any subjective symptoms, their removal is indicated on account of the disfigurement they cause, their tendency to enlarge, especially during pregnancy, and because they are easily injured by combing or scratching, when they give rise to extensive hemorrhage.

The different methods of treatment of these growths have been discussed by Siegmund, Heyne, Krause, and Körte, and all agree that those methods which limit the blood supply, such as long-continued pressure at intervals on the afferent vessels, ligation of the afferent vessels, and ligature of the vessels of the neck do not produce permanent results, as the tumor also receives some blood by way of the bones, and a collateral circulation is soon established. Another method consists in an attempt to bring about obstruction of the blood-vessels by electropuncture, or by the injection of ferric chloride or alcohol, all of which produce an inflammatory reaction in the connective tissue, which in turn may produce sufficient pressure on the vessels to close them. This may be tried when the growth is too large to be extirpated or when the patient refuses operation, but recurrences may take place, and the treatment is long and tedious. The third group of methods aims at the direct destruction and removal of the diseased vessels. If this is attempted by actual cautery or acids, fatal hemorrhage may follow the removal of the sloughs. The only and most effective mode of treatment is dissection with the knife.

Control of the hemorrhage is the main difficulty encountered during extirpation, and various methods have been devised to diminish the amount of bleeding. These are discussed in detail by W. Körte in the *Deutsche medizinische Wochenschrift* for August 29, 1907. He found that an elastic head bandage was of little avail in most cases, while previous ligation of the main stem which supplies the tumor greatly diminishes the bleeding; if it is an angioma of the head the external carotid is tied. Of course, this does not empty the tumor entirely as a collateral circulation sets in, and as some of its content is supplied through the skull. In addition, he passes a mattress suture through the skin around the entire tumor, about two centimeters from its base; the growth is then extirpated within this suture, when the latter is removed and the bleeding vessels are ligated, the defect being closed by bringing the edges of the wound together. If the growth is very large the skin edges cannot be brought together and the skin over the tumor must be preserved. After ligating the main trunk as before, the mattress suture is not passed all around the tumor, but in horseshoe-shaped fashion, and

digital compression is made at the point (pedicle of the future skin flap) where the mattress suture has been omitted. An incision is then made down to the periosteum, just inside the suture line, when skin and tumor are rapidly dissected up together, the bleeding from the bone being easily controlled by gauze and pressure. The angioma can then be slowly dissected from the skin with practically no bleeding, while, if the skin were first dissected from the tumor before the latter was raised from the periosteum, the bleeding would be more profuse. The mattress suture is then removed and the vessels tied as before, and the skin flap is sutured in place. Körte usually also extirpates the afferent vessels as well, but thinks the procedure unnecessary, as they get smaller spontaneously after removal of the main tumor. Extensive racemose angioma on the extremities offers greater difficulties, as the tying of the large number of vessels which require this may give rise to gangrene, so that amputation must be considered in the treatment of such tumors.

Prognosis of Acute Poliomyelitis.

Until not so very long ago it was the general belief that a patient rarely died from infantile paralysis, and even to-day we find the opinion expressed in most text-books that acute anterior poliomyelitis is accompanied by little if any danger to life. The first one to oppose this view was Medin, who, in 1890, reported an epidemic with several deaths. I. Wickman, writing in the *Zeitschrift für klinische Medizin*, No. 63, 1907, agrees with Medin, and bases his opinion upon more than one thousand cases which occurred during an epidemic in Sweden. Of 1,025 patients, 868 developed a paralysis, while the 157 nonparalytic cases were considered abortive forms of the disease; in all 159 died, 14 after the second week of the disease of some intercurrent trouble, leaving 145 who died before the end of the second week, a mortality of 12.2 per cent. When we consider that many of the abortive cases in which recovery took place were not reported, this figure seems too high; on the other hand, if, as is usual in statistics of this kind, those cases only were considered in which paralysis developed, the figure would rise to 16.7 per cent. It can thus readily be seen that acute poliomyelitis is not a benign disease. The age of the patient also plays some part in the prognosis. Here again the findings during this epidemic were not in harmony with the general opinion that the older the child the better the prognosis. Wickman found that the morbidity diminished as the mortality rose, and that the older the patient the greater the mortality. He gives a table showing the death rate at each age, and then sums up by stating that in children under twelve the death rate averaged 12.2 per cent., while between the ages of twelve and thirty-two it averaged 27.9 per cent. Cases above thirty-two were too few in number to be included in the statistics. These figures show that the prognosis was better in young children than in older ones and adults; more died on the fourth day of the disease than on any other, the deaths on subsequent days diminishing rapidly in number, so that the prognosis as to life was good after the first week of the disease. As regards paralysis, Wickman believes there are many abortive cases without paralysis, and that while many cases of paralysis do not recover absolutely, a great many more recover completely than is generally believed to be the case. Most of Wickman's conclusions are contrary to the views usually held, but are based on a study of 1,025 cases, and are therefore worthy of consideration. There is hardly a disease in which the physician is so often subject to unjust criticism, and a knowledge of the prognosis is important, so that the relatives of the patient can be told the possibilities as to life and permanent recovery.

The Relation of Fat to Caisson Disease.

It has been stated that tunnel workers of spare build are much less liable to suffer from caisson disease than those inclined to the formation of fat, but hitherto no explanation of this difference in susceptibility has been offered. In a paper read some time ago before the Royal Society (*The Lancet*, September 7, 1907), Dr. Horace M. Vernon described some interesting experiments which offer a possible reason for this difference and also suggest an explanation of the mode of occurrence of the disease. He found that fats absorb air very readily, dissolving five times as much nitrogen as an equal volume of water or of the blood plasma, and he ventures the opinion that the special tendency of the fat-containing tissues (such as subcutaneous tissues, spinal cord, and peripheral nerves) of caisson workers and divers to suffer injury from the liberation of gas bubbles after rapid decompression is dependent on this great solubility. This special liability of adipose tissue to injury on rapid decompression is perhaps a resultant of two factors —its greater solvent power and relatively limited blood supply. These factors would reinforce one another, since more gas would be dissolved and its removal would be less easy than in other tissues. The rate of flow of the blood supply is also a factor. Hill and Greenwood (Proceedings of the Royal Society, Vol. LXXIX., 1907) found that on exposing themselves to a pressure of from 30 to 45 pounds their urine became saturated with the theoretical amount of nitrogen in from 10 to 15 minutes. This quicker saturation must be due to the blood flow through the kidney being much more rapid than that through the spinal cord, and very much more rapid than that through adipose tissues. But even, Vernon says, if it were as rapid through fat-containing tissues as through the kidney, the fats, in virtue of their greater solvent power, would take longer to become fully saturated than the fluids of non-fatty tissues.

A Rare Affection of the Gluteus Maximus Muscle.

In a recent issue of *Russkii Vratch*, M. M. Kouznetzoff describes a rare condition of the gluteus maximus muscle, in consequence of which the patient, by a voluntary contraction of the muscle, is able to slip its anterior fibers over the trochanter major, producing a crepitus and an audible click. The condition may easily be mistaken for another affection, namely, habitual voluntary dislocation of the hip. The author quotes the two reported cases of Ferraton and Baver *in extenso* and adds two cases of his own. Both of these were in soldiers, and the peculiar condition interfered with their work, causing pain and disability. The relations of the great trochanter to the Roser-Nelaton line and to Bryant's triangle were normal; all motions in the hip joint were normal and free; the click could be felt to be superficial when the hand was placed over the trochanter and the patient contracted the muscle;

at times the fibers of the muscle and its tendon could be felt gliding over the trochanter. Thus habitual dislocation of the hip was excluded. The cause of the condition is probably to be found in changes in the tendon of the muscle and abnormal mobility of its insertion.

News of the Week.

Wholesale Vaccination in Porto Rico.—Shortly after the occupation of Porto Rico by the American troops, a crusade against smallpox, endemic in the Island, was undertaken by the Army surgeons. Every inhabitant who could not show a good scar was vaccinated, with the result that there has not been a death from the disease reported since 1900. Recently, however, a number of cases of varioloid have occurred, and the authorities have decided upon another general vaccination. Vaccine sufficient for 600,000 inoculations has been ordered and the work of protection will be begun in the Guayama district, where the disease chiefly prevails.

Typhoid Fever at the Trenton State Hospital.—Between April 8 and August 23 there were 80 cases of typhoid, 15 fatal, in the New Jersey State Hospital at Trenton. Among those attacked were 23 employees and other residents in dwellings on the hospital premises. In a report to the State Board of Health by Dr. Henry Mitchell, Secretary, of an investigation undertaken to determine the cause of the epidemic, it is stated that investigations concerning the food supply, including milk and water, were negative, and the conclusion was reached that the disease was transmitted directly from patient to patient and through the agency of utensils and food infected within the building. This conclusion is justified for the following reasons: (1) The disease first appeared in the west wing of the main building and spread to other inmates in this wing and of other portions of the main building, but not a single case occurred in the annex, indicating that the infection was not conveyed by milk or water, for the supply of both of these articles was from the same sources for both buildings. (2) The spoons, forks, cups, etc., used in the dining rooms were washed by the insane inmates, without boiling, and, in the course of the epidemic, every utensil in the building probably became infected, thereby exposing the food which entered the building to infection as soon as it was received. (3) The filthy habits of many of the insane inmates of the hospital probably caused infected discharges to be generally distributed in the bath room, upon the furniture, doorknobs, and other surfaces touched by the hands of the infected persons. (4) Inquiry has shown that communication between the infected kitchens of the main building and the dwellings of employees, where cases of typhoid fever occurred, was frequent.

Typhoid Fever at Gouverneur Hospital.—Nine of the nurses and attendants at Gouverneur Hospital in this city recently came down with typhoid fever. They all ate at the same table, and the infection is thought to have been conveyed by some article of diet, probably a salad. All of the patients have been doing well and are expected to recover.

Tuberculosis in Iowa.—The Iowa Society for the Study and Prevention of Tuberculosis has discovered that tuberculosis is far more prevalent in the dairy district than in southern Iowa. This is held to support the theory that contact with dairy cows is a fecund source of tuberculosis in man. The Society will report its findings to the legislature next session and solicit an appropriation for stamping out tuberculosis in the dairy herds of the State. The Society has made claim to the sum of $5,000 appropriated by the legislature last spring for the purpose of compiling statistics and securing information regarding the progress of tuberculosis, the money to be expended under the direction of the State Board of Control. The Society desires to use part of the money to pay the expenses of their lecturer in the dissemination of information regarding the treatment and prevention of consumption. The Board of Control, it is said, wishes to use the money to pay for a new investigation of tuberculosis, and holds that that was the intent of the legislature in making the appropriation.

Insanity in Great Britain.—According to the annual report of the British Lunacy Commissioners, insanity is increasing to a considerable extent in that country. At the beginning of this year one out of every 282 persons in England and Wales was reported to be insane, whereas ten years ago the ratio of insane persons was only one to 314. From 1869 to 1906 the population of England and Wales increased 55½ per cent., while the insane increased 133 per cent. A significant fact brought to light by the report is the spread of senile dementia, which alone accounted for over 38 per cent. of last year's fresh lunacy cases. In this connection it is suggested that modern medical science is doing more for the body than the mind, so that the former is kept alive beyond the time at which the latter succumbs to the increased demands of the present mode of life.

Finger Prints in Banking.—The finger-print method of identification has been extended to commercial uses by the Postal Savings Bank of the Philippines at Manila. This bank has recently issued a series of stamp deposit cards on which are spaces for stamps of different values to be affixed. When the depositor has stamps to the value of one peso on the card it is exchanged at the bank for a deposit book showing the amount to his credit. Opposite the lines for the owner's signature and address is a square ruled off for the reception of his thumb print, so that, even if illiterate, depositors may readily be identified.

Milk Pasteurization.—The fifteenth season of the Nathan Straus distribution of pasteurized milk ended on September 16 with the closing of the booths in the parks and on the recreation piers. From the seventeen stations maintained by Mr. Straus, 2,917,330 bottles and 1,222,048 glasses of milk were sold or given away. Six of the depots will be kept open during the fall and winter as follows: 151 Avenue C, 47 Monroe street, 441 West Thirty-third street, 329 East Fifty-ninth street, 303 East 111th street, 38 Macdougal street. The new five-story pasteurizing plant in course of erection by Mr. Straus at 348-350 East Thirty-second street will be in operation by next spring. At the International Pure Milk Congress held in Brussels last week, the use of raw milk for infant feeding was officially deprecated and pasteurization was advocated.

Honors for American Medical Men.—The Mary Kingsley Medal, institute' by the Liverpool School for the Study of Tropical Diseases to commemorate Miss Mary Kingsley, the African traveler, has been awarded, among others, to the following: Dr. Charles Finlay of Havana and Col. W. C. Gorgas, U. S. A., Chief Sanitary Officer of the Panama Canal Zone, for their work in connection with the transmission and prevention of yellow fever, and Dr. Theobald Smith for his investigations on Texas cattle fever.

An Operation on King Alfonso.—The King of Spain recently submitted to an operation for the removal of adenoids from the nasopharynx. The removal was accomplished satisfactorily by Dr. Moure of Bordeaux, assisted by Drs. Alabern and Castaneda, and the operation was witnessed, for reasons of State, by Premier Maura and the Duke of Sotomayor, the Grand Chamberlain.

An Explosive Poultice.—A man in Albany recently applied a gunpowder poultice to reduce an inflammatory swelling of his arm, and when a friend struck a match to light his cigar the head flew off and ignited the poultice. The result was a degree of counterirritation rather in excess of the therapeutic indications.

A Crusade Against Feminine Cigarette Smokers.—A Chicago lady has come to New York to inaugurate a crusade against cigarette smokers of her own sex, and has begun by asking the members of the Colony Club, the new woman's club in this city, to sign a pledge to abstain from all intoxicating liquors as a beverage and from the use of tobacco in any form.

To Build a Hospital at Algonquin.—Preliminary arrangements have been made to begin the construction of a permanent group of buildings for the housing of the Chicago Tribune's Summer Hospital at Algonquin. Recently the hospital medical staff, with Superintendent E. P. Bicknell, of the Chicago Bureau of Charities, went over the ground and selected what, in their opinion, are the two best sites for the erection of a permanent plant. The hospital is to be built on plans which contemplate the erection of a series of buildings, which, when completed, will represent the highest type of modern sanitary hospital construction. In general, the hospital will consist of a group of cottage-like structures, each a complete building in itself, and all connected by a covered colonnade.

Chicago Hospitals Assessed.—Assessments have been announced against hospitals in Chicago amounting to more than two million dollars, the tax on which, it is said, will approximate $27,000. This assessment is the result of a decision recently arrived at that hospitals shall come within the scope of the taxation law.

Indiana University School of Medicine.—The Indiana University and the State College of Physicians and Surgeons, Indianapolis, on account of affiliation, have dropped these names, and that of the Indiana University School of Medicine has been substituted. The Board of Trustees of the State University is to have full control of the medical college. There is to be no change in the course of instruction, nor in the make-up of the faculty. The first two years of work are to be given at the State University, Bloomington, and the last two at Indianapolis.

A New Medical School in Denver.—The Westminster University, an institution under the control of the Presbyterian Church in Colorado, has recently established a Medical Department which will be located in Denver. The University had no charter for a medical school, but has taken in the Homeopathic College, a chartered school, and will add courses in regular medicine and in eclectic medicine, selecting its faculty from members of the three schools of practice.

New Building for Tulane.—It is proposed to erect a new building for the Medical Department of Tulane University, New Orleans. The building will be on the University campus, at a cost of $150,000.

College of Medicine, Syracuse University.—The following changes in the faculty of the college are announced: Dr. Frank P. Knowlton, at present associate professor of physiology, has been advanced to the head of the department of physiology. Dr. Harold Dickenson, Sr., at present an Associate in Anatomy at the Wistar Institute of Anatomy, Philadelphia, has been elected to the chair of Anatomy, and as director of the Anatomical Laboratory at Syracuse University, to take the place formerly held by Dr. George M. Price. Dr. Gustave M. Meyer, for four years assistant to the chair of Physiological Chemistry at Columbia University, New York, has been elected to the chair of Physiological Chemistry in the Medical College of Syracuse University. Dr. Meyer succeeds Dr. George A. Hanford, resigned.

Association of Burlington R. R. Surgeons.—At a meeting held in Denver on August 29, a society of railway surgeons was formed with the title "Chicago, Burlington and Quincy Association of Railway Surgeons." The election of officers resulted in the choice of the following: *President,* Dr. T. P. Livingston, Plattsmouth, Neb.; *Vice-President,* Dr. B. B. Davis, Omaha; *Treasurer,* Dr. H. Savage, Sioux City; *Secretary,* Dr. George F. Roehrig, Denver. On the evening of August 29, a complimentary banquet was tendered Dr. T. P. Livingston of Plattsmouth, Neb., the retiring medical director of all the Burlington lines west of the Missouri River.

Ohio State Medical Association.—The sixty-second annual meeting of this association was held at Cedar Point on August 28-30, under the presidency of Dr. B. R. McClellan. The election of officers resulted in the choice of the following: *President,* Dr. Charles L. Bonifield of Cincinnati; *Vice-Presidents,* Drs. D. W. Steiner of Lima, I. S. McClellan of Bellaire, A. B. S. Bowman of Akron, and H. F. Sutton of Zanesville; *Secretary,* Dr. J. H. J. Upham of Columbus; *Treasurer,* James D. Duncan of Toledo.

The National Association of Negro Physicians held its annual meeting in Baltimore the last week in August, under the presidency of Dr. F. N. Morrill. The meeting was opened by an address of welcome by the Mayor of Baltimore. The election of officers resulted in the choice of Dr. W. H. Wright of Baltimore, *President,* and Dr. Kenney of Tuskegee, *Secretary.* The next annual meeting will be held in New York in August, 1908.

"The Canadian Journal of Medicine and Surgery" for September is the annual illustrated number, published this year in connection with the meeting at Montreal of the Canadian Medical Association, which took place on September 9-11. In addition to the usual number of scientific contributions, there are forty pages of half-tone illustrations of the hospitals, sanatoria, and public institutions of Canada, as well as a number of views showing some of the beauty spots of the Dominion.

Dr. Thomas F. Harrington has been appointed director of physical training and athletics in the Boston public schools; Dr. Margaret E. Carley was appointed at the same time supervising nurse of the schools.

Obituary Notes.—Dr. Robert J. Young of Abbeville, La., died on August 31, at the age of nearly forty-two years. He was born in Abbeville on October 10, 1865, his father, Dr. F. D. Young, being one of the leading physicians of the parish at the time. He was graduated in arts from Grand Cotean College, and studied medicine first at Tulane University and later at the Hospital College of Medicine, Louisville, from which he received his de-

gree. Not only his father, but four of his brothers, were medical practitioners.

Dr. John Sidney Dyer of Boone, Iowa, died August 31 at St. Anthony's Hospital, Denver. He was born March 10, 1882, at Boone, and was graduated from the Northwestern University Medical School, Chicago, in 1905.

Dr. Charles J. Sorsen of Calumet, Mich., died in London, September 1. He was born in Finland, March 12, 1870, and was graduated from Rush Medical College, Chicago, in 1898.

Dr. Alexander Adler died in San Francisco, September 4, after an illness of several weeks' duration. He was a graduate of the University of California in the class of 1903.

Dr. Frederick J. Beckwith, health officer of New London, Conn., died of heart disease while making a professional visit, on September 2. He was born August 23, 1855, and was graduated from the Harvard Medical School in 1882.

Dr. Samuel Lewengood of this city died September 10 after a short illness. He was forty-five years old. Dr. Lewengood had practised medicine since 1882, when he was graduated from the Bellevue Hospital Medical College. He was a member of the American Medical Association and of the New York State and County Medical Societies.

Dr. A. Warner Shepherd of Brooklyn died at his summer home at Fort Hamilton on September 8, at the age of seventy-five years. He was born in Nashua, N. H., and was a graduate of the Long Island College Hospital in 1866.

Dr. Edward P. Nichols of Killingworth, Conn., died September 3, at the age of eighty years. He was a graduate of the College of Physicians and Surgeons, New York, in the class of 1851. He represented the town in the State Legislature for several successive terms, and was for twenty years medical examiner of Killingworth.

Dr. John H. Swasey of this city died in Portland, Me., on September 13, in his fifty-eighth year. He was a graduate of the College of Physicians and Surgeons, New York, in the class of 1875. He was a member of the New York County and State Societies, of the New York Academy of Medicine, and of the New York Pathological Society.

Obituary.

FRANCIS H. MARKOE, M.D.

NEW YORK.

After a painful illness of several months' duration, Dr. Francis Hartman Markoe of this city died on September 13 of aortic aneurysm. He was a son of the late Dr. Thomas Masters Markoe, and was born on March 20, 1856. Dr. Markoe was graduated from Princeton University, and received his medical degree from the College of Physicians and Surgeons in 1879. He at once became a member of the faculty of the school, and maintained this connection until the time of his death. From 1880 to 1884 he was an assistant demonstrator of anatomy; from 1884 to 1887 he was a demonstrator; from 1887 to 1900 he was a clinical lecturer in surgery; from 1900 on he was professor of clinical surgery. Since 1880 he had been attending surgeon to St. Luke's Hospital, and he had also been consulting surgeon to the New York Orthopedic Hospital and attending surgeon to the New York and Bellevue Hospitals. Dr. Markoe was a member of the New York Academy of Medicine, the New York County and State Medical Societies, the New York Pathological Society, the New York Surgical Society, the New York Medical and Surgical Society, the Physicians' Mutual Aid Society, the Society for the Relief of Widows and Orphans of Medical Men, and the American Surgical Association. He was also a member of the University, Union, Metropolitan, New York Yacht, Century, and Princeton clubs.

To his rare technical skill as a surgeon, Dr. Markoe joined unusual soundness of judgment and breadth of view gained through years of experience in general practice. For his students and assistants he was an example, not only of the ideal instructor and operator, but also of the highest type of manhood, while his patients found in him a wealth of sympathy and charm of personality that rendered his ministrations doubly helpful.

JAMES CARROLL, M.D.

MAJOR AND SURGEON, U. S. ARMY.

Dr. James Carroll died in Washington, on September 16, of a cardiac affection from which he had suffered since 1900. While serving with Major Reed on the yellow fever commission in Cuba, he voluntarily submitted to the sting of a mosquito which had previously bitten three persons having yellow fever. Four days later he was taken with a severe attack of the disease, thus confirming Finlay's theory of the rôle of the mosquito in spreading yellow fever. The disease did not kill him, as it did his colleague Lazear, but it left him with a permanently crippled heart.

Dr. Carroll was born in England in 1854, but came to this country in early life. In 1874 he enlisted as a private in the U. S. Army, and was soon promoted to be a sergeant. He was for fifteen years a hospital steward, studying medicine in his leisure moments. In 1891 he was graduated from the Medical Department of the University of Maryland, and then took post-graduate courses in pathology and bacteriology at the Johns Hopkins Hospital. He was then appointed contract surgeon, but in 1902, in recognition of his services on the yellow fever commission, the age limit was waived and he was allowed to appear for examination for admission to the Medical Corps, and was appointed first lieutenant and assistant surgeon. In March of the present year Congress passed a bill authorizing the promotion of Dr. Carroll to be major and surgeon in the regular army. Owing to his cardiac disability, Dr. Carroll was not fit for active service, and was appointed curator of the Army Medical Museum.

It is pleasant to think that Dr. Carroll's promotion came in time to make happy the last months of his life and to give him the gratification of knowing that his services in the cause of science and of public health were recognized and appreciated by a grateful country.

Physicians' Fees in France.—At the present day in the French provinces the fee for a visit is from three to five francs, with an additional franc per kilometer of distance from the doctor's house. In Paris the fees vary from three francs in the workmen's quarters to five francs in the better parts of the town. A general practitioner in Paris, in a good quarter, often earns £1,200 a year. There are some 200 who earn £1,000 a year; 400 to 500 who make from £600 to £800, and 2,000 who earn from £320 to £600. In the provinces, except in the case of beginners, the minimum seldom falls below £400 for a doctor who has a horse and carriage to command. Those who have a considerable reputation, and who work hard, may make from £800 to £1,200 a year. For consultations the usual fee to hospital physicians and surgeons is £2, and to those who have the title of "professor" £4.—*British Medical Journal.*

Correspondence.

THE HYPNOTIC ACTION OF APOMORPHINE.

To the Editor of the Medical Record:

Sir:—In an article by Dr. Rosenwasser of Newark, N. J., in your issue of July 27, it is stated: "To Dr. Charles J. Douglas of Boston belongs the credit of first calling the attention of the medical profession to the fact that apomorphine in non-emetic doses is an exceedingly valuable hypnotic."

In your issue of September 14 Dr. Tuckerman expresses the opinion, based on the records of a case treated by his father, that the hypnotic action of apomorphine was "fairly generally known" several years prior to the first publication of papers on this subject by Douglas (1899).

Immediately after the publication of my first paper on "Apomorphine as a Hypnotic," I sent a circular letter to a number of prominent physicians asking for information on the subject. I received over fifty replies, but not one of these physicians had ever heard that apomorphine had any hypnotic properties. In the edition of Potter's Materia Medica published that year (1899) occurs this sentence: "Apomorphine, though a derivative of morphine, is neither hypnotic nor narcotic in any degree" (p. 304). In a careful examination of the standard medical literature of that period I failed to find any dissent from this opinion. In the literary contest of "Merck's Archives" my paper on this subject received the $50 prize, Dr. George M. Gould of Philadelphia being the chairman of the committee of award.

If Dr. Tuckerman's father knew prior to 1899 that non-emetic doses of apomorphine would produce sleep, he was very successful in keeping it a secret from the rest of the profession, for it certainly was not "fairly generally known" before that date. C. J. Douglas, M.D.

Dorchester, Mass.

THE INTERNATIONAL CONGRESS OF PSYCHIATRY AND NEUROLOGY.

(From Our Special Correspondent.)

Amsterdam, September 4, 1907.

The International Congress of Psychiatry, Neurology, Psychology, and Nursing of the Insane was duly opened on September 2 in the *Concertgebouw* before a large audience in the presence of the Queen of Holland and the Prince Consort. The Minister of Justice, Dr. E. E. Van Raalte, explained the purpose and scope of the Congress and officially declared it open. He was followed by the president of the Congress, Prof. G. Jelgersma, M.D., who made the opening address. Immediately before the entrance of the royal pair and their attendants, a choir of over 250 voices sang the Holland national hymn, and during the afternoon sang selections from Händel's oratorios, Joshua and The Messiah.

At the close of Prof. Jelgersma's address Queen Wilhelmina and Prince Hendrik withdrew to a small parlor, attended by the ladies in waiting and many military attachés, where a very brief reception was held, at which some of the delegates were presented to her majesty. After the departure of the royal party from the building the proceedings of the opening session were resumed. The president called the roll of countries represented, and a delegate responded briefly for each, with few exceptions. MacDonald of New York, chairman of the U. S. national committee, having been prevented from reaching Amsterdam before the morning of the opening day, Beyer of the U. S. Navy was selected to respond for America. Bechterew of St. Petersburg responded for Russia, and Shima of Kioto for Japan. Perhaps the wittiest and most enjoyable response was made by A. Marie for France. An interesting circumstance known to few of the delegates is the fact that a convention of anarchists is being held in this city, including representatives from Poland, Germany, Russia, and all the supposed hot-beds of the foes of government. Extraordinary precautions have been taken by the authorities during the presence of the Queen in this city. Scattered here and there through the audience in the concert hall were numerous detectives and policemen in plain clothes. Two of these protectors appeared at each side of the great organ. Evergreen trees were placed at corresponding points in the side galleries of the hall, about fifty feet back of a line drawn through the chairs placed for the royal pair, and no one was allowed to go forward of these trees in the galleries. They, as well as the pots of palms and decorative plants, and also the brilliant mass of roses that formed a broad border along the edge of the large stage, were searched by the police for possible explosives. The royal party showed none of the nervousness that was felt; but it is an admirable characteristic of the Dutch to show, and in fact to permit themselves, no perturbation even in the face of actual danger. Many a delegate would have felt no surprise if some of his long-haired or scowling confrères had been apprehended as anarchists, so astonishing are the resemblances of genius.

The work of the sections is half done. Some changes from the earlier program have been made, and many valuable papers and discussions have been enjoyed. Mabon's paper on "The Open-air Treatment in Psychiatry" was read by MacDonald of New York and received with much interest. MacDonald, Hurd of Baltimore, Hughes of St. Louis, and Blumer of Providence took part in the discussion of the "Organization of Hospitals for the Insane and State Supervision," an able paper read by Ruysch of The Hague.

A most interesting paper on "The Reform of Nursing of the nsane in the United States," by Cowles of Boston, was read by Blumer of Providence. Shuttleworth and Seymour Tuke of London, and Ley of Belgium, contributed valuable papers on the topic of nursing the insane. The American delegates actually in attendance upon the convention are Beyer and White of Washington, Blumer of Providence, Brush and Hurd of Baltimore, Camp and Keen of Philadelphia, Southard of Cambridge, Wolfe of Norristown, Hughes of St. Louis, and MacDonald, Robinovitch, Ferris, Gregory, and Jelliffe of New York.

The perfect organization, smooth progress, and absolute care of all details which characterize the convention are due in the largest measure to the very efficient secretary, Dr. Van Wijenburg, with Van Deventer and several active and efficient assistant secretaries.

The broad hospitality and courtesy shown by the Burgomaster and also a number of ladies who received the delegates at their first social gathering added greatly to the social success of the Congress.

OUR LONDON LETTER.

(From Our Special Correspondent.)

PLAGUE PREVENTION—CROONIAN LECTURES—INOCULATION SUCCESS—NEED OF A SPECIAL SERVICE—MALARIA IN MAURITIUS.

London, August 30, 1907.

It is only natural that the King's letter and the Indian Secretary's despatch, reported in my last week's letter, should have raised the subject of plague to a more important place in the public view than had been accorded to it. For unquestionably the Indian Government needs the support of the home authorities and of the general public in its efforts to combat the epidemic. It is very unfortunate that the cooperation of the native population is so difficult to obtain and that too often the efforts of sanitarians have been frustated by prejudice. Still, notwithstanding this, the Indian government has not been insensible of its obligations, and it is hardly fair of newspaper critics who have previously paid no attention to the matter to denounce both home and Indian responsible authorities as unequal to the situation the moment the King's letter arouses them to the tragic importance of the question they have allowed to be smothered by partisan politics. One must, however, admit as reasonable the doubt expressed by the Indian Secretary's despatch to the Viceroy as to "whether everything that can be done has been done," and further, "whether the last word of medical science and administrative skill has really been said." The despatch goes on to express a desire that no effort should be spared to arrest the spread of the epidemic by any means acceptable to the people, and adds that within reasonable limits of cost any proposals made for this purpose will be supported.

What has been done and what can be done are points which were treated in his recent Croonian lectures at the College of Physicians by Dr. W. J. R. Simpson, an acknowledged expert who was employed by the government as a commissioner to inquire into the Hong-Kong epidemic. He referred to a paper he submitted to the first Indian Medical Congress (1894) and the discussion thereon which resulted in the proposals by a deputation to the government to establish a special sanitary service of medical persons trained in the Indian colleges in preventive medicine. This was two years before the present epidemic broke out, when, as the service had not been organized, laymen had to be employed, and Dr. Simpson thinks this fact accentuated the opposition of the natives. He accorded the fullest credit for the efforts made to check the outbreak, but found the measures adopted too much actuated by the view that infected persons and clothing were the chief agents in disseminating the disease. He directed attention

to the way in which Madras has escaped for ten years where the sanitary administration has been left to the control of Col. King, I.M.S., who has pursued an active policy fully supported by the local government.

Is it possible to deal with plague as it now exists in India by effectual measures applicable to Hindus and Mahomedans and their mode of life? To this question Dr. Simpson answered yes. But the sanitary conditions have to be taken as they exist and they are similar to those of Europe in the fifteenth century, besides which the habits, prejudices, and religious scruples of the people must be considered. It is impossible suddenly to change the thoughts and habits of the people, or the condition of their dwellings, or their dislike of removal to hospitals. But these communities cannot defend themselves against plague without the intervention of government. Many schemes which have been proposed would take years to carry out. Meantime the people are perishing. It may be taken as an axiom, said the lecturer, that without a specially trained agency to direct and control the essentials are forgotten or misapplied and often useless measures are adopted. Without this agency the blind are leading the blind. It is pitiable to read some of the suggestions made, adopted, and carried out in good faith as likely to check the epidemic. Professor Simpson went on to show that an organized staff and a policy are the first essentials for combating plague and what are the measures which should be adopted to protect healthy districts and to deal with infected localities. As to these last he declared the only measures on a large scale were inoculation, evacuation and disinfection of dwellings, and destruction of rats. As to the first he cited the success of the splendid inoculation campaign in 1902 in the Punjab. It was planned to inoculate 7,000,000, but time and organization did not permit all this. Still half a million were inoculated and the mortality reduced to one-twelfth of that of the non-inoculated, and so 13,000 lives were saved in that season.

Inoculation and the evacuation of an infected locality, the lecturer declared, would stop any epidemic, and evacuation was necessary in a village in which no means of disinfection with rat destruction existed. But the first thing required was the specially trained plague service, organized on correct lines and on a liberal scale. This he concluded must be done quickly if more stupendous disasters are not to follow those of the present year.

Malarial diseases have been so excessively prevalent of late in Mauritius that Major C. E. P. Fowler, associated professor in the Royal Army Medical College, has been appointed to inquire into the matter.

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

SEVENTH ANNUAL MEETING OF THE SCANDINAVIAN MEDICAL CONGRESS—PROSTATIC OPERATIONS—REMOVAL OF MALIGNANT GROWTHS OF THE ESOPHAGUS—INFLUENCE OF LUMBAR ANESTHESIA IN THE UTERINE FUNCTION—TRYPSIN IN CANCER—X-RAY DIAGNOSIS OF SINUS DISEASE—FIFTIETH ANNUAL MEETING OF THE DANISH MEDICAL ASSOCIATION—FINSEN LIGHT TREATMENT OF LUPUS.

COPENHAGEN, August 29, 1907.

At the recent seventh annual meeting in Christiania of surgeons from Denmark, Finland, Norway, and Sweden many interesting subjects were discussed. The most important topic chosen was perhaps the question of prostatectomy as relief operation in urine retention caused by hypertrophy of the prostate. Here Dr. Gundersen, a Norwegian colleague now practising in La Crosse, U. S. A., advocated prostatectomy by the perineal method, having himself operated successfully in forty cases. He strongly recommended Young's technique. Dr. Jewell of Christiania preferred the suprapubic way, Freyer's operation. Prof. Th. Rovsing of Copenhagen would perform prostatectomy only in a few strictly selected cases. He thought that too little attention was generally paid to the important physiological function of the prostate by those who have made a routine operation of prostatectomy. The prostate was necessary to preserve the sexual origin, and it was not to be treated as a matter of no consequence whether or not a man became impotent at the age of say fifty or sixty. There were also on record cases of insanity occurring after prostatectomy had been done. In most cases, where an operation was necessary in order to give the patient relief, he performed a suprapubic cystostomy and had through this opening a Pezzer's catheter à demeure. By means of this little and innocuous operation he had enabled more than one hundred patients to lead a happy and contented life. In certain forms of hypertrophy, of which he gave an exact description, he had performed vasectomy (somewhat less than 100 patients).

At the same meeting Prof. Tscherning of Copenhagen demonstrated an operation he had devised for the removal of malignant new growths of the upper part of the esophagus and the adjacent part of the hypopharynx. The new feature about his method is that he splits both the anterior and the posterior wall of the larynx and of the upper part of the trachea by a longitudinal incision in the middle line, thus avoiding a lesion of the nerves, vessels, muscles, etc., of the lateral regions of the neck. The tryoid bone is also divided in the middle line. Retractors are then inserted on the pharyngeal side of the divided cartilages, and it is now very easy to evert the whole of the mucous membrane of the hypopharynx and of the upper part of the esophagus. As all incisions are made in the middle line, the bleeding is practically nil, and facility of inspection of the region in question afforded by Tscherning's operation is just as great as if a laryngectomy had first been performed, and far greater than that attained by lateral or transverse incisions.

Prof. Westermark of Stockholm reported some interesting observations he had made on the influence of lumbar anesthesia on the uterus during delivery. He had observed that the inferior segment of the uterus became paralyzed, while the upper segment continued to contract. These observations confirmed what anatomical investigations had taught him, viz., that the inferior segment derived its innervation from the lumbar region of the spinal cord, while the upper segment was without any nervous supply, contracting only as a result of properties appertaining to the muscles alone.

Dr. N. Rh. Blegvad of Copenhagen communicated a note on ten cases of malignant new growths treated by trypsin injections. Only in one case the patient seemed to have derived some benefit from the treatment, as the discharge became less profuse and foul. In more than one case disagreeable symptoms set in, and the result of the trial had not been encouraging at all.

Dr. P. Tetens Hald of Copenhagen read a paper on *x*-ray pictures as a help to the diagnosis of affections of the accessory sinuses of the nose. His series of lantern pictures illustrated very well how the outlines of the affected sinus become indistinct and hazy and the whole sinus takes a blurred appearance. He recommended strongly to compare the bitemporal picture with the fronto-occipital one and related examples of cases in which this comparison had helped to the correct diagnosis.

On August 22 and 23 the Danish General Medical Association celebrated its fiftieth anniversary. The most important event of the meeting was the incorporation of the Association of Junior Medical Men with the older organization. The last-mentioned body counts as members nearly all Danish medical men not yet in practice, who are in the hospitals, in the scientific institutes of the university, etc. As a result of this incorporation the Danish General Medical Association comprises now in its ranks practically all the 1,600 to 1,700 medical men of Denmark, and will consequently be able to do much good as well for the public as for the profession itself.

At this meeting an interesting demonstration of one hundred cases of lupus, never before shown at any congress, was made by the director of the Finsen Light Institute of Copenhagen. Dr. Forchhammer, reviewing the different methods of treatment, said that the *x*-ray could, in certain cases, especially of hypertrophic lupus, effect a cure, but recurrence was often observed. The best local treatment hitherto known was the Finsen light treatment. In obstinate cases, more than five years old, too much must not be expected; but even in these cases the patients were, as a rule, considerably bettered and the spreading of the destruction prevented. In more recent cases, of less than five years' duration, the result was practically all that could be wished for. Of 500 cases in this class treated in the Institute, 53 per cent. were cured, and the cure had been verified by an observation of not less than two years. Other 22 per cent. were also cured, but the observation had not been long enough to make sure whether relapses would occur or not. Of the 12 per cent. yet under treatment some might perhaps not get cured, as they had severe affections of the mucous membranes, especially at the interior of the nose. In the remaining 13 per cent. the treatment had been discontinued; one-half of these patients had died.

One of the attractions of the meeting was formed by a historico-medical museum, created by Prof. Carl Y. Salomonsen and Dr. Johnssen, who had succeeded in bringing together quite a large and valuable collection of old medical and pharmaceutical implements, instruments, prints, books, autographs, etc.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 6, 1907.

Lead Poisoning in a Rural Community.—The paper of W. N. Cowles is a recital of clinical histories of cases of lead poisoning which have occurred in a group of adjacent towns in Eastern Massachusetts. The acute cases are few. The majority are of a chronic nature, exhibiting various painful and disabling affections and arteriosclerosis. The author believes from his experience that many instances of vague abdominal troubles and of painful and crippling affections commonly called rheumatic, are in reality cases of lead poisoning. In one of his cases the patient was poisoned by water from a well in which, two years previously, an old lead clock weight had accidentally been dropped. Removal of the weight was followed by immediate improvement of the patient, although she continued to use the well water. In most instances, however, the lead pipe in a well goes several feet into the water, thus giving considerable extent of surface for the action of the water on the metal. Naturally the composition of each particular water will determine its amount of action on any lead pipe with which it may come in contact. The substitution of iron for lead pipe is the only safe course.

New York Medical Journal, September 7, 1907.

The Prevention of Deafness.—After some statistics as to the frequency of deafness, W. Scheppegrell discusses the etiology of the affection, referring particularly to infection from the nasopharynx, foreign bodies in and injuries of the external meatus, catarrhal processes, aural suppurations, nasal obstruction, etc. Prophylaxis of deafness naturally implies the removal of its various exciting causes. Early recognition of ear complications in the exanthemata is of the greatest importance. A strong plea is made for the systematic examination of the ears of school children. Much good advice to the general practitioner is given, but the paper presents nothing new whatever.

The Neurasthenic Neuralgias.—By this term F. H. Hallock refers to a class of painful peripheral affections occurring in neurasthenic or allied conditions. Anatomically, this class may be divided as follows: (1) Trigeminal; (2) cervicooccipital; (3) cervicobrachial; (4) brachial; (5) intercostal, including mastodynia; (6) lumbar plexus, including lumboabdominal and regions supplied by the cutaneous femoris lateralis, cruralis, and obturatorius; (7) sacral plexus, including sciatica, neuralgia of the genital organs and of the anal region; (8) coccygodynia; (9) achillodynia, tarsalgia, and metatarsalgia. Clinically, these varieties lie midway between the more or less indefinite and subjective paraesthesiæ and the very definite and objective conditions resulting from neuritis and other pathological irritations. The clinical diagnosis between actual neuritis and neuralgia may be summarized as follows: The motor element is the chief distinctive characteristic. In neuralgia there is no true loss of power and the pain does not materially restrict the movement or manipulation of the affected part. In neuritis proper the motor disability is present in some degree, and varies from paresis to paralysis. Both motor and sensory symptoms occur earlier and are more sharply defined in neuritis, the swelling of the nerve being more evident and continuous throughout its length and without the presence of the points of Valleix. The pain itself is generally more continuous in neuritis and more paroxysmal in neuralgia. Atrophy and anesthesia occurring with the paralysis are not present in neuralgia. The ailment calls for attention to the underlying neurasthenic state and the management of the local condition. Rest is essential. The nutritional processes of the affected parts must be improved by massage—electricity, douches, dry hot air, etc. Voluntary exercise should be allowed gradually. The medical treatment is unsatisfactory. Morphine has a characteristically bad effect on this class of neuralgias. The best analgesics are antipyrine, acetphenetidine, gelsemium, and the salicylates. In the lesser paroxysms a small dose of bromide may be enough to allay the nervous irritability and thus allow relaxation to the pain. It is advisable during the attack to do something for, or with, the patient. Thus the act of bathing the feet in hot water, rubbing the part with menthol dissolved in a fit menstruum, using mild liniments applied alone or with heat, flushing the bowel, these and other procedures help to distract the attention and so enable milder drugs to be more effective.

Journal of the American Medical Association, September 14, 1907.

An Epidemic Pneumococcal Catarrhal Disease.—H. G. Beck and W. R. Stokes give an account of a peculiar epidemic that has appeared in two separate years in Baltimore. The disease exists as a distinct entity, occurs in the spring months, though similar epidemics have occurred in the autumn, and is characterized by purulent or fibrous inflammation of the mucous membranes of the eye, nose, and throat. There is a characteristic, usually spasmodic cough sometimes resembling pertussis. The disease commences with chilliness and slight fever, with sneezing, lacrymation, and mucous nasal discharge. There may be an associated bronchitis, but the symptoms indicate the chief trouble to be in the upper end of the air passages. There are no serious nervous symptoms and little or no physical or mental depression; the average duration is from one week to ten days, though the cough often continues longer. The disease is clearly infectious, running through families, and even animals do not appear to be altogether immune. It is distinguished from measles, pertussis, and influenza. Epidemic catarrh lacks the gastrointestinal symptoms, constipation, or diarrhea, due to the *Micrococcus catarrhalis*. So far as the eye symptoms are concerned, the disease is the same as the pneumococcic conjunctivitis described by Kölle and Wasserman as occurring in Europe in 1896. In most of the cases examined bacteriologically the pneumococcus was found, giving the usual culture and staining characteristics and producing characteristic effects in inoculation experiments. The authors recognize the fact that the pneumococcus may be considered as an almost constant inhabitant of the nose and throat, and when it is discovered, as here, in diseased conditions of the mucous membrane, usually in pure culture, frequently virulent, and so distributed in purulent and fibrous inflammations as to explain these conditions, they have no hesitancy, they say, in considering it as the cause of the condition.

Uric Acid Elimination.—L. B. Mendel and E. W. Brown find that the ingestion of a purin-free meal is followed by a minimal rise in uric acid output above the abstinence values during the hours immediately following the ingestion of the food. When larger quantities of protein are included the rise is somewhat larger, but in none of these cases is the postprandial rise comparable in extent with that observed in later experiments with purin-yielding foods. The experiments also show that the rise is not attributable to simple increase of diuresis, as is shown in the tables. The influence of a meat diet was marked by a rapid increase of uric acid elimination and still more with glandular and other purin-yielding tissues. The residues left after extraction of free purins from meat afford only a small rise. The factor, heretofore underestimated, of the rate of discharge of different foods from the stomach as influencing the results, is noticed and the need of more definite information remarked on. The character of the test meal is clearly of influence on the type of postprandial elimination, but further studies are required of the effects in pathological conditions.

Dynamic Ileus.—J. C. Munro emphasizes the fact that dynamic ileus is nearly always the result of sepsis of the peritoneum or of a toxin affecting the motor mechanism of the intestine. A purely functional paralysis of nervous origin may exist, according to Nothnagel, but it is rare. The nonfatal distention following blunt contusion of the abdomen may be due to a reflex or functional cause, but it is more reasonable to suppose it due to the contusion of a loop of gut or its mesentery, too slight to produce the usual necrotic changes. The distention and obstruction seen in abdominal disorders, before operative interference, are usually due primarily to a peritonitis; the same is true in the fulminating ileus after operation; though the superficial evidences may be slight, the omentum and mediastinal glands will show the presence of abundant microorganisms. It is remarkable how slight a peritonitis will stop peristalsis, especially in cachectic and anemic individuals. It is not safe to exclude some degree of sepsis as a cause even of ileus after a clean aseptic laparotomy, and it is worth noting that patients with pre-existing septic foci who have acquired a certain degree of immunity suffer comparatively little from distention, while a very slight intraabdominal operation in an acute case, before immunity is acquired, will arouse an intense ileus. On this account, delay in operating on septic diseases of the peritoneum is sometimes wise. That toxins independent of those from an intraabdominal lesion may produce ileus is shown by the cases of distention seen with pneumonia, and, more rarely, in acute nephritis. Either of these may be confused with the ileus of abdominal inflammation, but the distinguishing sign of surgical spasm is absent in these cases. Distention alone is of moment, as toxins

can penetrate a healthy intestinal wall when distended and produce peritonitis, and the toxins from an obstructed intestine are far more virulent than those from a healthy gut. Another cause of ileus that the surgeon must remember is mechanical injury to the intestine or its mesentery. Manipulation is far more injurious than mere exposure or anesthesia. The cessation of intestinal activity here is apparently a conservative provision to allow repair to take place and peristalsis to be reestablished. Munro cautions against the use of cathartics, except to a very slight extent, in all cases of so-called obstruction in which there is any suspicion of its being mechanical or infective. In the milder peritonitic types it is better to rely on the elimination of the intestinal contents from below. If there is a definite local focus it requires attention, but it is rarely necessary to meet reflex or toxic ileus by other than palliative means, or aperitonitic or traumatic ileus by operation for the ileus alone. Any type, however, may be so rapidly fulminating as to call for operation, and here the surgeon's judgment must decide.

The Larynx in Locomotor Ataxia.—W. B. G. Harland found very little serious trouble of the larynx of the tabetics examined by him in the Philadelphia General Hospital and the Philadelphia Home for Incurables. He was unable to find a tabetic patient with laryngeal crises, and neurologists of his acquaintance tell him they have rarely seen such. His conclusions are given as follows: 1. The larynx is seldom seriously affected in locomotor ataxia. 2. Rarely, early in the disease, spasmodic abductor paralysis may sometimes arise, and should suggest to the laryngologist the possibility of tabes as its cause. 3. Late in locomotor ataxia one or the other cords (generally the left) is often found in a hyperabducted position.

Cleansing Treatment of Chronic Middle-Ear Suppuration.—W. S. Bryant has found in twenty years' experience that in the majority of cases chronic middle-ear suppuration will yield to cleansing treatment. He includes cases in which the infected area is spreading and also those with acute exacerbations, both rightly considered very dangerous. The cases that do not yield, he says, are those in which there is so much caries that it cannot readily be removed by natural processes; those in which there is active osteitis; those in which sepsis has spread outside the bone; those in which there is some special infection, such as syphilis or tuberculosis, and, lastly, those in which vital parts are involved, requiring immediate attention. In other cases, the essentials are proper drainage, and attention to the condition of the Eustachian tube, and the nasopharynx. If the drainage is sufficient and there are no collections of thickened material, dry wiping with boracic powder applications gives satisfactory results. Cheesy material should be wiped out, or syringed out with a strong solution of bicarbonate of soda in neutral salt solution. If this is not sufficient, suction may be employed, and the serous exudate and possible hemorrhage act as an antiseptic wash and help to remove some of the solid particles. A persistent dirty discharge may call for peroxid of hydrogen followed by salt solution, alcohol or silver nitrate. Caries should be treated by cleanliness, and feeble granulations be stimulated by silver nitrate. For this, astringents are advised.

Serum Diagnosis of Syphilis.—P. Fleischmann and W. J. Butler explain the principle and method of the serum diagnosis of syphilis, developed by Wassermann, describing in detail the technique and giving their own results with its employment. The method is based on the phenomenon of the fixation of complement first observed by Bordet and Gengou, and is somewhat complicated, but it demonstrates the existence or specific antibodies in probably all cases of active existing syphilitic infection, and the authors consider it of incontestable value as a diagnostic measure. In thirty-eight cases with a history of syphilis the reaction was positive in twenty nine and inquiry revealed that the other nine patients were either under active treatment or had undergone such. In no case with active manifestations did the reaction fail, except in cases of tabes, in which disease it is possible that the symptoms may persist on account of irreparable injury after disappearance of the antibodies. The authors think that a positive reaction with this test may be considered a sure indication of syphilis, a point of especial importance in diseases in which the determination of their etiologic relations to syphilis is in question. The importance of the test as regards contagiousness, urgency of treatment, prognosis, etc. is not so definite, but they think they do not err in saying that the demonstration of antibodies is a tenable indication for treatment. On the other hand, one cannot say at present how far we can use the disappearance of antibodies in judging a cure. During or after treatment, it is true, there is only a slight reaction or none at all, but more experience is needed before the full significance of this fact can be estimated. More study of the subject, which they think has not received as yet due consideration, is needed, and the hope of stimulating other similar investigations has been their chief incentive in this publication.

British Medical Journal, August 31, 1907.

Clinical Pathology in Relation to Diagnosis and Treatment.—C. B. Lockwood discusses in this connection the respective rôles of the diphtheria bacillus, *Streptococcus, pyogenes, Staphylococcus, pyogenes aureus,* pneumococcus, colon bacillus, and the early diagnosis of cancer by immediate histological sections. Under the former headings are mentioned some of the less common forms of infection by the respective microorganisms. The immediate examination of sections made by the freezing microtome, of new growths, the author regards as of the greatest importance, especially in mammary neoplasms. No one can positively diagnosticate certain of these with the naked eye. Small cancers, small adenomata, and small cysts may all present the same physical characteristics. The author makes a plea for bacteriological examination in all cases of inflammation where such a thing is possible. Very unexpected findings are sometimes the result. The diphtheria bacillus especially may be unexpectedly encountered and as we now have a specific therapy for this disease the importance of an early diagnosis is at once apparent.

Open-Air Treatment of Pneumonia.—G. E. Rennie states that the two main points in treatment are, first, to maintain heart action against the depressing effects of the toxins of the pneumococcus, and, second, to prevent imperfect aeration of the blood. He believes that these two indications are most effectively met by the adoption of the open-air method. His hospital plan of treatment (New South Wales) is to place the patients on the balcony or veranda of the hospital, where they are kept night and day. A screen is placed around the head of the bed to keep the cold winds from blowing directly on the patient. Of the cases thus treated, in all about twenty in number, only one has proved fatal, and that was an old man over sixty years of age, who was admitted practically moribund, with extensive consolidation, much cyanosis, and a very feeble pulse. He died within a very few hours after admission. In no case has the open-air plan seemed to give any unfavorable results, but rather has seemed to have a beneficial effect on all the symptoms. The temperature has never risen above 103.8°, and no antipyretic treatment has been necessary. In most of the cases the temperature dropped and the crisis occurred in two to three days. In no case so far has the crisis occurred later than one week from the onset of the disease as estimated by the initial rigor. The author does not wish to be understood to claim that this line of treatment has any special effect on shortening the duration of the disease; he merely states what has been his experience. An investigation of a much larger number of cases treated by various methods would be necessary to enable one to decide whether the disease is really shortened or not by open-air treatment. As regards the pulse, an almost immediate effect was noted in the way of improvement, and in only a very few instances was any cardiac stimulant, such as strychnine or digitalis, needed. No alcohol has been given. The tongue began to get moist and to clean rapidly, and the appetite was much improved; the patients were always ready for their milk. Sedatives have not been required except in one or two instances where there was some delirium at first, but not more than one dose has been requisite. As a rule sleep became at once quiet and refreshing. Cyanosis also rapidly disappeared.

Münchener medizinische Wochenschrift, August 20, 1907.

The Relation Between Pneumonia and Gout.—Ebstein, after discussing the literature on this subject, relates the history of a patient in whom the pneumonia seems to have been the direct cause of an attack of gout. The patient was a man fifty-six years old, who was admitted into the hospital with a double-sided pneumonia, and who had his first attack of gout seven years before. The pneumonia took a protracted course and five weeks after its onset the patient developed a typical attack of gout. Ebstein explains this relationship by the fact that an increased

amount of uric acid is produced by the nuclear destruction which takes place during pneumonia; this increased amount of uric acid in the blood then causes the attack of gout in people disposed to it. He believes that this class of cases is rare and must be differentiated from those in which a pneumonia sets in at the end of an attack of gout; both, however, show that a relation exists between gout and pneumonia, and that the one following the other is not merely a coincidence.

Potassium Iodide and Mercury in the Treatment of Tuberculosis of the Nose, Throat, and Larynx.—Grunberg refers to his previously published good results in primary ascending tuberculosis of the upper air passages with potassium iodide. He relates the history of four cases of ascending tuberculosis in which a clinical diagnosis only was made, and which Martin cured with mercury injections, and then reports a case of his own, in which he made a clinical diagnosis of tuberculosis of the palate, pharynx, and larynx, the diagnosis being substantiated by microscopical examinations and by producing tuberculosis in guinea pigs with a piece of diseased tissue. The patient was at first given thirty grams of potassium iodide per day for five weeks and then mercury hypodermatically for three months, at the end of which time he felt well, had gained in weight, had no further subjective symptoms, and showed only slight changes in the larynx. In other words, the patient was practically cured. The mercury treatment was begun after the patient showed no further improvement with the iodide treatment. Grünberg believes that this case proves the healing qualities of mercury in tuberculosis of the upper air passages; it could hardly be called a spontaneous cure on account of the short time in which the cure took place. Of course, there may have been an element of syphilis in the case, but even then it must be admitted that as the patient was practically cured the mercury also had a good effect on the tuberculous process. He concludes by saying that in cases in which there is a doubt as to diagnosis, good results with iodide and mercury no longer point to a positive diagnosis of syphilis.

Hysterical Sweating.—Curschmann relates the history of two cases in which regular, spontaneous, recurrent attacks of sweating occurred and which were not caused by emotions or exercise; they came on at a time of mental and bodily rest, but not during sleep. The first patient was fifty-seven years old and claimed to have had influenza each year for twenty years; these attacks consisted only of headache, weakness, and recurrent sweats. Curschmann saw her in one of these so-called attacks of grippe, which lasted four months, and during which she perspired profusely three times a day; she had no fever, no loss of appetite, and gained in weight; the patient said she had to perspire or else she would feel sick. The second patient he observed was the daughter of the first, and had been subject to similar yearly influenza attacks for ten years. Electric baths and suggestion cured both. Their nervous system revealed no organic changes and hysterical stigmata were absent, and yet Curschmann believes the condition to have been nothing else than hysterical sweats, far different than the one we see in neurasthenic persons who get a hyperhidrosis of the hands at the moment they fear to get it, *i.e.* when they shake hands with other people.

Curative and Poisonous Action of Marmorek's Antituberculous Serum.—Baer relates the history of a case in which the treatment with Marmorek's serum caused peculiar symptoms. The patient was a young girl twenty-three years old, whose mother had died of tuberculosis of the lungs. She had been coughing for six years and showed tuberculous signs at one apex, though the tubercle bacillus had never been found in the sputum. She developed joint symptoms in the left knee, which were considered tuberculous, and as they did not respond to injections of iodoform and glycerine, it was decided to use Marmorek's serum. Five c.c. were given daily by rectum. On the sixth day of the treatment she complained of dizziness, palpitation of the heart, nausea, and vomiting, and developed a rise in temperature and pulse. Finally she became cyanosed and developed Cheyne-Stokes respirations. The treatment was stopped and when she recovered, after forty-eight hours, it was begun again. Similar attacks occurred on and off while the serum was used. After five months the knee was cured and the treatment was stopped. These attacks he explains by an overloading of the system with tuberculotoxins, which in this case originated in the knee; the curve of the opsonic index substantiates this view. For the first few days the index remained stationary and after a few days of serum treatment it gradually rose, to return to its original value when the treatment was stopped. Baer holds that the value of Marmorek's serum in tuberculosis is still doubtful and that poisonous effects such as his patient developed cannot be prevented at the present time. He thinks the action of the serum might possibly be controlled by carefully and continually watching the opsonic index during a course of treatment with the serum.

Deutsche medizinische Wochenschrift, August 15, 22, and 29, 1907.

Tuberculin Suppositories.—Lissauer maintains that, although the real value of the tuberculin treatment in tuberculosis is still uncertain, its administration by way of suppositories has several advantages and gives the same results as other methods of administration. The suppository is inserted after a movement or after a cleansing rectal irrigation, no aseptic precautions being necessary, while when it is given hypodermically the skin has to be carefully cleansed, and even then there is usually some local reaction. After a suppository has been given there is no fear of any infection, and a local reaction is rare, and when present manifests itself only by slight burning about the anus or a mild diarrhea. The action of tuberculin is more certain when given in suppositories than when given by inhalation or by mouth. The patients on which Lissauer tried the suppository treatment were usually advanced cases of tuberculosis with a poor prognosis. Koch's "Alttuberculin" was used and, as is the case with most drugs administered by rectum, somewhat larger doses of tuberculin were used than when it was given by mouth or hypodermically; the amounts were usually fractions of a milligram. The drug was given daily or every few days or at weekly intervals, depending upon the case. In patients which reacted the usual symptoms which follow the administration of tuberculin set in; their mode of onset, however, was slower and milder, hence suppositories can be safely given in far advanced cases in which severe, sudden reactions are undesirable and in which a propagation of the process would be caused by hypodermatic injections of tuberculin. Hemoptyses and skin eruptions were noticed several times after the use of suppositories. As a further proof that tuberculin causes a reaction in the lung tissue itself, he mentions patients with anthracotic lungs, in whom the sputum, which had been yellow, now became black, showing that changes were going on in the lung. As regards the therapeutic value of tuberculin, he admits that some patients were not benefited and that others might have gotten well without it, but firmly believes that loss of disagreeable subjective symptoms, an increase in body weight, and an improvement of the local lung condition could at times be attributed to tuberculin alone.

Double-sided Nephrolithiasis.—Krause reports a case on account of its rare occurrence and because of the difference in prognosis and therapy in one and double-sided nephrolithiasis. The patient was a man twenty-eight years old, who previous to his twenty-first year had always been well. At that time he suffered from left-sided renal colic and passed a small stone. At twenty-three he again complained of left-sided pain, which returned when he was twenty-six years old. Then it continued for almost a year, each attack lasting from eight to eleven days, a small stone being passed in one of them. A year later, in January, 1906, he experienced a pain in the right lumbar region for the first time, which was accompanied by some bloody urine. An *x*-ray picture showed a shadow in both kidneys, none in the ureter or bladder. The right kidney was exposed and found much enlarged and congested; no stone was palpable. The pelvis of the kidney was then opened, when a stone was found and removed. Six weeks later the other kidney, in which the *x*-ray showed a stone in the lower pole, was opened and the stone removed. This kidney was also found enlarged and congested, the removal of the stone having been accompanied by considerable bleeding. Krause always advises immediate operation in double-sided nephrolithiasis on account of the constant danger of a hindrance to the flow of urine on both sides at once; furthermore, pathological changes in one kidney set in because the other, also containing a stone, cannot do compensatory work. He advises locating the stone exactly by the *x*-ray, and when the stone cannot be palpated during operation he advises looking for it by opening the pelvis of the kidney before sectioning the kidney tissue, since the latter procedure is often accompanied by a great deal of hemorrhage. He does not follow the usual custom of operating first on the kidney which was the seat of the last colic, but is guided by the functional activity of the kidneys, which he ascertains by clinical observation of the case, by kryoscopy, and ureteral catheterization. If the *x*-ray shows a stone in the kidney substance on one side and in the pelvis on the other, he operates on the latter kidney first on account of the greater liability of a complete obstruction of urine setting in.

He advises against doing a nephrotomy on one side when there is a stone in the ureter on the other side, as the increased amount of urine on the side of the ureteral stone might move the latter and wedge it more tightly in the ureter, thus causing a complete obstruction of the urine on that side. He therefore removes the ureteral stone before undertaking an operation on the kidney of the other side.

Etiology and Treatment of Postoperative Intestinal Disturbances.—Heile believes, on the strength of clinical material which he cites, that the diarrhœa which sometimes occurs a few days after operation, and which does not respond to antidiarrheal treatment, but runs into coma and even death, is due to a transient or permanent diminution of the total body alkali. A diminution of the body alkali usually manifests itself by the presence of acetone and diacetic acid in the urine. Due to long pyloric or intestinal stenoses, or to the toxins produced by malignant growths, a patient is poorly nourished and consequently cannot stand the loss of large amounts of alkali. If these patients are called upon to give up large quantities of alkali with the intestinal secretions in order to neutralize the intestinal contents, and finally cannot secrete enough to neutralize the latter, then a diarrhea sets in. The secreted alkali which neutralized the intestinal contents is excreted with the stool, while normally it is not lost after neutralizing the organic acids of the intestinal contents, but is reabsorbed by the large intestine. In these cases, where it is totally lost, coma sets in. Animal experiments show that the intestines secrete an alkali and that the amount of the latter depends upon the intestinal contents, being greater after a meat than after a mixed diet, and if an intestinal catarrh is present it will be still greater. If the large intestine is excluded in these animals, the alkali cannot be reabsorbed and consequently the animal loses weight and recovers only after being fed some alkali. In human beings, too, the amount of alkali depends upon the food and the condition of the small intestine. If diarrheas set in, the alkali does not get a chance to be reabsorbed by the large intestine, but is washed out of the system with the watery movement and the patient will go into coma and die unless the alkali is supplanted. Poorly nourished patients should therefore have their urine examined for diacetic acid and acetone before being operated upon and should be given an alkali as a prophylactic if these are found. When the diarrhea has once set in an alkali should always be administered in addition to regular antidiarrheal treatment.

How to Prevent the Retention of Packings in the Abdomen.—Wederhake mentions various methods used to prevent the retention of packings in the abdomen during laparotomies and then describes a method devised by himself which he believes will positively prevent such an error. He makes a many-tailed compress by taking one square yard of material, into which four cuts are made, one extending from the middle of each of the four borders of the material to within two inches of the center. In this way he obtains four packings in one piece. When more packings are required at an operation he uses an eight-tailed compress, making, in addition to the four cuts from the middle of each border, four others, beginning at the corners of the square yard of material, these again being carried within two inches of the center. He claims that only one compress is needed at an operation and that no packing can be left behind, as in order to remove one all have to be removed. As never more than one compress is used, the operator does not have to rely on his own count or that of his assistants in order to know how many packings were used.

Gastric Juice in the Fasting Stomach.—Gentzen carried out a series of experiments to prove that the normal fasting stomach contained gastric juice. For this purpose he employed Sahli's desmoid reaction. A desmoid pill containing methylene blue and closed with catgut was given to persons whose gastric secretion had previously been shown to be normal after the ingestion of a test meal. The pill were swallowed in the morning when the stomach was empty, not even a drop of water being given with them. In thirty-three out of fifty-three persons methylene blue was found in the urine in less than two hours after the ingestion of the pill, in fifteen in two to three hours, in two in four hours and in three in six to seven hours. In other words, the catgut had been digested, the contents of the pill had been poured out, and since the acid gastric juice is required to digest the catgut it must be normally present in the fasting stomach. Gentzen then refutes the objections advanced to his conclusion by various observers: (1) that the secretion of gastric juice was caused by the mechanical irritation of the pill; this he believes has been proven to be impossible by Pawlow's experiments in which he showed that mechanical irritation of the gastric mucosa does not cause any flow of gastric juice; (2) the claim that the catgut was dissolved in the intestine he proves to be untrue by first showing that the gastric juice of rabbits can dissolve catgut just as human gastric juice does. Then he inserted one desmoid pill into the upper portion of the duodenum of five rabbits and one into the lower portion of the duodenum of another rabbit. Two out of the five rabbits showed methylene blue in the urine in five hours, the rabbits in which the pill was inserted into the lower portion of the duodenum passed the pill *in toto*. In the latter case the reaction of the duodenal secretion had been tested and found to be alkaline. He thought the digestion of the catgut in the first two rabbits might have been caused by gastric juice which entered the duodenum; to exclude this possibility he repeated his experiments after having first ligated the pylorus. The animals died after sixteen hours and up to that time no methylene blue had been found in the urine. At autopsy the pill was found *in toto* in the duodenum. He likewise found that when keratin-coated desmoid pills were swallowed by persons they were found in the feces intact, but with the keratin dissolved. All these experiments showed that the catgut is not digested in the intestine and that methylene blue found in the urine within six hours after the ingestion of the desmoid pill must have been caused by the digestion of the catgut in the stomach; in other words, the human fasting stomach always contains some gastric juice.

The Contagious Character of Pointed Condylomata.—Neuberg reports the history of a case which in his opinion proves without doubt that pointed condylomata are contagious. A man twenty-five years old who never had a gonorrhea came to him with numerous pointed condylomata of the prepuce and glans and as he did not carry out the advised treatment he did not get rid of them. Eight months later his wife, who also never had a gonorrhea, consulted him and he found a similar condition of the vulva, which had developed only after coitus with her husband. The fact that neither patient ever had a gonorrhea surely proved the contagious character of these condylomata.

French and Italian Journals.

Treatment of Congenital Pseudoarthrosis of the Tibia.—A. Codivilla says that this lesion is most rebellious to treatment such as is used in the acquired form. In three cases operated on by him he has made use of different treatments, and none of these has resulted in a cure. The cause of the insuccess lies in an absolute absence of formative action in the osteoblastic tissues, especially the periosteum. Probably at a certain period of intrauterine life there is a lack of blood brought to the part and a lack of nutrition of the tibia, and the nutrition of the diaphysis is left to the subsidiary vessels of the part; that is, those of the capsule and the muscular structures connected with the joint, the circulation not extending to the location of the pseudarthrosis. The author presented radiographs which showed evidence of the osteoblastic insufficiency, and the anatomical report confirmed these appearances. Reichel has made use of a graft of normal tibia, and the author has tried this method of treatment without success. But by transplantation of a portion of normal periosteum in one case a cure has been obtained. He presented the patient and also exhibited a radiograph showing the attachment of the periosteal graft with the gradual formation of callus.—*La Riforma Medica*, June 15, 1907.

Treatment of Eclamptic Attacks by Lumbar Puncture.—Audebert and Fournier record two cases of puerperal eclampsia treated by them by means of lumbar puncture, and have collected forty four other cases. They believe that the cerebral symptoms, including convulsions and coma, are markedly affected by an increase in cerebrospinal tension, which has been observed in many cases. Cerebral lesions, such as congestion, hyperemia, and hemorrhages are commonly observed after death in such cases. Lumbar puncture with withdrawal of fluid should relieve cerebral tension, and bring about a decompression of the central nervous structures. This treatment will not affect the condition of the kidneys, which it will not reach. But it will relieve the symptoms due to cerebral pressure and thus aid in saving the patient. Such treatment is not to be used in every case, nor is it to be used alone as a specific measure, but should be combined with other methods that have been found of use in treatment. It should be instituted when coma is profound and when convulsive seizures are becoming more frequent, with approaching anuria. It must be used before the case is hopeless to be of value.—*Annales de Gynécologie et d'Obstetrique*, June, 1907.

Book Reviews.

Diseases of Women. A Clinical Guide to Their Diagnosis and Treatment. By George Ernest Herman, M.B. London, F.R.C.P., Consulting Obstetric Physician to the London Hospital; Consulting Physician-Accoucheur to the Tower Hamlets Dispensary; Late President of the Obstetrical Society of London and of the Hunterian Society; Formerly Physician to the General Lying-In Hospital and to the Eastern District of the Royal Maternity Charity, and Examiner in Midwifery to the Universities of London, Oxford, Cambridge, Durham, and the Victoria University, the Royal College of Physicians and the Royal College of Surgeons. Third Edition. New York: William Wood & Co., 1907.

In this new edition the general plan of previous ones has been followed, the author having brought the subject matter thoroughly up to date. The therapeutic indications are given concisely, following the lines of most writers of the present time; in the surgical paragraphs the newest operative methods are fully described. While he shows a preference for hysterectomy in the treatment of carcinoma of the vaginal portion of the cervix, giving a detailed description of Wertheims' operation, he nevertheless discusses the Schroeder amputation of the cervix for this condition, an operation that should be abandoned. While the work is written from a clinical point of view and in previous editions pathology was left to the pathologist, he now inserts a short histological description with cuts, of the more important diseases, such as cancer and chorion-epithelioma. The chapter on the latter affection has been entirely rewritten, bringing it up to the modern conception of this disease. The section on urethral caruncle is well written and contains a new classification. In addition to the changes in the chapters on the various pelvic organs, there are some in the introductory sections, setting forth the common conditions of the nervous system which may cause symptoms referred to the pelvis, neurasthenia and hysteria being described as they present themselves to the gynecologist. As a work for the student and practitioner it has much to recommend it. The maladies are arranged, for example, according to their leading symptom, the one first mentioned by the patient, thus presenting them in a way in which they appear in practice and affording a help in the differentiation of diseases presenting somewhat similar symptoms.

A System of Medicine, by Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College; and Humphrey Davy Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children; Sometime Fellow of St. John's College, Cambridge. Volume II., Part I. London: Macmillan & Co., Limited; New York: The Macmillan Company, 1906.

The second volume of the new edition of Allbutt's System of Medicine appears in two parts of over 1,000 pages each, constituting really two complete volumes. In the first edition there was a curious confusion of volumes, the title-page and the cover often contradicting each other in the number of the volume. The new edition seems to be following in the same uncertain path, and why those two volumes should not be numbered II. and III., instead of Parts 1 and 2 of Vol. II., we cannot understand. This, of course, does not affect the value of the work, but it is confusing to the reader who wishes to consult it. It offends one's sense of order and system, and adds an unnecessary complication to future bibliographical references. However, this is merely a matter of mechanics, and has nothing to do with the capital material contained in the two volumes, or two parts of the one volume.

Part I. deals with the infective diseases and intoxications, continuing the subject begun in Volume I. It opens with a long, but very interesting, article on the General Pathology of Infection, by Prof. James Ritchie, of Oxford. In the former edition this article was written by the late Prof. Kanthack, but so great has been the advances in this branch of medicine in the past decade that the eighty pages found sufficient by the former writer are expanded to two hundred pages in the present edition. We think the author has taken a little more space than his subject really demands in a work of this kind, yet so interestingly does he write that, had we the revision of the article, we should be loath to cut out any considerable portion of it. The treatise is divided into four sections: The Relations of Bacteria to Disease, Changes Produced by Bacteria in the Animal Body, Immunity, and Bacteriology in Relation to Therapeutics. We should like to review this treatise at length, for it deserves a much more extended notice than we are able to give it, and to point out merely the objections which we might bring against certain of the writer's views would be unfair. While not agreeing fully with Prof. Ritchie on certain moot points, we nevertheless do not hesitate to say that nowhere, not even in Metchnikoff's classic treatise, have we read a clearer and better reasoned presentation of the subject of infection than here. The ordinary physician in general practice cannot hope to keep himself *au courant* with the enormous literature on infectious diseases of the present day, and he needs from time to time to read some general review which will put him up to date with this rapidly progressing science. It will take a good deal of his precious time, the fine print will try his eyes somewhat, and he will wish that the writer had possessed or exercised the gift of condensation rather more; nevertheless he will rise from the careful reading of this treatise with the conviction that he knows more than he did of the relation of bacteria to disease; that he knows, in fact, everything essential that there was to know up to the end of 1906.

Following this article are contributions on the infectious diseases, first those of established bacteriology and then those undoubtedly infectious but of doubtful nature, that is to say those the specific germ of which has not yet been isolated. The latter include most of those ordinarily classed among the diseases of childhood and also smallpox, common colds, rheumatic fever, and hydrophobia. The volume closes with a section devoted to intoxications, in which are included food poisoning, grain poisoning, alcoholism, opium and other intoxicants, and metallic and other poisons. Those subjects are treated of quite satisfactorily in a general way, but there is little that is new in the articles or that cannot be found in other treatises on the same subjects. There is a tendency to provincialism in some of the articles which detracts from the encyclopedic character that one expects to find in a composite work of this kind. For example, in the article on typhus fever, in other respects an admirable treatise, nothing is said in the geographical section on the prevalence of this disease in the cities of the Mexican plateau. The disease is endemic in Mexico City and other communities in that country, as travelers have sometimes learned to their cost, and in an encyclopedic treatise, presumably intended for the instruction of all English-speaking physicians, a casual mention of this fact is demanded in the interests of completeness at least. The ignoring of facts easily learned by a study of American medical literature is apparent in some of the other articles. This is perhaps natural in a British work, but it is a fault, and one which detracts from the value of the System for American readers. It is, however, an omission easily corrected by the reader, who does not pin his faith to any one authority. Taken as a whole, this is a work of prime merit and may, to judge from the sections thus far published, be safely commended to the practitioner who seeks for the latest information on matters pertaining to internal medicine.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia. Assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital. June 1, 1907. Philadelphia and New York: Lea Brothers & Company, 1907.

The present volume of Progressive Medicine contains chapters on Hernia, by W. B. Coley; Surgery of the Abdomen, exclusive of Hernia, by E. M. Foote; Gynecology, by J. G. Clark; Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Spleen, Thyroid Gland, and Lymphatic System, by A. Stengel; and Ophthalmology, by E. Jackson. While all the chapters are of value, we would draw special attention to the timely article of more than forty pages on cancer of the uterus, which gives an admirable résumé of recent work on the subject of cancer in general, and also includes criticisms of some of the recently expressed views. This is followed by another important article on fibroid tumors of the uterus. The whole number is of more than ordinary interest, and several of the articles are of permanent value.

Weiterentwicklung der Familiären Verpflegung der Kranksinnigen in Deutschland seit, 1902. Referat erstattet im Auftrage des Zentral-Komittees auf dem Internationalen Psychiatrischen Kongress in Mailand am 26 September, 1906. Von Professor Dr. Konrad Alt, Direktor Landes-Heil- und Pflegeanstalt Uchtspringe (Altmark). Mit 1 Karte und 1 graph. Tabelle. Halle a. S.: Verlag von Carl Marhold, 1907.

This pamphlet briefly illustrates the benefits and great increase in family and colony care of the insane in Germany.

Society Reports.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.

Held at the Academy of Medicine, New York City, September 9 to 14, 1907.

(Special Report to the MEDICAL R[illegible].)

Monday, September 9—First Day.

THE PRESIDENT, DR. JAMES C. WHITE OF BOSTON, IN THE CHAIR.

PRELIMINARY to the scientific work of the Congress, the following addresses of welcome were delivered:

For the United States Government.—By Surgeon-general P. M. RIXEY, United States Navy, representing President Roosevelt. In his address Dr. Rixey extended a most cordial welcome from the President of the United States, especially to the delegates from foreign countries who had honored us by their presence, and he expressed the hope that the occasion would be the means of forming many ties that might be mutually beneficial. The coming together of such bodies of men, experts in learning and specialists in the great field of dermatology, could not but be productive of much good to suffering humanity, not only of this but of every country here represented. During the past twenty years the subject of skin diseases had, in common with other medical branches, received a great impetus. The introduction of laboratory methods had opened up a world of useful information, and especially to those in the Government services the period had been one of constant advance and discovery, brought about particularly by our advent into tropical and heretofore little known countries. So important had the subject become that we were now bending our efforts to perfect the members of the medical corps of the services in the knowledge of this specialty, and to equip them for practical and research work in all parts of the world. Dr. Rixey said he was particularly pleased to learn that this Congress had taken active steps to demand from educational institutions more careful consideration of the study of diseases of the skin. In his naval medical work he had found upon investigation that the proportion of dermatological diseases to all others was about 13 per cent. This showed clearly how important the subject was, and in the post-graduate medical school of the U. S. Navy at Washington more and more attention was being given to skin troubles, both in the didactic teaching and in the laboratory, and many of their most interesting reports to-day were on that subject, especially in connection with tropical medicine.

For American Universities.—President IRA REMSEN of Johns Hopkins University, in his remarks, said he esteemed it a great honor to be permitted to appear before this Congress and express a welcome on behalf of the universities of this country, especially to those members who had come from foreign countries, and he sincerely hoped that the work of the Congress might in every respect prove profitable and pleasant. The reason for the existence of this Congress was research. The members had come together to discuss the results of their own researches and those of their coworkers. The universities were the training grounds of research. This fact had come to be recognized in medical circles in this country, and there was at present a well-defined university movement among the medical schools. Not many years ago the relation between the medical school and the university was largely nominal. During the past quarter century, however, this university movement had acquired a great momentum. The universities were taking possession of the medical schools, and the latter were trying to get under cover of the universities, although the speaker said he was afraid that there would not be enough universities to go around. What were the advantages of such a university connection? By the leaders in the movement it was clearly recognized that the atmosphere of research was the best atmosphere for teaching, and that he took to be the fundamental point in connection with this university movement. Another reason why the medical schools were coming under the university banner was this: In the olden times the medical school was a profitable business, but that day had gone or certainly was going by, and the fact had become apparent that it was very expensive to properly conduct a medical school. It required money and it required endowments, and none could hope to survive without the latter. The medical schools and the medical departments of universities were now on the same footing, as were other branches of higher education. The old-fashioned medical school could not hope for any endowment in the ordinary course of events, whereas the universities had been fortunate enough to receive them. These were two reasons why the relationship between the medical schools and the universities was becoming closer and closer.

For the Medical Profession of the United States.—Dr. JOSEPH D. BRYANT, president of the American Medical Association, said the members of the American Medical Association were always glad to extend a cordial fraternal welcome to all those who labored for the advancement of medical attainment and for the relief of human affliction. To the branch of the profession which the Congress so fittingly represented belonged infinite praise and profound congratulation because of the eminent success which had attended its efforts in a difficult and often perplexing field of activity. The members of the American Medical Association extended to those of other lands and of their own a most cordial greeting. They bespoke the earnest consideration of the Congress of the plans and purposes of the American Medical Association, and invited its encouragement and cooperation, so that in the near future the medical profession of the world might act with conspicuous harmony in all matters making for the health, the contentment, and the security of the people.

Address by the President of the Congress.—Dr. JAMES C. WHITE of Boston, after extending a cordial welcome to the Congress, gave a brief sketch of some of the changes which had taken place in the study and practice of dermatology during the past half century, and uttered a word of caution regarding the unnecessary division of diseases and the multiplication of titles. Many, he said, were inclined to magnify the significance of slight clinical variations, to attribute to them specific importance, and to emphasize their pseudo-independence by bestowing upon them individual titles. Well-established landmarks in dermatology should not be changed excepting for reasons founded on demonstrable differences in anatomy and etiology. He believed in the creation of a standing committee of the Congress to consider the subject in a broad way, composed of members from different parts of the world, and unprejudiced by past systems of schools or individuals. Among the important questions for them to act upon he suggested the following: 1. What were the influences of race, geographical conditions, climate, national customs, etc., upon the evolution and type of diseases of the skin? 2. What variations did emigration induce in dermatoses? 3. What cutaneous affections should national governments regard as infective and seek to control by restriction of immigration, enforced isolation, and similar measures? 4. How far was it possible and incumbent upon national governments to control the continuance and prevalence of hereditary dermatoses by restrictions upon marriage laws? 5. Should not the influence of this body be directed to induce governments to aid in the support of researches bearing upon sanitary questions of national importance?

Dr. White said we must all be greatly interested in the investigations recently carried on by our colleagues in certain tropical regions, which were of vast importance to derma-

tology and general medicine. Looking backward over his fifty years of study and practice in affections of the skin, he recognized three distinct eras or advance: 1. The knowledge founded on a more careful study of the external manifestations and unbiased interpretations of clinical phenomena. 2. A deeper knowledge of the minute anatomy of tissue changes in, and a more scientific grouping of dermatoses. 3. The recognition of the real nature and cause of visible lesions and the essence of disease—a true system of pathology, as well as the promise of attainment of the power of prevention, of establishing immunity, and of founding a broader system of rational therapeutics. Noteworthy progress, especially in research work, had been made since the last meeting of the Congress in Berlin. The discovery of the *Spirochæta pallida*, its etiological relations to syphilis, and its revolutionary bearings upon the pathology of that disease had stimulated the production of numerous articles from observers in all parts of the world. Their committee of organization had selected as themes for special consideration at this meeting such subjects as would enable the distinguished workers in these fields of research to present the results of their latest investigations and conclusions.

(To be continued.)

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Held at Exeter, July 27 to August 2, 1907.

(Special Report to the MEDICAL RECORD.)

SECTION OF TROPICAL DISEASES.

Wednesday, July 31—First Day.

The Best Methods of Carrying Out Antimalarial Sanitation, with Special Reference to Such Plans as May Be Most Suitable for Populations in the More Primitive Stages of Civilization.—Profession SIMPSON, King's College, London, opened the discussion on this subject. He said that the change in ideas concerning the causes and prevalence of malaria which had come about in consequence of the work of Laveran, Manson, and Ross, together with the progress which had been made in the practical applications of Ross's discovery, rendered a discussion on the prevention of malaria a much easier and more practical undertaking than formerly. The vagueness attending former discussions was not because of doubts being entertained as to the beneficial results following in certain instances the clearing, draining, and reclaiming of low-lying lands, but it was due to the inadequacy of the miasma theory to explain satisfactorily the prevalence of malaria when there were no marshes or forests and when the drainage of the land appeared to be good. Similarly the personal protective measures based on the theory were found to be far from being uniformly successful. Fortunately the vagueness and obscurity were now cleared up. The facts established that the malarial parasite had a life cycle in man and in certain genera of mosquitos, that such mosquitos were the carriers of infection, and that water was required in the breeding places of the mosquitos for their larval development explained the value and the limitations of clearing, draining, and reclamation, and explained the value of the mosquito curtain as a protective against malaria, which had been formerly vaguely suspected. The first step to be taken in a malarious district was to localize those parts that were malarious and those that were not. For this we had two methods: The examination of the children to localize the area of malaria prevalence and the searching for the malaria-bearing mosquitos to focus or discover the particular source or sources in that area from which the malaria was derived. The differentiation of mosquitos was of no practical value, because very few persons had the knowledge whereby they could discriminate between an anopheles that is malaria-bearing and one that is not. For preventive purposes the campaign should be directed against all mosquitos and their breeding places in the vicinity. Unnecessary expense was always to be avoided, therefore it was essential that while protecting the community, operations should not be extended further than would meet this requirement. The distance depended a good deal on local conditions. As a rule the anopheles did not fly far from its breeding grounds. Could it not be laid down even in very malarial districts that a distance of a quarter of a mile was a sufficiently protective zone? Port Swettenham, in the Malay States, was formerly so malarious as to raise proposals for its abandonment. Now it had been rendered free from malaria, though situated less than a quarter of a mile from marshes containing anopheles. Protective measures against encroachments of the sea and against the overflowing of rivers as well as the drainage of great marshes were costly and demanded the mechanical skill of highly trained engineers well versed in the drainage and reclamation of land. When such conditions existed, removable only by the execution of large works, the community was best protected by the safeguards adopted in the Roman Campagna, viz., by mosquito-protected houses, mosquito curtains, the destruction of breeding places in and around the immediate premises, veils and gloves in the evening, and quinine as a prophylactic in the unhealthy season. Precautionary measures of this kind would not be taken by more than a few, unless, as in Italy, there was a medical staff with authority to visit the houses systematically once a week during the malarial season. Even under the most unpromising circumstances simple measures adopted with the object of preventing tidal waters overflowing to the low lying land close to the town, and the draining of this low lying land in order to lower the subsoil water and give a free outlet to rain water, brought about excellent results. Port Swettenham had been freed from malaria by the construction of a bund in such a situation as to prevent the tidal waters from the marsh overflowing onto the low land close to the town, which formed a part of the marsh, by clearing this low-lying land and draining it by a series of parallel ditches with small wooden sluices at their outlets through the bund, and by filling such portions of low land as could not be drained. The success achieved at Port Swettenham showed that no place with similar conditions, however malarious, should be considered to be beyond remedial measures. Backwater and other pools found in many rivers during certain seasons of the year or in waterways in the plains or on the sides of the hills were not uncommon agents causing malaria in a district. Very little work with a few coolies could, by the cutting of channels into the main streams and by running many of them together, remove the stagnancy of their waters or at least remove the pools to a safe distance. If any pools could not be removed by the method of draining them, they could be regularly treated with kerosene or petroleum. The training of Nullahs together with other antimalarial measures had been followed by very excellent results in Hong Kong, where the admission to hospital for malaria had been reduced more than half during the past two years.

Turning to artificial conditions as distinguished from natural conditions favoring malaria prevalence, those caused by excavation works, railway embankments, and buildings were, the speaker said, well known. It was extraordinary to see the amount of damage to the health of a locality an engineer or contractor would do, because no one had the courage to insist, in the agreement drawn up for the execution of the works, that the place should not be made malarious by them. Wherever one went in any part of the world the same mistakes were seen and the same preventable conditions were reproduced. The sanitarian's advice was sought only when the locality had become notoriously unhealthy, and then sanitary works to remedy what could have been prevented were set down as very costly. For preventive purposes advice should be asked before the works were begun. It was more valuable

then, and would save an immense amount of sickness and expense. None but the Americans had hitherto proceeded on these lines.

Prof. Hans Ziemann, Surgeon-Major, German Navy, and Medical Adviser in the Cameroons, W. Africa, read a paper on "Malaria Prevention in Uncultivated Districts." He said we could combat malaria (1) by destroying the malaria parasite in man, (*a*) administering quinine systematically to those infected with malaria, (*b*) killing the malaria parasites as soon as they invade the body at the very beginning of their development and before any manifestations of fever; (2) by destroying the malaria-bearing mósquitos; (3) by protecting man against the bite of malaria-bearing mosquitos; (4) by increasing the resisting powers of the body and by teaching the nature and causes of malaria. These measures were based on the assumption that the development of the malaria parasites took place only in man and the mosquitos. This might be accepted in a general way, since all the blood protozoa hitherto found in the lower animals, though very similar to that of man, were nevertheless quite distinct. Schaudinn had suggested the possibility of the hereditary transmission of the malaria germs to the progeny of malaria-infected mosquitos, but so far all endeavors to prove the presence of malarial parasites in the ova of malaria-infected mosquitos had been unsuccessful. The stamping out of malaria by the systematic administration of quinine to an entire population, as advocated by Koch, might be possible on some small island under the constant supervision of a large official body, but was impracticable in large districts with a fluctuating population, as in West Africa. On this point the speaker was at one with all English authors. On the other hand, the true quinine prophylaxis, namely the administration of quinine with a view to prevent from the very outset the development of such parasites as might have invaded the body, was certainly efficacious, provided, of course, the drug were easily soluble and the intestine able to absorb it. The prophylactic dose of quinine should as far as possible correspond with the therapeutic dose, and the drug should be constantly circulating in the blood. The therapeutic dose was 1 gram for an adult, and the drug was excreted in about four days. Therefore 1 gram of quinine should be taken every four days, preferably in the evening before going to bed, with 5 minims of hydrochloric acid in a glass of water, and on the appearance of ringing in the ears and other nervous troubles, with 1 gram of potassium bromide. If quinine was not tolerated, it should be substituted by an equal dose of euquinine. In case of intolerance to 1 gram of euquinine half a gram of quinine or half a gram of euquinine might be tried. Those who could not take half a gram of euquinine had better not go to the tropics. Not to forget the quinine days, the drug should be taken on the 1st, 4th, 8th, 12th, etc., viz., on dates divisible by 4 up to the 28th day of the month, to commence once more with the first day of the following month. A few years ago the Cameroons were a place of terror and death to the European. Thanks to quinine prophylaxis, the mortality from malaria, which stood at about 8 or 9 per cent., had gradually fallen to zero. The destruction of malaria bearing mosquitos in uncultivated districts was best achieved by killing the larvæ and nymphæ. This method had given splendid results in the British Colonies. In the Cameroons it had reduced the number of malaria-infected natives by at least one half. In places where the swamps were so vast that it was impossible to combat the mosquitos, no further European colonization should be attempted.

Further systematic efforts should be made in propagating such plants as the American pondweed (*Anacharis alsinastrum*), which covered the surface of the water and thus suffocated the larvæ and nymphæ of anopheles. In North Germany the rapid decrease of malaria in the neighborhood of Wilhelmshaven was to be associated chronologically with the propagation of this water pest. The protection of man against the bites of anopheles was best attained by the use of mosquito-proof houses. Ointments and oils supposed to prevent mosquito bites might help for a few hours, but were of no practical value. Europeans should reside at a distance of no less than three-quarters of a kilometer (about half a mile) from the habitations of the malaria-infected natives. The excellent results obtained by such a measure in Old Calabar, in Akkra, and in the Cameroons were well known. General hygienic measures were of the utmost importance. In all malarial countries, even in the malarial districts of Germany, it was known that the poor population contributed the largest contingent to the infection. In Africa the population best fed, best clothed, and best housed was also the best protected against malaria.

The influence of the physician in the tropics should become far greater than it had hitherto been, for most government measures were closely connected with hygienic necessities. Men like Balley and MacGregor had shown the possibilities, in hygienic respects, of a broadminded administration in Africa.

Surgeon-Major Nott, I.M.S., described an interesting experiment in anti-malarial sanitation carried out in 1905 in the town of Berhampur, in deltaic Bengal. The measures taken were those of superficial drainage of collections of water, removal of jungle, and repeated application of kerosene oil. As expected, there was no means of forming an opinion whether malaria was lessened, comparison with previous years being fallacious. But success certainly attended the efforts, and showed that the breeding of anopheles could be checked by measures of a modest character as regards organization and cost.

Dr. W. J. Prout, C.M.G., said it was not wise to entrust the carrying out of sanitary measures to local town councils or local boards on which the majority was native. Instances could be given where this had resulted in an absolute stoppage of sanitary progress. Sanitary administration should be kept in the hands of the government. Education was important so far as the children were concerned. It was useless to attempt to convince the adult native, he was too conservative and too fatalistic, but the negro child had shown himself extremely susceptible to education, and assimilated hygienic teaching with avidity. As an anti-malarial measure, the importance of the administration of quinine to native children had not been sufficiently realized. Dr. Prout strongly advocated the free distribution of quinine among the natives. He agreed with Professor Ziemann as to the necessity of placing more power in the hands of medical men.

Dr. Louis W. Sambon said that the knowledge so far acquired on the etiology and epidemiology of malaria had led to the adoption of very valuable prophylactic measures. The very definite information we now possessed concerning the agency of the mosquito in the propagation of the infection had enabled us to apply vigorously and judiciously the old preventive measures against this dangerous insect pest: Cotton or wire netting to prevent its stab; drainage, cultivation, forestry, and the use of kerosene oil to reduce its prevalence. We had moreover extended the use of quinine with the object of exhausting the supply of parasites. But all these measures were necessarily limited in their application, and therefore only of temporary or individual value. Although they had been in use from time immemorial, the struggle between man and malaria was now as fierce as ever. It had been going on since the days of Empedocles, and certainly began long before the draining of the Selinuntine marshes. Anti-malarial sanitation appeared to be as hopeless as the work of the Danaides, condemned to fill bottomless vessels. And, indeed, one single shower might upset the most costly drainage works, one small rent might be sufficient to render the mosquito canopy worse than useless, obstinate intolerance might prevent the administration of quinine. To stamp out malaria, we needed further measures.

Continuing, Dr. Sambon said that it was a very great mistake to think that we had learnt all that could be known about malaria. There were many points which still required elucidation, and further knowledge would certainly enable us to work out more efficient means of prevention. We knew that malaria had disappeared spontaneously from many places. It had practically disappeared from the few districts of England; it had disappeared from Holland until about twelve years ago, when it suddenly reappeared. In the deadliest malarial regions of the world we had discovered scattered areas free of the endemic, notwithstanding the great prevalence of the disease all round and the presence of all the necessary favoring conditions, including a profusion of the malaria-bearing species of Anophelinæ. We must endeavor to find out the reason why under natural conditions, and independently of the agency of man, malaria had disappeared from these places. Some years ago the speaker had suggested that the disappearance of the intermittent fevers in places in which the suitable mosquitos abounded was probably brought about by the agency of hyperparasites. He had pointed out that the "black spores" or "brown bodies" discovered by Major Ross, believed at first to represent a special stage in the life-history of the malaria parasite, were hyperparasites belonging to the genus *Nosema*. These organisms attacked the malaria parasite in its oocyst stage and destroyed it within the stomach of the mosquito, just as they destroyed the larvæ of *Filaria immitis* developing within the malpighian tubes of mosquitos. A careful study of the natural enemies, both of mosquitos and of their parasites, would probably enable us to solve in an efficient and economic way the great malarial problem. That the suggestion was quite practical might be gathered from the fact that it was by means of natural enemies that agriculturists had been able to overcome the insect pests most injurious to their crops. No better example could be adduced than that of the Australian lady bird, *Vedalia cardinalis*, with which Dr. Riley had saved the orange industry of California.

Sir Patrick Manson, K.C.M.G., F.R.S., said that whether the spontaneous disappearance of malaria from certain districts was due to hyperparasitism, as suggested by Dr. Sambon, or to some other unknown cause, it certainly was a fact of the greatest importance. It should be thoroughly investigated so that we might be able to reproduce the same conditions elsewhere, and thus eradicate malaria. He agreed with Professor Ziemann that the authorities should give every opportunity to the physician in Tropical colonies to institute such measures as experience had shown to be of service in the control of malaria.

Lieutenant-Colonel G. M. J. Giles, I.M.S., said the work of differentiation of species of Anophelines is of less importance than might be imagined. Speaking generally, where one species would breed, another would. Our knowledge of the harmlessness of most species was very uncertain, and based mostly on negative evidence. For practical purposes we should destroy all possible breeding places within reasonable distance of the area to be protected. The discussion of instances doubtless genuine enough, but exceptional, of migrations of mosquitos was of little practical importance. The reports of the Italian Society for the Study of Malaria were full of such instances. On this account spot maps of incidence of cases in infected towns were of the greatest importance in the work of practical sanitation. He advocated a weekly large dose of quinine rather than daily small doses, which were apt to give rise to chronic cinchonism. Self drugging with quinine was extremely common amongst the white residents in West Africa, and was often pernicious. The best way of preventing puddles was that the authorities should punish severely any waste of water.

(*To be continued.*)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-ninth Annual Meeting, Held at Washington, D. C., May 7, 8, and 9, 1907, in Connection with the Seventh Triennial Congress of American Physicians and Surgeons.

(Special Report to the Medical Record.)

Dr. A. W. de Roaldes of New Orleans, La., President.

(*Continued from page 453.*)

Wednesday, May 8—Second Day.

Spasm of the Esophagus.—Dr. John W. Farlow of Boston reported the case of a woman of fifty years who was subject to spasm of the esophagus and whose father and paternal uncle were subject to similar attacks. The patient herself had had a few attacks of discomfort of the throat while eating, and four years ago while eating a piece of raw apple became pale, looked distressed, put her hand to her throat, and was evidently in great discomfort. Pain was felt in the lower part of the neck, but did not extend to the back or arm. She was able to speak, and pulse and breathing were not affected. Was unable to swallow anything during the seizure. Hot applications to the neck gave comfort, but did not relax the spasm. In about twenty minutes she felt relief from pain, raised some frothy mucus which had collected in her throat, and the attack was over. Examination showed only a slight chronic pharyngitis and a moderate enlargement of the lingual tonsil. She then went for a year without a further seizure, and the third attack did not come on for still another year. Massage of the neck was begun, cold compresses used, and local treatment applied to the throat. She had now gone another year without an attack, but the author admitted that treatment might not have had any effect. He would ask what was the nature of such attacks and how they were to be differentiated. Angina pectoris would cause great dyspnea and pain in the chest, radiating down the left arm, and there would be changes in the pulse and breathing. These were all wanting in his patient. Esophageal spasm was more likely to occur in neurotic patients, but this woman was not in the least neurotic. A further matter and the one of practical importance concerned measures of relief. The patient was unwilling to allow the use of any anesthetic which might have caused unconsciousness. A hypodermic of morphine might have relieved her, but in the two attacks in which Dr. Farlow saw her she seemed hopeful that the spasm would soon relax and was loath to have morphine used. As she could not swallow and her mouth was full of saliva and mucus, he did not think that cocaine would have had any effect. Emetine had been suggested in tablet form, and the patient could carry the remedy with her, to be used at the onset of any further attack. Perhaps apomorphine in 1-16 grain dose hypodermically would be efficacious, but as it would require from five to twenty minutes to act, it might not really shorten the attack. Dr. Farlow asked for therapeutic suggestions from those present.

Dr. H. L. Swain of New Haven, Conn., had had a recent case of the kind referred to by Dr. Farlow. His patient referred the origin of his spasm to a point on the left side of the throat. There would be a sort of cramp with pain, and then until the throat relaxed nothing could be swallowed, even water. The sigmoid sinus was cocainized and an instrument passed down to a level just below the cricoid. Then the man was able to swallow. By the esophagoscope a round swelling was discovered on the left side about 25 cm. down from the teeth. A mild silver nitrate solution was applied, but the patient did not report again and his later history was unknown. The condition seemed to be a cramp of the esophagus.

Dr. W. E. Casselberry of Chicago wished that Dr. Farlow had tried cocaine. He had had several cases him-

self similar to the one reported, as to symptoms at least, and in these cocaine had done good service. Even if we are not able to apply the remedy directly to the seat of spasm enough exudes through to near the place of spasm to affect the muscles in the neighborhood.

Dr. L. A. Coffin thought that some of these cases were instances of disordered reflexes. In one case cure had resulted by the removal of adenoids. There might be various peripheral points from which the stimulus would come, it being expended in each case in the esophagus.

Dr. E. Fletcher Ingals of Chicago had had under observation for some weeks a case similar to Dr. Farlow's. The passage of bougies of large size gave relief. Cocaine might be used before passage, though his patient preferred its omission. General tonics and bromides in these cases were an adjuvant to treatment.

Prof. Gustav Killian said it was necessary to exclude changes in other organs before making a diagnosis of local spasm. The latter might be primary or secondary. In one case it came from a diseased stomach. In other cases the patient ate too rapidly and did not masticate sufficiently. He had devised an instrument to illustrate to the patient the effects of insufficient mastication. Such a demonstration had more effect on the patient's mind than any amount of general advice.

The President, Dr. A. W. de Roaldes, wished to call attention to the fact that some of these spasms might be secondary to disease of the nervous system. He had seen the condition in tabes. It might come on not only late in this malady, in which clonic attacks were often noted, but also in the early stages. In one of his patients the esophageal symptoms was the initial evidence of tabes.

Dr. G. Hudson Makuen believed in the existence in many of these cases of a nervous or psychical element. The patients could not swallow because they thought they could not or were afraid they could not. They always did better while under a condition of mental exhilaration. This might arise from the constitutional effect of cocaine when applied rather than to the latter's effect on the spasmodic factor. In one of his own patients there seemed to be a unilateral paresis of the pharyngeal muscles.

Dr. Farlow closed the discussion, stating that while all that had been said was interesting, no one had offered him any suggestions as to treatment of his own case. Exhilaration was not a factor in his own case nor was improper eating. If cocaine was applied when the mouth was full of saliva it would probably fail to act. In his own patient he would feel loath to pass an instrument of any size down the esophagus, especially when the patient was gasping for breath. Methods of treatment which could be used in dispensary patients with frequent attacks could not be used with patients who went a long time between attacks and were in perfectly good health in the meantime. It was worthy of note that the father and uncle of his own patient were affected in the same way, also an aunt and a sister. In this instance there seemed to be some family peculiarity.

Some Considerations Relative to Systemic Infection Through the Tonsillar Ring.—Dr. J. L. Goodale of Boston in this paper referred to one on the same topic read at the meeting in 1906, and stated that during the past year he had continued his work along the same line. He called special attention to the part played by the system in resisting the invasion by microorganisms. A series of cases had come under observation illustrating the possibility of the entrance of rheumatic poison through the tonsils. Removal of the latter had generally been followed by improvement but in one case a complication of joint symptoms was observed in association with throat symptoms. A detailed history was given of the case. The faucial tonsils were of all points in the tonsillar ring, the vulnerable point, but even after they had been removed infection might occur through the lymphoid structures of the posterior pharyngeal wall. Tuberculous infection might occur through normal mucous membrane without leaving any discoverable trace. In some of the obstinate cases in which infection seemed to follow with as great frequency after operation as before it, it seemed probable that the cause of frequent bacterial invasion was not attributable as much to a faulty distribution of lymphoid elements as to a predisposition to such infection on the part of the patient himself. Finally we must further study the part played by the host in such cases. When one was called to such a case as had been considered one should consider not alone the alterations in the tonsils, but evidences of lymphoid change in the vicinity. Even if the tissues appeared normal one could not say that they might not have been in time past channels of entrance for microorganisms. If the individual in his previous attacks of systemic disease had had coincident disturbances in the throat this fact became of great importance. If it was possible to test the opsonic index of the individual with reference to the germs suspected of etiological relation which had been recovered from the throat confirmatory evidence would thereby be obtained.

Dr. W. E. Casselberry called attention to the chain of lymphatic follicles behind the posterior faucial pillars, inflammation of which was called pharyngitis lateralis. This participated in the usual inflammations of the pharyngeal lymphoid tissues. In his opinion it was responsible for some of the systemic infections as rheumatism, endocarditis, etc. Such glands might be destroyed by the cautery. They often kept up trouble after the tonsils proper had been removed, and it was often necessary to extend the cauterization up beyond the level of the velum palati and down into the pharynx.

Dr. Robert C. Myles of New York said that the tonsil projecting into the throat was the one to which most attention had been paid, but there were other kinds which were just as dangerous. The crypts went down deep and there the chief sepsis occurred on account of the moderate amount of epithelium. By properly examining the cervical glands one could tell the pathology of the tonsils without looking at the throat. If the tonsil affection was very definite the glands would be hard. In proportion to their softness the infection was likely to disappear. Twenty per cent. of tonsillar affections were of this variety, while eighty per cent. were of the palatal tonsil. Some of these tonsils to which he referred were incapable of extirpation, which was a serious matter. Such tonsils might extend three-quarters of an inch into the palate. There was danger in operating of setting up cellulitis of the neck. The best course was to clean such a tonsil out and involute it. A certain amount of cervical adenitis might result from the salpingeal folds and they should not be overlooked. Adenoids might cause swelling of the glands in the postcervical region. No consideration of any tonsil case was complete which ignored the amount of adenitis present. It was difficult to say how often such glands were tuberculous.

Dr. George L. Richards of Fall River, Mass., had seen cases with periodical attacks of tonsillitis in which it was difficult in the intervals to note any excess of lymphoid tissue, even on separating the palatal folds. In regard to the nature of the glandular inflammation he had found it at times tuberculous and at other times not. Often a tonsillectomy should be followed by enucleation of the cervical glands.

Dr. Francke H. Bosworth of New York said that it was our duty to remove diseased lymphatics. Enlarged lymphatics did not necessarily call for removal. If we removed the mechanical condition in the pharynx, destroying the focus that entangled the germs, we did all we were called on to do. It was not our duty to dig out all the lymphoid tissue, but to remove the pockets which were the source of the mischief. Invagination of the tonsil was a diseased condition, but unless there were pockets the condition was not one of disease. The so-

called palatal tonsil he did not believe to be an organ of the normal body. A large rounded tonsil projecting into the throat without any follicles did no harm.

Dr. F. C. Cobb said that the pathological retention by pockets or anything else tending to obstruct the flow from the tonsils would cause more disturbance than a mere inflammation of the tonsil or of the lymphoid tissue. The latter might be a normal protective. At times it was overcome by the invading organisms which gained access to the general circulation. It was a mistake to obliterate normal tissue simply on the evidence that through it pathological germs occasionally gained access to the system. There was very little sepsis in acute tonsillitis. The tonsil took care of an enormous number of bacteria.

Dr. Emil Mayer called attention to a recent article by Jacobi, taking an entirely different standpoint from that of the theory that there was a direct infection beginning with the lymphatics of the throat.

Dr. Reginald H. Fitz of Boston, President of the Triennial Congress, was invited to participate in the discussion and said that rheumatism was the disease which most interested the general practitioner so far as the present topic was concerned. Whatever the tonsil might do in some infections, it did not do the same in all. Certain peculiarities of one microorganism might allow it to pass through the tonsil, but perhaps this was not true of all microorganisms. He did not know whether the result of tonsil extirpation had been determined with regard to its bearing on cases of multiple arthritis. Infections occurring after removal of the tonsils should be investigated in relation to those occurring before operation.

Dr. Myles said that he did not advocate removal of lymphatics when they were protective, but only when they were suppurating.

Dr. J. N. Mackenzie of Baltimore referred to some of the former theories as to the function of the tonsil. The lust for tonsil operations had now reached its zenith. The laity had become infected with the zeal for removal. He thought that the matter of infection through the tonsils had been very much exaggerated. Dr. Goodale had beautifully pointed out the bacteriological side of the question, but there was another side—the clinical. He was inclined to think that the modern total tonsillectomy was absolutely unnecessary and sometimes harmful. One should be guided in each case coming under observation by safe and sane conservatism and common sense.

Dr. Bosworth referred to his statement made in London twenty-seven years ago that there were no tonsils in a healthy throat and believed that the truth of this statement would soon be accepted by all practitioners. The tonsil described by anatomists represented a disease process.

Prof. Gustav Killian gave a demonstration of various new instruments devised by him for use in bronchoscopy and esophagoscopy and a general discussion ensued on these operations.

Dr. H. P. Mosher was delighted to have had the opportunity of seeing these new devices. He preferred to have the light on the end of the tube so as to get it as near the foreign body as possible. He had noted that Prof. Killian had had to put the suction tube inside the main tube so as to remove the mucus. With the plain, straight solid tube with a light at the end and a smaller tube set into the side of this tube to remove the mucus it was not necessary to introduce a special tube for this purpose. It was of great importance to know how many cases required an emergency tracheotomy after the manipulation and passing the tubes through the cords. Such a thing had been called for in this country and he would like to know of the experience in this respect in Germany.

Dr. E. Fletcher Ingals said that in his practice he found it better to have the light at whichever end gave the most satisfaction. The light at the distal end did not always work well, no matter how bright it was. He preferred a suction tube that could be introduced through the main tube, as we needed all the room we could get, the larger the tube the better also the lighting.

Dr. Emil Mayer said that very frequently blood would show itself on the mirror, obscuring the view. The holding of the light in the hand in the instrument shown was a great advantage. He thought it useless to practice on the cadaver. It was much better to work on the living dog. An injection of morphine kept the animal quiet. One then had conditions approaching clinical practice, viz., the hot air in the face, the mucus, and the little blood.

Prof. Killian, in closing the discussion, said that the diameter of an electric lamp must be at least three millimeters and that the mirror in the tubes would, in such cases, obstruct most of them. He had found records of 116 cases of tracheotomy after bronchoscopy. In these cases the extraction was difficult and it was necessary to have the tube in position a long time. Personally he had never had such a case. If it was not possible to remove the foreign body through the larynx, we had to do a tracheotomy and also a lower bronchoscopy.

Modern Procedures in Excision of Intrinsic Malignant Growths of the Larynx.—Dr. J. Solis-Cohen of Philadelphia presented this paper. He said that modern procedures virtually excluded all endolaryngeal methods. This procedure comprised a central division of the thyroid cartilage and sometimes of the cricothyroid membrane, cricoid cartilage, or even of the trachea, as may be requisite to expose fully the morbid mass and its immediate surroundings when the wings of the thyroid cartilage were separated with retractors or with stout loop ligatures. He regarded preliminary tracheotomy as not requisite except when strong indication existed for precautionary use of a tube after operation. The whole might be done under either local or general anesthesia, the choice being dependent in great measure on the location and apparent extent of the neoplasm and in part on the predilection of the operator. The author then described in detail the steps of the modern operation. He preferred to follow his own method of beginning with an ordinary tracheotomy and, after introduction of the cannula, to incise the skin only so far as to uncover the larynx, thus leaving a broad bridge of skin above the cannula. This lessened considerably the dimensions of the external wound and favored reunion in the sequence. The bridge could be sacrificed if necessary. In his own practice no stitches were taken in the skin wound. Instead a longitudinal strip of perforated plaster was placed along each side of the neck an inch from the line of incision and then this plaster was sutured in several places along the line of thyrotomic incision through the perforations and tied only so tight as to bring the severed edges of the skin to gentle apposition and leave the wound free for easy and immediate inspection. No threads were passed over the line of tracheal incision, which was left bare to favor expulsion of matters from the air passages. A pad of gauze was moistened in bichloride solution, while a broad strip of antiseptic gauze was doubled over a narrow strip of adhesive plaster and secured to the neck, so that the gauze hung down over the dressing upon the seat of the wound. Postoperative treatment was most important, and a skilled assistant should be on hand for the first twenty-four hours. Should it become necessary to reintroduce the cannula into the trachea for any length of time the atmosphere near the head of the bed must be moistened so as to prevent desiccation of secretion. The author paid a generous tribute to the recent work of Semon and Butlin. Dr. Cohen's chief points of variance from the usual methods were the retention of the skin bridge above referred to, the removal of the growth *en masse* upon a plate of excised perichondrium and superjacent tissue, dressing with compound tincture of benzoin, avoidance of sutures in the cartilage and skin, and the special method of loosely approximating the edges of the

incisions. The tincture of benzoin was mopped thoroughly on the raw surface left after removal.

Non-Recurrent Carcinoma of the Larynx, Removed Through the Natural Passages. Dr E. Fletcher Ingals of Chicago reported this case. The patient was a man of forty-four years, laborer, who came under observation in January, 1906, complaining of hoarseness of six years' duration. For the last three weeks he had felt some pain in the region of the left half of the hyoid bone, none previously. Had had also a recent catarrhal cold. There was no dyspnea, but he could not talk, as a rule, much above a whisper. Had formerly been a mild smoker. Had lost a pound or two and had a slight hacking cough. A pinkish gray tumor involved the anterior five-sixths of the left vocal cord, filling the ventricular opening and considerably obstructing the glottis, crowding outward into the ventricular band. The growth had the appearance of malignancy, but owing to its long duration the author hoped it was only papillomatous. The greater part of it was removed at the first sitting. Three days later more fragments were removed, and there was considerable pain felt by the patient in the larynx in the subsequent days. The patient was not seen again for a week and in the meantime the microscopist had reported that the neoplasm was a slowly growing carcinoma with growth toward the surface and considerable keratohyaline transformation of the epithelial cells. At this time Dr. Ingals found a growth at the anterior end of the left cord larger than at the last visit, and this was thoroughly removed with a Mackenzie forceps. After removal of this a growth of about the same size was seen just below the cord and it was also removed. When the patient returned four days later he was very hoarse. Sedative measures were instituted and continued for several months. The patient's condition gradually improved, and in two months it was noted that the voice was much clearer. The patient was again seen over a year after the operation and for the last three or four months his voice had been perfectly normal. A slight thickening of the cords was noted, but was referred to a recent cold. Dr. Ingals stated that although interference with malignant laryngeal growths was likely to stimulate their increase, it appeared to him that when there was doubt as to exact nature and when conditions were such that we had a hope of removing the neoplasm thoroughly by the endolaryngeal method, this latter should be selected. If the examination revealed malignancy and the tumor speedily returned, laryngotomy or laryngectomy should at once be advised if there was reason to believe that a thorough removal could be effected.

Epithelioma of the Larynx; Removal by Thyrotomy; No Recurrence After Three and One-half Years.—Dr. Henry L. Swain of New Haven reported this case, his patient being a clergyman of forty-seven years, who came under observation in March, 1903, with increasing hoarseness dating back several months. The larynx was slightly congested throughout and much swollen on the entire left side, so that no clear view of the true cord could be had. Subsidence of the swelling later revealed a white papillomatous mass growing from the upper aspect of the cord and apparently coming out of the laryngeal ventricle. Nearly the entire cord was covered by the growth. After some thinning of the patient the entire visible mass was removed in small pieces, as it proved very friable. Microscopical evidence was negative. Some two months later the mass returned and was again removed. This was done [illegible] time in the next two months. Six months after the first appearance of the patient it was decided that something more radical must be done. Up to this time no positive evidence of malignancy was manifest under the microscope. Thyrotomy and exsection were then done after the usual modern methods. Recovery was rather slow, but satisfactory. At the present time the patient spoke in a perfectly audible, but rather husky, voice. A fairly good presentment of a vocal band had been produced in the shape of a dense white band where the true cord should be. The false cord was flatter than usual and the ventricle had been obliterated. The reporter laid emphasis on the following points: (1) The ever-present difficulty in coming to a diagnosis; (2) the wisdom, even when in doubt, of operating so as to insure complete removal; (3) the repeated observation of the surprising difference in the appearance of the growth when the larynx was opened; (4) the impossibility of being sure everything malignant had been removed; hence the value of using the Paquelin cautery; (5) the possibility when the larynx was roomy, of shutting up the whole wound instead of leaving the tracheotomy tube in place; (6) the unquestioned advantage of the absolutely recumbent position with the feet raised; (7) the small amount of suffering in an intelligent, brave, and tractable patient as compared with the mercy of a complete cure.

Dr. Ingals saw no reason why cocaine and adrenalin should not be used together in these operations so as to obviate so much mopping. He had had many disagreeable symptoms following cocaine alone. The adrenalin might prevent the absorption of the cocaine and thus prevent constitutional effects. An excess of gum benzoin, say two drams to the ounce, was an advantage, as it made a firmer film over the tissues.

Dr. Thomas Hubbard had observed that in etherized patients adrenalin did not produce ischemia, at least in the nose. He did not know any reason for this. He had not made the same observation with reference to chloroform.

Dr. J. Payson Clark gave the history of a case of laryngeal cancer operated on ten years ago. The patient was still living at seventy and was in good health, with a very firm strong voice. Dr. Gordon King of New Orleans gave a similar case history, his patient being alive and well two years after operation and with good voice.

Dr. R. C. Myles of New York believed that there was something individual in these cases. The cancer might be of the superficial type and a good result follow operation, but he did not believe that cancer of the deeply penetrating type could be cured.

Dr. D. Bryson Delevan of New York reported the history of a case illustrating the fact that the picture as seen in the mirror gave a very misleading idea as to the extent of laryngeal involvement. His patient had been operated on ten years ago and was still in fair condition. Some of the surgeons of the present day were coming to the conclusion that cancer did not admit of cure. The time limit was not to be relied on. It was insufficient to place it at three years, as experience frequently showed. Under the method as presented by Dr. Cohen we were likely to secure the best results. He thought, however, that all methods were hopeless and in the main disappointing. We should continue our investigations in the hope of discovering some cure which would put surgery out of the field entirely.

Dr. J. Payson Clark stated that an operation which would prolong life was often justified even if the case eventually proved fatal. He related the history of one case.

Epithelioma of the Larynx. Dr. Clement F. Theisen of Albany, N. Y., reported this case, which emphasized the necessity of early diagnosis and also the fact that microscopical examination was often difficult and that the laryngologist might lose valuable time owing to the pathologist's uncertainty. The patient was a man of fifty-seven years, with a husky voice for some months. A flat nodular firm growth was seen, involving about two thirds of the left cord. Surrounding parts were reddened. Examination of some small fragments suggested that the condition was merely inflammatory. The reporter's original diagnosis had been carcinoma. Under palliative treatment there was

temporary improvement, but some weeks later it was noted that the whole of the left cord had become involved and there were evidences of encroachment on the right cord also. The diagnosis was now positive, and the dyspnea had become so great that a tracheotomy was done under local anesthesia. After some delay on the patient's part he consented to a radical operation. A total laryngectomy (Gluck) was done three weeks later. Pneumonia proved fatal on the thirteenth day. The microscope showed typical epithelioma. It was worthy of note that the marginal epithelium of the growth was found in a normal condition, but its transformation into malignancy could be definitely seen in the sections. The growth itself was entirely of epithelial origin, and irregular columns of spheres of epithelial cells could be seen growing into the underlying tissues in all directions. In the centers of these areas there was manifest a tendency to rapid degeneration, for the cells were in many places replaced by detritus. The interstitial connective tissue was thickly infiltrated with small mononuclear leucocytes and plasma cells, and in some areas there was proliferation of the small capillaries.

Sarcoma of the Pharynx.—Dr. THEISEN also reported this case. The patient was a girl of eight years with a history of dyspnea for several months. A large mass was seen in the throat, including the soft palate and pushing it forward. The growth extended almost to the epiglottis and apparently involved the nasopharynx. The glands were enlarged on the left side of the neck. It was decided that the case was inoperable and the mixed toxins injections were given. Microscopical examination of a piece of the growth was not decisive. Clinically there was no doubt as to malignancy. Injections directly into the mass were begun and after some time constitutional reaction was noted. Adrenalin injections were not used, as the method was too slow to effect any result in this case. The iodides were also without result. Nothing seemed to make any impression whatever on the growth. Death came from increasing dyspnea about two months after the patient came under observation. The microscope showed spindle-celled carcoma with hyperplasia of adjacent lymph nodes. The reporter referred to similar cases recently recorded in the literature of sarcoma.

(To be continued.)

AMERICAN GYNECOLOGICAL SOCIETY.

Annual Meeting, Held in Washington, D. C., May 7, 8, and 9, 1907.

(Concluded.)

JOINT SESSION WITH THE URINARY SURGEONS.

Surgery of the Kidney.—Dr. GEORGE S. HUNTINGTON of of New York pointed out by means of numerous lantern slides some of the congenital variations of the kidneys and ureters in reference to their development and surgical importance.

Dr. LEWIS GREGORY COLE of New York followed with remarks on the radiographic diagnosis of renal lesions. His talk was accompanied by the projection of numerous lantern slides on the screen.

Dr. CHARLES H. CHETWOOD of New York exhibited specimens, and presented illustrations of renal lithiasis, of pyonephrotic stone kidney, and of renal tuberculosis.

Dr. FRANCIS S. WATSON of Boston presented the subject of calculous anuria, with especial reference to bilateral renal calculus, and to the simultaneous performance of bilateral nephrolithotomy in those cases, and to calculous anuria occurring in patients having but one kidney.

Dr. HOWARD A. KELLY of Baltimore discussed the value and method of mensuration in vesical, ureteral, and renal work.

Dr. GEORGE E. BREWER of New York considered the pathology, diagnosis, and treatment of acute unilateral septic infarcts of the kidney, while Dr. GEORGE M. EDEBOHLS of New York pointed out some of the requirements of up-to-date nephrectomy.

Wednesday, May 9—Third Day.

Cystic Lymphangioma of the Gastrocolic Omentum.—Dr. W. FRANCIS B. WAKEFIELD of San Francisco reported the case of a four-year-old boy, who was brought to Dr. S. J. Hunkin, with an enormously distended abdomen. He presented no other symptoms. For at least two years the child's abdomen had been noticed to be progressively increasing in size. Laparotomy was advised. Dr. Wakefield was invited to operate, and saw the child for the first time on the operating table. Abdominal section disclosed a multiple cystoma larger than an adult head, which was broadly attached to the greater curvature of the stomach, spreading out over a small portion of the anterior and a greater portion of the posterior wall. Its attachment to the stomach was so firm that it could not be separated therefrom without danger of injury to that viscus, and it was therefore cut away as close as possible to the stomach wall. No gross pathological change could be observed in the wall of the stomach, the cystoma having simply plastered itself over its surface. The leaf of the gastrocolic omentum, which passes from the stomach to the transverse colon, was absent, although the ordinary omental apron spread itself downward from the transverse colon over the small intestines. It seemed clear, then, after the tumor had been delivered through the abdominal incision, and the operator found himself able to look directly down upon the pancreas, that he was dealing with a cystic tumor originating in and displacing the upper reflection of the gastrocolic omentum, and that the tumor early in its career, as it developed between the omental folds, had, by simple contiguity, spread itself over and become attached to a somewhat broad area of the stomach wall. A small cystic mass, about the size of a hen's egg, was found loosely attached to the head of the pancreas, and a still smaller one, about the size of an English walnut, was found attached to the serous coat of the stomach, some distance from the main tumor. The tumor was larger than a man's head, and consisted of a number of variously-sized, thin and clear-walled cyst chambers. The central portion of the neoplasm was occupied by a single cavity which made up the bulk of the cystic mass. Surrounding this central cavity on all sides were numerous smaller cystoid masses ranging in size from that of an orange to that of a pea. The walls of all the cyst chambers were thin, easily ruptured, smooth, shiny, and in general appearance resembled the omentum. The component layers of the cyst walls could not be separated. The inner walls of the cyst cavities were in many places covered by somewhat adherent, gelatinous masses, which to the feel were distinctly granular. The fluid contained within the cavities of the cystoma was clear, straw-colored, neutral in reaction to litmus, and coagulated into a solid mass on heating with a drop of acetic acid. In some of the chambers the fluid was mixed with fine crystals, oily to the touch, and microscopically identical with cholesterin. In others the presence of blood was indicated, macroscopically by imparting a dark color to the fluid, and microscopically by the presence of red cells. The cystic fluid everywhere contained leucocytes. The author gave a detailed report of the histological examination of the walls of the cystoma.

Ectopic Gestation with Special Reference to the Treatment of Tubal Rupture.—Dr. HUNTER ROBB of Cleveland, Ohio, gave a brief review of the course of an ectopic gestation, also of the opinions of various authorities as to the treatment to be adopted in emergencies due to tubal rupture; as the patient rarely died from the hemorrhage, but more often from shock, as a rule it was better not to operate until reaction had taken place. Records of several cases treated in this way and also of experimental hemorrhages produced by cutting the ovarian and uterine arteries in bitches were given.

Incision of the Anterior Uterine Wall as the Treatment of Chronic Inversion of the Uterus.—Dr. REUBEN PETERSON of Ann Arbor, Michigan, said that all efforts at reposition of a chronically inverted uterus must be directed towards dilating and incising the unyielding cervical ring. Pressure methods were relegated to the past. Proper treatment was operative from the start. The constricted cervical ring could be incised from above or below. The abdominal route was no easier and did not give as good results as the incision from below. The uterine wall might be incised anteriorly or posteriorly. The former was preferable. He cited a case of twelve years' standing which was successfully treated by this method, and described in detail the operative technique.

Dr. I. S. STONE of Washington, D. C., presented a study of the uterosacral ligaments from the standpoint of their utility as uterine supports.

Post-Operative Inversion of the Vagina; a Presumably New Operation for Its Cure.—Dr. PHILANDER A. HARRIS of Paterson, N. J., said that access to the field of operation was made through a suprapubic median line abdominal incision. The round ligaments were sought and dissected from their imbedments. The vagina was pushed well upward with a staff. A small hole was cut in the vagina upon its right side, and another opposite upon its left. The mucous membrane of the fundus of the vagina between and about these penetrations was curetted. The right ligament was drawn through the apertures near the top of the vagina from right to left. The left ligament was then drawn through the apertures of the vagina from left to right. The distal end of each ligament was then drawn taut, and sewed as high as possible with catgut to the larger portion of its fellow. After sewing the distal portion of each ligament to the proximal portion of the other ligament, the through-and-through sewing was continued at the fundus of the vagina in such a manner as to repeatedly penetrate the ligaments which it covered.

Officers.—The following officers were elected: *President*, Dr. J. Montgomery Baldy of Philadelphia, Pa.; *Vice-Presidents*, Dr. I. S. Stone of Washington, D. C., and Dr. Malcolm McLean of New York; *Treasurer*, Dr. Chas. P. Noble of Philadelphia, Pa.; *Secretary*, Dr. J. Riddle Goffe of New York; *Member of the Council*, Dr. Clement Cleveland of New York.

Philadelphia was selected as the place for holding the next annual meeting, in 1908.

Rectal Alimentation.—Francis B. Boyd and Jean Robertson, from their observations, conclude that proteid food, even when predigested and with salt added, is very poorly absorbed in rectal feeding; the albumin of eggs, as generally used in rectal feeding, is a very expensive and unsatisfactory food stuff; there is no relation in the amount of proteid injected and the amount absorbed, absorption seeming to depend more upon the patient's individual capacity for absorption than upon the amount of proteid food given. The writers declare that fat absorption seems to play an important rôle as a nitrogen saver. The loss of tissue nitrogen in six of their observations is very much larger in those in which the fat absorption is poor. Taken as a whole, these observations show that emulsified fat is a very useful ingredient in rectal enemata, and is far better absorbed than is generally believed. The observations of these observers tend to show that the amount of sugar lost by bacterial action is small, being always below 1 per cent. Excepting Reach's observations, which they do not accept as conclusive, the observers to the use of sugar as not being utilized, but as being split up before absorption, are wholly theoretical. In none of their cases was there any bowel irritation due to the dextrose, nor did alimentary glycosuria occur. They believe that the best results in rectal feeding will be obtained from the carbohydrates and fats. A syringe should never be used for nutrient enemata, but the enema should be very slowly syphoned in by means of a soft rubber catheter and a small-sized filter funnel. These writers conclude that rectal alimentation has a far more limited field of usefulness in clinical medicine than is at present accepted.—*The Scottish Medical and Surgical Journal*

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending September 14, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	365	142
Diphtheria	189	20
Measles	183	4
Scarlet Fever	108	4
Smallpox	..	..
Varicella	17	..
Typhoid Fever	182	18
Whooping Cough	10	6
Cerebrospinal Meningitis	11	6
Malarial Fever	..	..
Totals	1065	200

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended September 13, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
Alaska, St. Michael	Aug. 7	1	..
California, Sacramento	July 1–30	1	..
San Francisco	Aug. 18–24	3	..
Indiana, Anderson	Aug. 1–31	1	..
Indianapolis	Aug. 26–Sept. 1	1	..
Marion	Aug. 1–31	3	..
Kentucky, Covington	Sept. 1–7	1	..
Louisiana, New Orleans	Aug. 25–31	1	Imported
New York, Buffalo	Aug. 26–31	1	..
North Carolina, 17 counties	July 1–31	141	..
Greensboro	Aug. 25–31	2	..
Ohio, Dayton	Aug. 25–31	1	..
	June 1–30	11	1
Oregon, General	July 1–31	6	..
Texas, San Antonio	Aug. 18–24	2	..
Virginia, 8 counties	July 1–31	21	..
Washington, Tacoma	Aug. 18–24	1	..
Wisconsin, Milwaukee	Aug. 30–Sept. 4	2	..

SMALLPOX—FOREIGN.

Argentina, Rosario	June 1–30	..	19
Australia, New South Wales—New Castle	June 1–30	1	..
Australia, Vienna	Aug. 11–17	6	..
Brazil, Rio de Janeiro	Aug. 4	6	1
France, Paris	July 29–Aug. 4	7	1
Greece, Piraeus	Aug. 11–17	1	..
India, Bombay	July 24–Aug. 6	.	3
Madras	July 27–Aug. 2	.	1
Java, Batavia	July 21–27	2	.
Madeira, Funchal	Aug. 14–25	6	3
Portugal, Lisbon	Aug. 11–17	4	.
Russia, Moscow	Aug. 4–10	3	.
Riga	May 1–31	.	16
St. Petersburg	July 28–Aug. 3	1	..
Spain, Barcelona	Aug. 18–27	..	3
Valencia	Aug. 19–25	10	4
Turkey in Europe, Constantinople	Aug. 18	..	1
Turkey in Asia, Bagdad	To Aug. 3	.	Present

CHOLERA—UNITED STATES.

Maryland, Baltimore	Sept. 1–7	1	.
	In Quarantine Station, from Norwegian S. S. *Aagot*, from Daiquiri		

CHOLERA—FOREIGN.

India, Bombay	July 24–Aug. 6	.	69
Calcutta	July 21–27	.	2
Madras	July 27–Aug. 2	.	5
Japan, Yokahama	Aug. 3	5	3
	On S. S. *Yamashiro Maru*		
Russia, Opposite Black Sea Ports	Aug. 14	.	Present
Samara government district	To Aug. 5	50	10
Samara	Aug. 5	35	10
Stavropol-Stavropol	Aug. 5	5	..

YELLOW FEVER.

Brazil, Rio de Janeiro	July 29–Aug. 4	1	1
Cuba, Cienfuegos	Aug. 30–Sept. 5	4	2
	Aug. 3–Sept. 5	34	8
Mexico, Manzanillo	Aug. 1	1	On S. S. *San Juan*
Veracruz	Sept. 5	1	.

PLAGUE—UNITED STATES.

California, Berkeley	Sept. 1	1	1
San Francisco	Sept. 10	3	1
	Total for San Francisco since the new outbreak in Sept. 10, 21 cases and 9 deaths; the case and death in Berkeley was originally reported with the San Francisco cases.		

PLAGUE—FOREIGN.

Australia, Brisbane	July 7–25	3	3
Brazil, Bahia	July 27–Aug. 10	16	2
Rio de Janeiro	July 20–Aug. 4	5	1
China, Amoy	July 26	..	Epidemic
India, Bombay	July 23–Aug. 6	..	24

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Original Articles.

OBESITY, GOUT, AND DIABETES MELLITUS CONSIDERED AS DISEASES OF CELL METABOLISM TRANSMISSIBLE BY INHERITANCE.

BY PROFESSOR WILHELM EBSTEIN, M.D.
GÖTTINGEN, GERMANY.

FROM the many ways in which the so-called disease of metabolism are grouped and arranged into nosological systems by the different authors, it is evident how much at variance are the views of physicians concerning the nature and essence of these diseases. They are often identified with the pathological conditions that go under the name of constitutional diseases, and the term "diseases of nutrition" is often substituted for either one of these names. The latter is the case in the large and well known "Handbook" of Charcot, Bouchard, and Brissaud, in the first volume of which (Paris, 1891) Le Gendre treats of the disturbances (*troubles*) of nutrition separately from the diseases (*maladies*) thereof. Among the disturbances of nutrition Le Gendre considers in the first place the morbid predispositions or diatheses characterized by retardation of nutrition, counting among them the gouty and the scrofulous diatheses, and in the second place the modifications and disturbances of nutrition in pathological conditions. The primary diseases of nutrition, on the other hand, are divided by Le Gendre into the seven groups that follow: 1. The acid dyscrasias (rickets and osteomalacia). 2. The lipogenic dyscrasias (fat formation, the seborrheas, and obesity). 3. Formation of gallstones (the precipitation of cholesterin). 4. Urinary gravel. 5. Diabetes mellitus, from which are distinguished the various forms of pseudodiabetes, viz. diabetes with the excretion of inosite, that with an increased excretion of urea (azoturia), and finally the pseudodiabetes characterized by the excretion of salines (phosphatic diabetes). Gout belongs to the sixth group and is divided into acute and chronic gout and the form due to lead poisoning; while the seventh group contains chronic progressive rheumatism (arthritis deformans).

William Osler, in the third edition of his "Principles and Practice of Medicine," 1898, considers certain forms of rheumatism (arthritis deformans, chronic, and muscular rheumatism), diabetes insipidus, and rickets among the constitutional diseases, in addition to gout, diabetes mellitus, and obesity.

To me it has seemed necessary to place obesity, gout, and diabetes mellitus into one group and to term it hereditary diseases of cell metabolism.* This term appears to me to have quite a number of advantages over the name, "diseases of metabolism in the narrower sense," selected by Leube, but it is not necessary to discuss this latter term proposed by him in the year 1896, because he himself dropped it in the second volume of his "Diagnosis of Internal Diseases," sixth edition; there he groups almost the same diseases as Osler under the heading of the diseases of metabolism, and arranges them together with the diseases of the blood in a still larger division, that of constitutional diseases; Osler, on the other hand, groups the diseases of the blood with those of the so-called blood glands (ductless glands) and considers them separately from both the diseases of metabolism and the constitutional diseases. To Leube diseases of metabolism is the narrower conception, while constitutional diseases is the wider term; in my opinion just the opposite is the truth. Anomalies of metabolism are certainly not absent in any severer forms of disease whatever, for the term metabolism means nothing more than the changes which are observed in the human or animal body, and which are caused by the introduction and removal of the chemical products of exchange; in febrile conditions, for instance, we never miss the disturbances caused by the exaggerated exchange processes of the living tissue. The conception of constitutional disease, in so far as it may be at all allowed, is to be applied to a disturbance caused by the anomaly of the fluids of the whole body, the word "constitution" in exact definition meaning a fixed condition of the body or of its fluids. Such humoropathological conception belongs to a past epoch, and in any case the word "constitutional disease" ought to be completely banished, because not the constitution as a bodily condition may become diseased, but the individual who happens to be the owner of a certain sum of body qualities.

There are many reasons that would seem to justify the separation of obesity, gout, and diabetes mellitus from the other diseases of metabolism and the grouping of them into a separate class of diseases; while the considerations that follow ought to show that the term "hereditary diseases of metabolism" is the correct one for such a group. The close relation of these three diseases is evident from the fact that two of them are quite frequently found in the same individual, while occasionally this is the case with all three; this simultaneous occurrence has certainly been observed too often to be considered accidental, and indeed, so far as I know, the latter view has never been maintained. Nor is transmissibility by inheritance an any less generally acknowledged property of these diseases, which term of course means not the necessity of such transmission, but only a possibility thereof. In any case this transmission occurs so often that here also the possibility of a frequent accident as an explanation seems completely excluded; such transmission, moreover, often extends beyond one, over a whole series of generations.

*Compare my views in Ebstein & Schwalbe, "Handbuch der Praktischen Medizin," 2 Aufl. 4. Bd.

So far as the term diseases of *cell* metabolism is concerned, the use of that word is meant to convey no more and no less than that the origin of such disease is connected with a deficiency in the elemental parts of the human organism; such deficiency is inherited, that is, received in the body of the mother and accordingly present at birth as a tendency in the greater number of cases, while much more rarely it may be acquired at a later period. This conception is closely connected with the teachings of cellular physiology and pathology, starting from the principle that there exists no living substance that is not arranged in cells, and no function of such living substance that does not originate in the elemental life phenomena of the cell. Pflüger had long ago put forth the principle that in response to external influences various decompositions of an important character take place in the living proteid molecule, that is inseparable from the conception of life, the means for such changes being furnished either by the oxygen contained within the molecule or constantly taken up by it from without. During these changes carbonic acid gas is constantly formed, and indeed not only by the direct oxidation of carbon and the simple splitting of the carbonic acid molecule from the living protoplasm, but also by dissociation; that is, by the internal rearrangement of atoms and the separation of the new atom groups from each other. I need not enter here into further explanation of this conception for much of Pflüger's teachings no longer corresponds to the present state of physiological knowledge. M. Verworn, in submitting this theory to a thorough and adequate revision, struck the very essence of it by substituting for the living proteid molecule another conception, that of a biogen, which word corresponds to an idea of an active function. The biogens are the real bearers of life, and upon their continuous destruction and reformation is founded the whole life process in all its immense variety, it being self-evident of course that this conception includes not only the physiological state of this life process, but also those deviations from normal which are termed morbid by us. Accordingly, a physician has the right to seek the first cause of many general disturbances of the human organism in a primary anomaly of the biogens. The experience of daily life, indeed, has made this familiar to us, for we see that every individual possesses his own inherited peculiarity, often strikingly limited to his family, which in the last analysis must certainly have its seat in the elemental parts of his organism; that is, in the biogens. This fact may be observed in the pathological as well as in the normal state of the organism. Even à priori it is not to be doubted that the inherited and transmissible anomalies of the biogens can earlier or later make themselves evident in the form of various disease processes; it will be my task to show that their elementary disturbances consist in the incomplete formation or destruction of certain constituent parts of the human organism, which are then either retained in the body or more frequently perhaps are excreted in the urine. Hofmeister had extended the theory first proposed by Hoppe-Seyler that in all these disturbances a fundamental rôle is played not alone by incomplete combustion processes, but also by abnormal fermentations which are not exclusively destructive in their character; at the present day many good workers are occupied in the further development of these problems, and I would name among their labors the pioneer researches of my former fellow worker in the Göttingen medical clinic, Dr. V. Schittenhelm. The task then that is to be accomplished in the following pages is to show in how far my contention is correct, if at all, that obesity, gout, and diabetes mellitus are to be traced essentially to a certain deficiency of cell activity, at the same time more exactly defining the latter conception. In this connection it will become self-evident that the three diseases named above do not exhaust the list of affections in which the normal destruction of the intermediate products of metabolism is not finally carried out, but is halted as soon as a form that may be excreted by the urine is reached.

Let us then begin our task by considering the pathogenesis of corpulence and of the more advanced state of it, obesity, which is the most frequent of the three diseases that interest us. The primary symptom of this disease, the very root of all evil, is the abnormal increase of body fat, carried to a lower or higher degree of corpulence. This may originate in three different ways: in the first place, because of an increased amount of nourishment taken; in the second, because of diminished fat metabolism; and finally, because of both these conditions; the latter combination being made use of in the commercial fattening of animals. The fact that food is poor in fat, moreover, is no impediment to the appearance of the highest degree of corpulence, for nowadays almost everybody grants that the various classes of food material may under certain circumstances provide the elements for the formation of fat in the body. It may then be accepted as probable, at least, that the human body would become rich in fat under the conditions present in the fattening of animals, although it must not be forgotten that in so far as very extensive deposits of fat is concerned individual peculiarities are much more frequent in the case of man. One must come to the latter conclusion, because experience shows many men that eat almost everything and any quantity they please, leading withal no especially active life, without at the same time falling a prey to corpulence. We may therefore conclude that in the case of individuals not predisposed to corpulence there must be present certain characteristics preventing the deposition of excessive fat in the body, while in individuals predisposed to obesity, yet situated in otherwise similar circumstances, no such inhibitive action takes place, the degree of their obesity being apparently proportional to the number and kind of opportunities favoring such condition. The deposition of fat, so far as I know, occurs only in the protoplasm, the nucleus certainly remaining always free of fat. In the case of food poor in fat we must explain the deposition of fat in the protoplasm by supposing that proteids and carbohydrates may be transformed into fat by transposition of their elements or by some synthetic processes; this may occur more or less in a given patient, but always to a greater degree than under normal circumstances. Even if we were completely agreed about the manner of fat exchange in the animal body under normal conditions, we yet could not, as is often done, transfer such views to individuals who are predisposed to obesity; in their case the process of nutrition is doubtless accomplished in a different manner, a greater or lesser part of the food taken not being properly utilized in each given case. It is hard to state the real cause of this condition of affairs and, anyhow, such questions cannot be positively answered at the present time. Even had the study of the respiratory gas exchange in corpulent persons given us more uniform data than has been the case, we could still draw no gen-

eral conclusions from them in reference to the diminution of oxidation power in the individuals examined; it is to be remembered that the extent of the respiratory gas exchange depends upon numerous factors, such as the food and the formation of acid in the body, and therefore it in itself cannot solve the problem occupying our attention, namely, whether the consumption of fat is diminished in corpulent persons. Yet it is quite instructive to see from such researches that corpulent people show a much less perceptible rise of gas exchange, lasting, too, for a shorter period of time, after meals than is the case with thin individuals. Among the many hypotheses, most of which do not at all further our knowledge of this matter, the views of a former fellow worker of mine in the Göttingen medical clinic, Prof. Dr. R. Waldvogel, deserve close attention. He showed that 5 grams of sodium oxybutyrate aseptically injected into fat and into thin individuals are completely consumed in the case of the latter, with an accompanying increase of temperature, while no such rise is observed in corpulent individuals; the latter, therefore, are unable to consume fatty acids that appear in their intermediate metabolic processes in the same degree as is the case with non-corpulent persons. Even though Waldvogel himself raises an objection to his work in asking whether the mere excess of fat in the cells of corpulent individuals may not harm their fat-splitting ferments, yet in my opinion his experiment, in spite of the possible truth of this objection, may even now contribute to the explanation of the pathogenesis of corpulence, for the constant increase of fat in the cells of corpulent persons may be regarded as furnishing a condition quite favorable to a progressive development of obesity. That the deposit of fat in the cells cannot be looked upon as the most important element in the retarded oxidation of the sodium salt of β-oxybutyric acid injected into the body is seen from the results obtained by Waldvogel, a like retarded consumption of these fatty acids being noted in the non-obese diabetics, in whom certainly no increase of fat in the cells is to be presupposed. In any case we are justified in considering the results obtained by Waldvogel as furthering very much our understanding of the abnormal metabolism of fat in obese persons.

We turn now to the pathogenesis of gout, which is doubtless related to obesity in so far at least that the great majority of individuals suffering in their youth from gout, in their later years become more or less corpulent. The one fact at least has been established that gout depends upon a disturbance in an intermediate stage of metabolism, namely that of the nucleins. These are known to be the essential elements of the cell nuclei, and from their decomposition originate uric acid, xanthin, hypoxanthin, adenin, etc. The famous synthesis of the purin bodies accomplished by Emil Fischer gave rise at the same time to important advances in our knowledge of the nature of gout. He found that the compounds, since called nuclein bodies, contain a common radicle named by him purin; and by means of repeated analysis and synthesis he showed then that there are many intermediate forms between the individual members of the purin group, and finally succeeded in producing all the purin bodies contained in the urine. It is true that at present we cannot with absolute assurance trace gout to an abnormally abundant formation or diminished destruction of uric acid in the tissues. Some of the uric acid is formed in the organism originating in part at least from the nucleins of the destroyed cell nuclei, this making up the so-called endogenous uric acid, which is estimated to reach in quantity from 0.3 to 0.6 grams in a normal adult. The other, exogenous, portion of uric acid is brought to the body with the food in the form of highly complex compounds that are broken up into their elements in the intestinal canal and are absorbed in some form that has not as yet been clearly established. The quantity of the exogenous uric acid fluctuates within wide limits according to the purin content of the food. The solid organs may be considered to be the site of the changes undergone by the purins liberated in the course of metabolism, blood being probably merely a means of transportation of the purins and especially of uric acid. If the liver or the muscles prove inadequate for the destruction of uric acid, its quantity in the circulating blood may become increased, but no increased excretion of uric acid in the urine must necessarily follow, for the kidney is likewise capable of destroying the acid, assuming this function vicariously, when the other organs refuse to functionate. In any case, therefore, we are in no position to estimate even by the best methods of examination the quantity of uric acid formed or destroyed in the human body. It would be very improper, moreover, to form any opinion of the purin metabolism of gouty patients from that of healthy persons, although that is so often done. In recent times proper methods of research have cleared the matter in this direction and have improved our understanding of the phenomena. From this research work one is justified in concluding that in the case of gout deep-seated disturbance takes place in the endogenous changes of uric acid, this really self-evident proposition being one of the starting points for my views published in my works on gout almost a generation ago. For many reasons I assumed that uric acid is produced in an abnormal proportion in the muscles and in the bone marrow of gouty patients; this assumption, which was but an hypothesis in that stage of physiological and pathological chemistry, is now an accepted fact, at least so far as muscle is concerned. We know nowadays that muscle and probably also the red marrow of children, together with other tissues and organs, are able to transform purin bases into uric acid. But the most important starting point for my teachings on the pathogenesis of gout is found in my researches into those properties of uric acid that prove injurious to the tissues, different organs and tissues behaving differently in this respect. My original experimental and histological studies have shown that uric acid, being a powerful poison, injures the tissues by producing in them inflammation, necrosis, and death. Only when the tissue is dead, or is on the point of dying, there occurs the deposit of crystalline urates, just as in the analogous case of calcification. Sodium urate is the salt deposited, the same compound, that is, in the form of which uric acid circulates in the blood and other body fluids. The opinion of A. B. Garrod, who has done so much for our understanding of this affection, that gout may be diagnosed only in cases where such urate deposits are shown, is accordingly proved to be inadequate; the same is true of the other hypotheses founded upon the teachings of this investigator, that the kidneys, namely, are seriously affected even in the mildest cases and in the earliest stages of gout, and that an attack of gout may be caused by a sudden interruption of the function of the kidneys that has to do with the excretion of uric acid. In my opinion, this may be true only of those rare cases which I have called primary gout of the kidneys. To such cases may be referred the second portion of the statement made by W. H. Dickinson: "The rich

man enjoys a long life in spite of the gout that has attacked his limbs; the workingman is slain by a similar affection of the kidneys before his limbs are affected." Dickinson, however, has given no reasons in support of this opinion, which corresponds so well with daily experience. The development of the primary gout of the kidneys may perhaps be explained by the fact that a general stasis of uric acid, a "uricemia," caused by the retention of the acid, is developed in such cases upon the basis of a chronic nephritis, especially the interstitial form that is oftenest met in this connection. At the same time more of the other waste products of metabolism are retained with the progress of the disease, and such patients often die because of uricemia and uremia and their consequences, due to the lesion of the kidneys, long before there appear the typical symptoms of gout in the joints and extremities. Such nephritis, causing a primary gout of the kidneys, may itself develop secondarily upon a basis of existing gout, or it may have an altogether different reason for its appearance, such as chronic lead poisoning, for example, general gout, or primary gout of the kidneys developing in predisposed individuals parallel with the "lead-kidney" of such cases. (See Th. Oliver: Lead poisoning, etc. Edinburgh and London, 1894, p. 102.)

An especially important form of gout is the one named by me primary gout of the joints; it may however be more fittingly called primary gout of the extremities, as it usually spreads beyond the joints and attacks the surrounding skin and other parts just like erysipelas. In addition to the extremities in the accepted meaning of the word (arms and legs), the projecting portions of the head, such as the nose and especially the auricles, are often affected by this form of gout. To explain the origin of primary gout of the extremities I fall back upon the disturbance of purin metabolism in the large muscles as well as in the bone marrow, which has been already discussed. If in consequence of some accidental cause, such as trauma, the continuous stream of the fluids rich in uric acid content is retarded, especially in places favorable to stasis and congestion because of many obstacles offered to the return flow, such as the lower extremities, the great toes, and other parts of the foot, there may develop quite suddenly a typical attack of gout, followed often, though perhaps not always, by the deposition of crystalline urates, especially in the cartilages of the attacked joints. In my book on gout I have told the story of a famous colleague, a true martyr of gout, in whose joints at autopsy C. Weigert failed to find any abnormalities, although he had suffered from repeated attacks of gout, especially localized in these joints. If the statements of the few remaining authors who still believe that the deposit of urates is the primary phenomenon upon which only secondarily follows the disease of the tissues, were correct, then the absence of such deposits after many attacks of gout would be simply unthinkable, for a deposit of crystalline urates should certainly be expected in such case in every part of the body affected by the local process. Without going much further into this question, which I have repeatedly considered elsewhere, and which is of little relation to the problem occupying us at present, let me only state here the possibility and even indeed the probability, supported by the beautiful researches of T. van Loghem and Frenker, that gouty tophi could easily originate by the bursting of the fluid and lymph spaces of the connective tissue, thus allowing the escape of the juices rich in urates. These cause at first necrosis of the tissue upon which follows the crystallization of their urate content, the saying—*"corpora non agunt nisi soluta"*—being quite appropriate to this case.

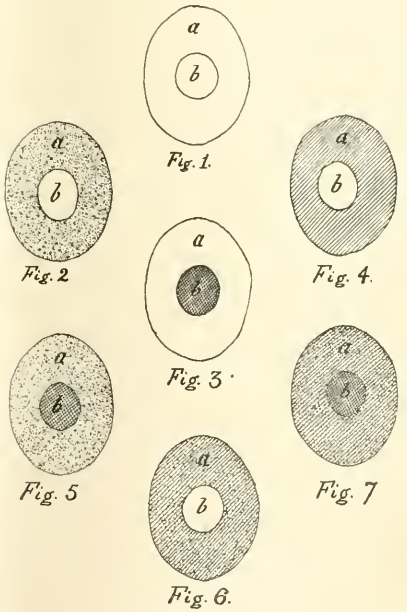
It seems shown herewith that the cause of gout is to be sought for in a disturbance of the intermediary stage of metabolism, especially that of the nucleins, growing probably out of an inherited tendency. Our conception of the hereditary disturbance of cell metabolism, moreover, finds still more support when we consider cystinuria and alkaptonuria. These anomalies, only lately brought to light, are doubtless connected with disturbances of proteid metabolism. The first of these, cystinuria, may be explained, as is seen from the experiments of Abderhalden, by the fact that not all of the cystin, formed in the intermediate stages of metabolism and not further oxidized, is excreted with the urine, thus causing the deposit of cystin in the tissues of the patient, in a manner quite analogous to the deposits of urates in gout. Cystinuria is well known to be an inherited affection, and this is probably true likewise of the second anomaly of proteid metabolism, alkaptonuria. In this affection tyrosin and phenylalanin reach only the stage of hemogentesic and uroleucic acids and appear in the urine in this form.

Passing now to a consideration of diabetes as an inherited disease of cell-metabolism, we see here an anomaly of carbohydrate metabolism, dextrin and small amounts of other sugars appearing in the urine, accompanied in the more severe cases by acetone, acetic acid, and B-oxybutyric acid, which are completely destroyed in a healthy organism. We might mention here that lately attention has been drawn to another anomaly of carbohydrate metabolism, namely to pentosuria, which is also occasionally an inherited affection. Here pentoses, that are certainly derived from endogenous metabolism, are excreted in the urine, not being used up in the body of the patient. Let us now return to diabetes, the cardinal symptom of which is glycosuria, appearing upon a diet which causes no excretion of sugar in other individuals. No constant quantity of carbohydrates can be named that may be taken without exciting glycosuria. When sugar appears in the urine only after a certain excess of carbohydrates has been taken and especially with the use of certain varieties of them, and not under other circumstances, we have to deal with a case of alimentary glycosuria. Such a condition could be called physiological if it were common to all men in like circumstances, but, as this is not the case, we are obliged to look upon it as essentially pathological. The ability of different individuals placed in like circumstances, to use up the carbohydrates of the food fluctuates within rather wide limits. When a diminished tolerance of the organism for the carbohydrates becomes chronic, and the excretion of sugar permanent, even with moderate intake of carbohydrate food, there results the condition which we term diabetes mellitus. The affection is the milder the more the carbohydrates ingested can be destroyed by the patient. The diabetics that are completely intolerant to carbohydrates, those, that is, that excrete sugar even when all carbohydrate food is excluded, manufacture it from a part of the carbohydrate-free material of the food or from the glycogen stored up in the biogens. This latter is probably obtained in such a case elsewhere than from carbohydrates, there being no carbohydrate material in the intake. Under the same conditions as a healthy man, that is, with the same intake of carbohydrates in the food, and, as I have shown, with the same body weight, the diabetic excretes less carbonic acid gas and takes in a correspondingly smaller amount of oxygen. I have already pointed

out in reference to the respiratory gas exchange of fat individuals, that this coefficient is affected by many factors, such as food and the amount of acid formation in the organism. The data that lead us to assume a diminished oxidation power in diabetics may therefore be used only if these factors are excluded. On the other hand, Waldvogel and later Leo Schwartz have shown by the use of injections of sodium B-oxybutyrate that the oxidation capacity in diabetics is diminished, this being due to insufficient internal respiration. I imagine that the carbonic acid, decreased in amount, may in its nascent state give an impetus to the excretion of sugar, for laboratory experiments teach us that the activity of the diastatic enzymes may be retarded not only by neutral but to a certain degree also by alkaline solutions. It seems to me that in this situation an hypothesis falling back upon the biogens of the diabetics is allowable, in order that this condition may be cleared up. The property of carbonic acid gas to retard the action of the diastatic enzymes mentioned above, leads one to the idea that this gas may, in its nascent state, be the regulator of the formation of sugar from the glycogen stored up in the biogens. Within the biogens there are found side by side glycogen (which in diabetes may be formed too abundantly, being certainly found in unusual places in this condition, *e.g.* in the brain) and the diastatic ferment which may also be present in an abnormal quantity. However that may be, there is justification for the hypothesis that when the action of the diastatic enzymes is insufficiently regulated, because there is lack of carbonic acid in the presence of the diminished internal respiration, the almost indiffusible glycogen is more rapidly transformed into the extremely diffusible sugar, which thereupon appears immediately in the body fluids and then in the urine. Accordingly, I think that the glycosuria in diabetes is due to the fact that the sugar present or formed during the intermediate steps of metabolism is more or less completely excreted before it can be assimilated in the interests of the whole organism. With the help of the diminished production of carbonic acid gas in the internal respiration, caused by a defect of the biogens, we are able to explain to ourselves the increased destruction of the body proteids which appears sooner or later in the course of diabetes. The carbonic acid gas is able to change certain proteid bodies into a stable condition by precipitating them from their solutions, this being especially true of the globulins, that are present most abundantly in the liver and in the muscles. When oxygen is admitted, dissolving the precipitated proteid bodies, they again slowly or quickly assume a labile condition.

Glycosuria, as well as well marked diabetes mellitus, depend in the last analysis upon a defect of the biogens, that is, of the protoplasm, which, however, at the present time cannot be more exactly defined by either microscopical or chemical examination. We know this defect however from the effects it produces, *i.e.* from the influence exercised by the diminished capacity for oxidation. Experience teaches that the latter may not only be transmitted by inheritance, but often may coincide with neuropathic tendencies peculiar to some families The greater is this deficiency of the protoplasm the earlier and the stronger is its disturbing action in otherwise similar circumstances; at the same time, even a less strongly expressed diabetic tendency may become of import when accidental causes, the so-called predisposing moments, give impetus to its action, contributing in their own way to the damage of the protoplasm. I would mention here the injurious effects of the diseases of the nervous system of trauma accompanied especially by concussion of the body, the various infections, diseases of the liver, and especially those of the pancreas, the latter being of peculiar import in this connection. The rôle of the pancreas in the origin of diabetes mellitus I imagine to be as follows: Because of the failure of its function as a detoxicating organ the cells of the body are injured in such a fashion that they become less active in function, and only serve the ends of internal respiration in a defective manner. The individuals thus affected then fall a prey to all the consequences of this condition. In my opinion, diabetes mellitus is not a symptom of the disease of the various organs, but is a disease *sui generis,* the first cause of which lies in a deficient character of the protoplasm, that is transmissible by inheritance. In consequence of this defect there arises the anomaly of the carbohydrate metabolism present in this disease. If we may thus call obesity, gout, and diabetes mellitus diseases of cell metabolism, dependent primarily upon a defect of the cells, then it becomes at once clear that each one of them may be traced to changes in the biogens different in localization and in character.

That these three diseases are, nevertheless, closely related to each other is no less plain, two of them and sometimes all three often affecting one individual simultaneously. We are far removed at present from being able to imagine satisfactorily the intimate relations between these three diseases seen in this connection. The seven figures below represent schemata of cells, and are meant to give a certain picture of the relations between the conditions here considered. In these figures *a* repre-



sents the protoplasm, while *b* stands for the nucleus Fig. 1 represents schematically a normal cell, Fig. 2 a cell in obesity (protoplasm dotted), Fig. 3 a cell in gout (cross-hatched nucleus), Fig. 4 a cell in diabetes mellitus (single-hatched protoplasm). Figures 5, 6, and 7 represent respectively

the combinations of obesity with gout, of obesity with diabetes mellitus, and of all three of these diseases of cell metabolism transmissible by inheritance.

IS THERE A SURGICAL TREATMENT FOR CONSTIPATION?

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The effort to establish a legitimate operative treatment for chronic constipation has not as yet inspired much confidence in the profession at large, and for very good reasons. It has gone through various stages, each of which has had its advocate and short-lived popularity. As each has failed lamentably to do any good, and consequently to be recognized and adopted by the truth-seeking majority of the profession, no matter how enthusiastic and honorable its sponsors may have been; the motto of these has ever been onward and upward from the sphincter to the "valves," and from these to the sigmoid and colon, until a regular chain of operations has been established which separately or combined have been and are still advocated as liable to produce the desired effect.

The first link in this chain is stretching the sphincters, and a few years ago a very large percentage of my own patients came to me with the preliminary statement that their sphincters had already been stretched, but without any benefit. The stretching was sometimes forcible and thoroughly done under some form of general anesthesia; at others only partially done with the finger and without anesthesia, but beyond the damage to the patient's finances attendant upon a surgical operation, neither good nor harm resulted. The number of these patients has steadily decreased, however, and perhaps the fad is becoming a trifle worn.

And yet fads in surgery usually have some foundation in fact as this may have had. There is a rare spasmodic contraction of the sphincters, usually but not invariably attendant upon fissure, which will prevent defecation and can only be overcome by stretching or incision. The condition without the presence of a fissure to induce it is exceedingly rare, so rare as to be a curiosity. The muscle under nervous excitation becomes hard, firm, absolutely unyielding, and any attempt to pass it either from above or below is exquisitely painful. As a result the rectum may become distended with impacted feces and surgical interference be the only cure. This, however, is not constipation in any proper sense of the word. Nature is only anxious to accomplish its function of defecation, and it is this which causes the suffering; but by no effort of the will can the sufferer relax the obstacle.

Whether the practice of stretching as a routine treatment had its origin in this well recognized but very rare condition, or in entire ignorance of it, it is impossible to say. It is much more probable that it grew out of the legitimate cure of fissure by stretching and was gradually extended till practised in any and all cases where the patient complained of trouble with the rectum from constipation or almost any other condition.

The next step upward in chronological order was to cut the "valves of the rectum."

It is a curious thing that what Van Buren said of these so-called valves and of the so-called "third sphincter" so many years ago, that they had "neither certainty of location nor certainty of function," has not yet, in spite of all the work of all the proctologists, been proved to be an error—for the simple reason that it is as true to-day as it was nearly half a century ago, when he carefully studied the subject. From this point is is rather a far cry to assert that they are the cause of constipation and to base a surgical treatment for that condition upon their division.

I will try to state in few words exactly what we actually do know about these anatomical points. The walls of the sigmoid and the rectum are much heavier than that of the small intestine, and this is due in great part to an increase in the amount of muscular tissue, both longitudinal and circular. As the longitudinal fibers become more marked and are gathered into distinct bands which have a good deal of uniformity, so, but with much less uniformity, do the circular. As a result there is liable to be found by close dissection certain points in the lower sigmoid and rectum where the circular fibers are so increased as to be distinctly demonstrable to the naked eye. This constitutes the basis for the idea of a third sphincter.

Have these circular bands any constant location? On the contrary, they are found anywhere along the entire length of the rectum and lower sigmoid. Is there one even generally located so as to constitute an anatomical boundary between the end of the sigmoid and the commencement of the rectum, which could even by a stretch of imagination be considered an obstruction to the passage of feces from one to the other? No anatomist has ever described any such thing, and no anatomical preparations have ever been shown to demonstrate it. Have these bands any sphincteric action? Not the slightest.

What, then, is the scientific basis for a routine treatment of constipation which consists in introducing dilators of any form far up into the rectum "to stretch the constriction between the sigmoid and the rectum so that the feces may pass?"

So much for the third sphincter, which is in no way to be confounded with the "valves" of the rectum, though they have frequently been described as one and the same thing.

The mucous membrane of the rectum is too large to cover smoothly and evenly the muscular wall which it lines. It is hence of necessity gathered into folds or rugæ. These are the "valves." Are they constant in location? On the contrary, there may be one, two, or three of them, and they may occupy any positions in the rectal pouch. Have they any valvular action? None. Are they sufficiently firm in structure to constitute an obstacle to the passage of a solid fecal mass? No. Have they any known function? None has ever been assigned to them. We are speaking now of the normal anatomy of the parts. But just as there is a rare spasmodic affection of the sphincters which may prevent defecation, so, though even more rarely, there has been found a congenitally hypertrophied condition of one of these folds of mucosa, with increase of fibrous tissue constituting a partial stricture causing some obstruction. That the fad for dividing these folds as a routine treatment for constipation originated in or has any connection with this pathological fact we very much doubt. When such a condition exists we have to deal with a congenital stricture—one of the rarest diseases in surgery.

Many ingenious instruments have been invented for cutting or destroying these normal folds of mucous membrane. Some cut with a concealed bistoury, others clamp the fold until it sloughs away. The list of dangerous hemorrhages caused by their use is not a short one.

It is, perhaps, not flattering that although this cure for constipation has been written up for a

decade in American literature and is still practised, though less frequently than at first, no English or continental writer on diseases of the rectum, so far as my reading goes, has ever considered it scientifically worthy even of mention.

The next step onward in chronological order came with the introduction of vibratory massage into general practice, and this is still in vogue. It consists in the introduction of a hard rubber plug about three inches long into the anus, attaching an electric motor to this, and starting it vibrating. For those who have no suitable electrical apparatus the index finger is often substituted. Never having practised this method of excitation of the activity of the nerves and vessels of the part, I can give no details as to whether it is commonly employed daily or at longer intervals. It is a subject difficult to write of with moderation, and it is best to pass it lest offence be given.

By no means disheartened by lack of success, the next step was to abandon all that had gone before and even the rectum itself and strike boldly at the sigmoid through an abdominal incision. Surely if stretching and vibrating the anus, cutting the folds, and stretching the hypothetical narrow parts, had failed, the cause of all evil must be in the curved shape of the sigmoid; therefore it must be straightened out and raised up and anchored to the abdominal wall to keep it straight, that nature may be improved upon and feces allowed to pass.

This operation was, so far as I know, first devised and practised by myself years ago as a cure for bad cases of prolapsus. It came from seeing my gynecological friends practise ventral fixation of the uterus, and was attended, as it still is, with a certain amount of success. There is a certain mechanical difficulty, however, about applying it in the treatment of constipation, due to the fact that though the curve may be changed and rendered more acute and less movable by anchoring any part of it, it cannot be removed without actual resection.

There is, moreover, danger of fatality in this operation, for adhesions formed in this way have been found to cause internal hernia and strangulation through apertures made by the bands. No rules seem to govern those who operate for constipation as to how the normal position of the gut should be modified, it being quite sufficient to find some free portion and suture it. This curve is generally shaped like the Greek letter omega rather than sigmoid. It is evident that by fastening the most movable part of the loop up from the pelvis to the abdomen we make the curves much more acute and reduce their mobility. If any effect is produced it would seem to be to substitute a sharp, fixed, angular flexure, for a gentle sweeping curve, and this does not appeal to the average mind as liable to facilitate the passage of feces.

All these surgical operations are based on one idea and it is quite in order to ask on what besides the merest baseless assumption does this idea that constipation is due to mechanical obstruction rest? Who has taught it, who ever asserted it, or attempted to prove it? The anatomy of the large intestine is about the same in all of us; why are not all men constipated if that normal anatomy is so faulty? Moreover, where are we to stop in our efforts to make the large intestine a straight tube, and remove its irregularities, or are we to stop at the large bowel at all? After doing away with the sigmoid flexure there will remain still the splenic and hepatic, and the almost right-angled arrangement at the head of the colon, the sharpest and most fixed of all, should certainly be straightened out.

Finally, the profession certainly have a right to study the results of this kind of surgery as to benefit or cure. What are they? The writer has heard some very bitter complaints from those who have submitted to it of the mental anxiety and suffering attendant upon a useless surgical operation, loss of time, and waste of money, and in the cases he has observed there has certainly been no improvement. Is this the usual result, and are these complaints justified?

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THE THERAPEUTIC VALUE OF APOMORPHINÆ HYDROCHLORIDUM.

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NEW YORK.

Apomorphine may properly be termed a therapeutic "freak." Separated from morphine merely by a molecule of water, *i.e.* morphine, $C_{17}H_{19}NO_3 - H_2O = C_{17}H_{17}NO_2$, apomorphine—it gives little evidence of its close chemical relationship to a powerful narcotic alkaloid when administered by the mouth, even in relatively large doses, and acts as a harmless, though most efficient, expectorant. Administered subcutaneously, however, it is a powerful remedy, and when moderate doses are exceeded, even a dangerous one.

This interesting drug was nearly discovered some sixty years ago by one Arpe, who heated morphine in a tube with sulphuric acid, and possibly secured an impure sulphate of apomorphine, which was afterwards termed "sulpho morphide" by Laurent and Gerhardt. Apparently it remained little more than a chemical curiosity until 1869, when Augustus Matthiesson and C. R. A. Wright read a paper before the Royal Society "On the Action of Hydrochloric Acid on Morphine"[1] These investigators had succeeded in forming the artificial alkaloid, apomorphine, through the dehydration of morphine by a process essentially the same as that now employed. Morphine is inclosed in sealed tubes with excess of hydrochloric acid and heated for several hours to 140° to 150° C. After cooling, the contents of the tube are diluted with air-free distilled water, saturated with sodium bicarbonate, filtered, and apomorphine is extracted with chloroform or ether. The hydrochloride is formed by adding a small quantity of hydrochloric acid.

It was also found that the alkaloid could be formed from codeine by a similar process. The chemical relations may be expressed as follows:

Morphine, $C_{17}H_{19}NO_3 - H_2O = C_{17}H_{17}NO_2$, apomorphine.

Codeine, $C_{17}H_{17}(CH_3)HNO_3$ yields first $C_{17}H_{20}CLNO_2$, and then splits off methyl chloride, CH_3CL, and leaves $C_{17}H_{17}NO_2$, apomorphine.

Apomorphinæ hydrochloridum, the salt used in medicine, is composed of white or grayish crystals turning green on exposure to light, and soluble in 39.5 of water and 38.2 of alcohol.

Gee[2] was one of the first to test the drug physiologically, and noted its emetic properties. Although testimony regarding the effect of apomorphine on the nervous, circulatory, and muscular systems is somewhat conflicting, the results of exhaustive experiments independently conducted by Harnack[3] and Reichert,[4] offer a reasonably safe guide to the action of the drug.

In poisonous doses apomorphine first excites the cerebral centers, producing delirium, followed by depression and paralysis of the respiratory centers. The accelerator fibers in the vagus are stimulated, causing increased rapidity of the pulse. There is

an initial period of lowered blood pressure, due to direct action on the heart muscle; an intermediate period of increased pressure (stimulation of the vasomotor center, temporarily offsetting the effect on the heart), and finally a period of lowered pressure due to the action on the heart muscle.

The excised heart of the frog is paralyzed by apomorphine, and there is evidence that in mammals it acts as a direct poison on both striped and cardiac muscle. Respiration is first stimulated and then weakened.

Careful experiments have shown that its emetic action is centric, probably due to stimulation of the vomiting center, which Thumas claims to exist in the medulla in the immediate vicinity of the calamus scriptorius.

Rossbach claims that the bronchial secretion is increased by direct action on the mucous glands of the respiratory tract and stimulation of the glandular nerves.

Reichert,[5] in experimenting on animals, noted that although the motor and sensory nerves were both decidedly depressed, without evidence of stimulation, a condition of hyperesthesia subsequently suddenly developed, accompanied by violent tetanic convulsions, shown by experiments to be of spinal origin. To explain these contradictory manifestations he postulated the existence of certain spinal reflex inhibitory centers analogous to those discovered by Sectshenow at the base of the brain, upon which apomorphine acts as a depressant.

So much for the laboratory reactions and manifestations of this interesting drug. Although nearly forty years have elapsed since apomorphine was presented to the profession, and many eminent British and Continental authorities—notably Ringer,[6] Murrell,[7] Rossbach,[8] Whitla,[9] Binz,[10] Weill,[11] and Gee—have correctly described its dosage and clinical effects and highly indorsed its use as an expectorant and even as an antispasmodic and hypnotic, the drug still remains more or less neglected, so far as its expectorant uses are concerned, and our leading authorities describe it chiefly as an emetic, to be administered subcutaneously. Many writers on respiratory affections ignore the drug entirely, or quote foreign authorities as to its value, showing no personal experience with its use, or such a limited experience with insufficient doses as to offer but a poor guide to its proper administration. It is needless to quote all such authorities; a few examples will suffice:

Gould's Medical Dictionary: Emetic dose—1-20 to 1-10 grain hypodermatically, or 1-10 to 1-6 by the mouth. "An expectorant in small doses."

Hare's Therapeutics: Emetic dose—1-10 to 1-5 grain, hypodermatically; expectorant dose—1-40 to 1-25 grain by the mouth.

W. E. Dixon, Manual of Pharmacology, 1906: Hypodermatic—1-20 to 1-10 grain; by the mouth—1-10 to 1-4 grain.

National Standard Dictionary: Emetic dose—1-10 to 1-5 grain, hypodermatically. Expectorant dose—1-40 to 1-25 grain by the mouth.

H. C. Wood's Therapeutics, 1906: Emetic dose by the mouth, double hypodermatic dose; expectorant—1-16 to 1-12 grain.

U. S. Pharmacopœia (8th Dec. Rev.): Expectorant—1-30 grain; emetic—1-10 grain.

British Pharmacopœia: Invariably produces vomiting in doses of 1-5 grain by the mouth and 1-10 grain hypodermatically. Also gives emetic doses by the mouth—1-12 to 1-4 grain.

J. P. Remington, Practice of Pharmacy, 1905: Expectorant—1-30 grain; emetic—1-10 grain. Often given hypodermatically.

Saunders Questions Compends—Essentials of Materia Medica—Morris, 1906: A powerful emetic, *however administered*. Emetic dose by mouth—1-10 to 1-8 grain.

Squibb's Materia Medica: Emetic—1-12 grain; expectorant—1-30 grain.

Merck's Manual: By the mouth, expectorant—1-60 to 1-20 grain; emetic—1-15 to 1-8 grain; hypodermatically—1-20 to 1-10 grain; hypnotic—1-40 to 1-30 grain.

The internal doses noted above appear to have been fixed, not from personal observation of its effects, but either from tradition or from a consideration of the mathematical relations that exist between the hypodermic and internal dose of other alkaloids.

Any physician who has had wide experience in prescribing apomorphine as an expectorant will at once note the insufficiency of the expectorant doses given by these authorities; and so far as the emetic dose by the mouth is concerned, the drug is practically useless as an emetic when administered in that fashion. Although it is very rarely used as an emetic by the mouth, nevertheless, the statement that 1-10 grain, or even 1-2 grain, so administered, could be relied upon as an emetic, is wide of the mark.

The possibility of depression, collapse, and untoward effects from the use of apomorphine is often referred to by standard authorities, but care is seldom taken to explain that such effects are not to be feared when the drug is administered by the mouth, even in relatively large doses.

Binz reports a case in which the hypodermic injection, near the ensiform cartilage, of 1-15 grain in a subject suffering from chronic bronchitis and emphysema caused death within seven minutes from collapse, without vomiting. There is a possibility that in this case amorphous hydrochloride of apomorphine was administered instead of the crystalline.

According to Boyer and Guinard[12] the amorphous form differs radically in its effects from the crystalline form, causing in full doses prostration and collapse. However, this case and others of a similar nature reported in the literature, in which alarming symptoms have followed the administration of the drug hypodermically, only emphasize the remarkable difference between the internal and hypodermic effects.

The rationale of this difference is difficult to determine. Murrell suggests the slowness of absorption as an explanation of the failure of internal doses to excite vomiting, but that seems like a restatement of the problem without answering it.

Reichert, in his experiments on animals, found that there was a critical point in the dosage of apomorphine where it ceased to stimulate the vomiting center, but depressed or paralyzed it. Likewise. Max Quehl,[13] Rossbach, and others have pointed out that large doses are narcotic and not emetic. This would explain the failure of large internal doses to produce vomiting, but does not account for the absence of other narcotic influence, nor does it explain the negative effect of small internal doses.

The fact that apomorphine is a decomposition product, and that its solutions are alleged to be very unstable, suggests the possibility of some change taking place within the stomach, especially as large internal doses in man seem to have practically no physiological effect, aside from the expectorant action, and are unaccompanied by the evidences of excitement or depression always observed when the drug is administered in full doses hypodermically. Reichert, however, in his experiments on dogs, noted that the drug acted with certainty as an

emetic when administered by the stomach, although somewhat more slowly; and the fact that Murrell administered it in full doses by inunction—also by means of a throat spray—with excellent expectorant results, and without evidence of the centric effects observed from hypodermic administration, would tend still further to obscure the problem.

Cushney[14] and others regard the expectorant effect as really the first stage of vomiting, and the drug is, therefore, classified among the depressing expectorants. It is doubtless true that all specific emetic substances also have an expectorant effect, and that it is impossible to excite the vomiting center without causing a flow of mucus in the respiratory tract[15]; also, that there is a close association between the vomiting and respiratory centers, the act of vomiting in adults being largely controlled by the muscles of respiration.

Rossbach, however, is alleged to have shown that apomorphine has a direct stimulating effect on the mucous glands and glandular nerves of the respiratory tract. Clinically, the fact that the decided expectorant effect of large internal doses may be obtained without accompanying depressant or other centric effects tends to support the view of Rossbach that the expectorant action is at least in part peripheral. For example: Babcock[16], one of the few American authors to show a first-hand knowledge of the internal effects of apomorphine, cites the case of a middle-aged patient suffering from bronchitis, who took 2½ grains four times a day without ill effect except once, when the remedy was taken before breakfast. Murrell mentions similar cases, and is fully quoted in this regard by Shoemaker. It is possible, however, that there is some slight sedative effect from the drug when administered in this manner, as the cessation of cough and quiet rest afforded in acute laryngeal and bronchial affections may not be due solely to the relief of local conditions.

On reviewing the evidence, therefore, it would appear that we are at present without an entirely satisfactory explanation of the vagaries of apomorphine. Whatever views may be held regarding the physiological modus operandi, the clinical fact remains that relatively enormous doses may be administered by the mouth without other important effect than a decided expectorant action.

During the past ten years I have prescribed the hydrochloride of apomorphine very extensively in respiratory affections, giving it the preference over all other expectorants in conditions where a remedy of this class, which excites a flow of mucus, is indicated. I have found it especially serviceable in cases of acute or subacute laryngitis, tracheitis, or bronchitis, where there is a dry, turgescent membrane or the bronchial tubes are obstructed with tenacious mucus. The violent cough in these cases is often most distressing, causing cerebral congestion and disturbance of rest. The relief afforded by apomorphine, administered in doses of 1-8 to 1-4 grain every two or three hours, is quite remarkable when contrasted with the frequent failure of other remedies—topical or systemic—to relieve promptly such conditions. In no instance have I observed any nausea or depressing sequelæ from the administration of the drug in these doses, even when given to aged or debilitated patients. I recall in particular the case of a patient ninety years of age, with advanced cardiovascular changes, suffering from subacute bronchitis, who took 1-8-grain doses every two or three hours without other result than liquefaction of the sputum and abatement of cough. No depression was noted, and not the slightest evidence of nausea. On the other hand, I have frequently given it to young children in doses of 1-60 to 1-12 grain, the latter dose to a child of eight years. In these little patients no depressing effects were noted, but I fancied that the quiet rest often secured at night was due not entirely to the cessation of the cough, but partially to some sedative influence. In these cases, and all others where the drug was administered in full doses at frequent intervals, there was a total absence of any of the usual after-effects of narcotic remedies.

I have also used this remedy in bronchial asthma with excellent effect, and believe that here it may be combined, when necessary, with small doses of morphine or heroine. In a large class of cases where heroine is now so frequently prescribed, apomorphine would be found more serviceable, and free from the objections that obtain to heroine. The latter drug, if given in sufficient doses to control fully an obstinate cough, may cause severe headache, constipation, and other depressing effects, and there is also a possibility of the formation of a habit. With apomorphine there is not the slightest possibility of a patient becoming addicted to the drug, as it offers absolutely no temptation in that direction.

The fact that apomorphine may be given simultaneously with morphine, heroine, or codeine, without increasing the narcotic effect, further illustrates the therapeutic dissociation from these remedies, and greatly increases its value as an expectorant through the opportunity it affords of securing the quieting effect of opiates without at the same time checking secretion. Lauder Brunton recommends the combined administration of morphine and apomorphine in cases where "there is difficulty in breathing, continual cough, and thick, tenacious mucus."

Although various observers[17] have strongly urged the use of full internal doses of apomorphine as an expectorant, I am forced to the conclusion, from the testimony of numerous pharmacists and physicians, that there is little disposition on the part of the profession to utilize fully the valuable expectorant qualities of the drug, probably owing to its high reputation as an emetic and the fear that unpleasant results may follow its administration. I have had the same experience reported by Babcock, in regard to the hesitation often manifested by pharmacists in filling prescriptions for moderate doses. Patients have been warned that the drug would produce vomiting, and must be taken with caution. Of course, it is proper for the physician to give such warning as a routine matter, although in no instance has any untoward result been reported by my patients, notwithstanding the probability that the amorphous form, which is very much cheaper than the crystalline, is frequently dispensed. I have lately, however, taken the precaution to specify the crystalline form, lest an overdose should be taken by some individual with an idiosyncrasy against the drug.

As regards the other uses of apomorphine, it has been recommended by competent observers in a wide range of conditions where hypnotics, sedatives, or antispasmodics are indicated, including mania, trismus, hiccough, strychnine poisoning, and oil of tansy poisoning.

Laurencin,[18] Faucher,[19], Weill, and Gower[20] reported good results in epilepsy and chorea by hypodermic administration. Tull[21] reports the case of a child, æt. 15, suffering from chorea; treated with 1-40 grain hypodermically, followed by 1-20 grain, per os, every three hours. Quiet sleep and uneventful recovery ensued under the use of arsenic.

Douglas,[22] Tompkins,[23] Lewis,[24] Bechtet,[25] and others have highly endorsed apomorphine in the

treatment of acute and chronic alcoholism, and its employment for this purpose has become quite general. Lewis and Bechtet used it in delirium tremens with good effect; but others, notably Coleman and Polk,[26] believe it to be harmful in this condition owing to the possibility of profound depression resulting. The latter observers tested the drug in a series of three hundred cases of alcoholism, in the alcoholic wards of Bellevue Hospital. It was clearly demonstrated that hypodermic doses ranging from 1-30 to 1-5 grain acted as a decided hypnotic in 67 per cent. of cases, but its effects were usually limited to a few hours, and it acted best when followed by some other hypnotic, such as bromide, chloral, etc. Thirteen patients were given apomorphine by the mouth in doses of 1-10 to 1-4 grain. Vomiting occurred in none of these cases, and only two slept. The marked difference between the internal and hypodermic effects is very clearly shown in these tests.

It is possible that better results would have been obtained in the cases of delirium tremens treated by Coleman and Polk if strychnine had been simultaneously administered (1-30 grain each), as in Bechtet's cases.

Most standard text-books state that the drug should not be used in tablets or solution if it has undergone discoloration. A number of authorities, however, deny that this simple oxidation process in any way impairs its efficiency, especially if the tablet or solution was originally prepared from the pure crystalline salt. Murrell states that pure solutions remain unimpaired for one year, even though discolored. In emergencies I have often used solutions that were several months old, with the usual effects. The tendency to dispense the cheaper and more soluble amorphous form is evidenced by the following incident: Recently I prescribed apomorphine in a case of bronchitis, and specified the crystalline form. The pharmacist to whom the prescription was presented was unable to compound it until the following day, stating that he was all out of the crystalline form and was unable to procure it at any of the neighboring downtown pharmacies. On inquiring, I was frankly informed by the pharmacist that he always dispensed the amorphous form unless the crystalline was specified. The importance, therefore, of specifying the crystalline salt is quite evident.

Summary.—(1) The effect of apomorphinæ hydrochloridum, when administered by the mouth, is widely different from the hypodermic effect.

(2) Hypodermically, it is a most valuable centric emetic in doses of 1-20 to 1-6 grain, acting speedily, certainly, and gently, even in cases of narcotic poisoning prior to the stage of coma. Average adult dose, 1-10 grain. Also recommended to be tried in all cases where hypnotics or antispasmodics are indicated, in doses preferably somewhat less than the emetic dose, depending upon the tolerance of the individual, i.e. 1-40 grain or more.

(3) When given hypodermically to children or debilitated subjects the possibility of its depressing effects should be borne in mind, and appropriate doses of strychnine simultaneously administered.

(4) By the mouth, its centric effects are so uncertain as to render it useless as an emetic and of little value as a hypnotic. The effect is practically limited to expectorant action. Average adult dose, 1-8 grain every two or three hours, dissolved in syrup of wild cherry or syrup of lactucarium, with a few drops of dilute hydrochloric acid to insure solution.

(5) It does not increase the effect of other narcotics, such as morphine, codeine, or heroine, which may be simultaneously administered when it is desired to lower the excitability of the respiratory center without checking secretion. Strychnine may also be simultaneously administered in debilitated subjects for its stimulating effect on the respiratory center and to forestall possible depression, although even in the case of delicate children there is little fear of such depression from the administration of the pure crystalline preparation by the mouth.

(6) Apomorphine, like other expectorants of its class, if used at an improper stage, when there is abundant secretion, or pushed to the extreme, may flood the bronchial tubes with mucus and drown the patient in his own secretion, especially if he lacks muscular power to expectorate. Such results, however, are not to be feared from an intelligent use of the remedy.

(7) Crystalline apomorphinæ hydrochloridum should always be specified. There is a slight danger of adulteration with morphine if the drug is not thoroughly washed when manufactured. On general principles, the fresh preparation should be used if possible, but a greenish discoloration of tablets or solutions does not necessarily contraindicate their use, especially if originally prepared from the pure crystalline salt by a reliable drug firm.

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Cold Tea in Typhoid Fever.—While carrying out a series of experiments to ascertain whether the *Micrococcus melitensis*, the germ of Malta fever, would survive in milk when added to tea, Major J. G. McNaught of the Royal Army Medical Corps recently made an investigation into the action of cold tea upon the *Bacillus typhosus*. The results of his experiments showed that in five hours the *Micrococcus melitensis* was completely destroyed, and in the case of the *Bacillus typhosus* contact with the cold tea for four hours greatly diminished the number of the bacilli, and at the expiration of twenty hours none could be recovered from the tea. He considers the experiment of great interest with reference to the question of the use of cold tea as a substitute for water in the soldiers' canteen, as a safeguard against typhoid infection.

THE CLINICAL SIGNIFICANCE OF THE SYMPTOM, HEADACHE.

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Owing to the fact that the pathogenesis of headache finds its most rational explanation in the stimulation of the anatomical nervous elements of the dura mater, I think it advisable to give first a brief anatomical sketch of the innervation of the dura mater, and proceed then to the discussion of the argument.

The dura mater is provided with a very fine and rich net of nervous elements, consisting of nervi propri, nervi vasomotores, and Krause's sensory corpuscles.

The nervi proprii anastomizing with each other form a rich reticulum whose fibrillæ end freely among the endothelial elements of the laminæ parietalis arachnoidis. The Krause corpuscles are delicate terminal sensory elements that, when pressed against the rigid thecæ osseæ of the cranium, on account of changes taking place in the intracranial pressure, cause severe violent pains. The irritating stimuli are received by the nervous reticulum, and from it transported to the sensory centers through the branches of the fifth nerve.

In the anterior portion of the dura mater takes place the distribution of the filum ethmoidalis of the ramus nasalis of the ophthalmic branch of Willis.

In the middle portion of the dura mater takes place the distribution of the ramus meningeus, derived from the third branch of the fifth nerve, which follows the arteria meningea media.

To the posterior portion of the dura mater, and especially to the tentorium, goes the so-called nervus recurrens arnoldi, a branch originating from the ophthalmic branch of Willis, before its entrance in the foramen orbitale.

Characters.—Headache constitutes one of the main symptoms in the syndrome of almost all nervous affections, and one of the auxiliary symptoms of many other affections of the organism. In presence of the symptom, headache, we must first of all establish its characters; we must find out if the headache is a localized or a generally diffused one; if it is constant, intermittent, or remittent, if it is regularly or irregularly intermittent, but we must especially endeavor to establish the connection existing between the appearance of the headache and the different circumstantial evidences of physiological, pathological, or psychological disturbances, preceding the appearance. The relation between cause and effect is the only reliable key to diagnosis, as the knowledge of the fact that there is no effect without a cause is the only scientific axiom leading to the conquest of truth in all lines of human activity. When the headache is localized in special regions of the cranium, we must bear in mind that the regions of election of localized headache are in order of frequency the following: (*a*) frontal, (*b*) temporal, (*c*) occipitalis and bregmatic, (*d*) parietal.

Sometimes the headache may be unilateral, being limited to one-half of the head, or it may be localized to a single point, as we notice in the so-called clavus hystericus, in which the pain is localized in the bregma. We may also have a localized headache in the syphilitic gumma of the meninges, or in tumors of the meninges, specially sarcoma, when determining lesions of the cranial bones in any one point. In these cases we notice an eccentric irradiation of the pain detectable on percussion, the pain being very severe at the point corresponding to the meningeal lesion, and diminishing gradually in intensity as percussion recedes from such point. The percussion of the skull as a systematic procedure of physical examination is not greatly used among physicians. Bechterew and MacEwen are credited with having called attention to the importance of such a procedure as a method of detecting intracranial lesions. Still I must acknowledge that so far, with the means at our disposal, percussion of the cranium can give but very little help in the diagnosis of the nature of intracranial lesions. It is only of value when used to detect the zones of superficial or deep-seated pain of the head. The type of pain and its topography will facilitate our efforts in determining whether the pain is purely functional or due to changes taking place in the anatomical substrata.

In all processes of periostitis, osteitis, localized meningitis, syphilitic gummata, etc., the lesion corresponds to the point of most exquisite painfulness of the skull detectable on percussion; while in all neuralgic forms, in migraine, in neurasthenic hyperalgiæ, and in diffuse meningitis, the sensation of pain produced on percussion has no value, because in these cases the percussion of any point whatever of the skull will produce pains irradiating to all parts of the skull or to one-half of it.

The subjective symptoms are of great value in the diagnosis of the nature of headache, but in taking the history of a patient, and especially of a nervous one, we must bear in mind that our suggestive way of inquiring about the nature of symptoms may mislead the patient as well as the physician. Very often our preformed idea of the patient's ailment induces us to put before him a certain number of questions whose positive answer would correspond to the general symptomatology of the already performed diagnosis. On this subject there is present in my mind the lapsus of diagnosis made by one of the most eminent neurologists of the present times, in which a case of pellagra was the object of two brilliant lectures held in the amphitheatre of a well-known European clinic, on the subject of tumor cerebellaris. The eminent neurologist, taking as a starting point of diagnosis the presence in the patient's history of the symptom "retropulsion," and forgetting completely the fact that no other manifestation could warrant such a diagnosis, demonstrated in the most convincing and scientific manner that the patient was suffering from a tumor of the cerebellum. All his assistants and many of the students had already made the diagnosis of pellagra. The patient died and the post mortem ended the controversy, proving that also in diagnosis the motto "surtout pas trop de zèle" deserves some consideration.

Returning to our argument on the subjective symptoms of headache, we must establish whether the headache is characterized by sharp boring pains, by a sensation of heaviness and dullness, by one of constriction, by a throbbing or a pulsating sensation, by a sensation of heat or a sensation of cold, etc. At present a patient is coming to my office suffering from severe headache, in which the warning symptom of the coming cephalalgia is given by an intense sensation of cold in a localized spot of the skull—the bregma. This sensation precedes generally by three hours the appearance of the headache.

Concomitant Symptoms.—An intelligent knowledge of the symptoms accompanying headache will enlighten us regarding its pathogenesis. Vomiting is one of the main symptoms that may accompany it. It may exist with or without nausea, it may appear on an empty stomach or during digestion. When

it appears on an empty stomach, without nausea and without gastric crisis, it is logical to ascribe the headache to intracranial lesions as inflammation of the meninges, neoplasm of the cerebrum or cerebellum, brain abscess, etc. The suspicion will become an assured fact when on ophthalmoscopic examination we detect the characteristic signs of papillitis or neuroretinitis. The ophthalmoscopic examination in cases of persistent cephalalgia, when giving evidence of affections of the papillæ and retinæ, will exclude the diagnosis of *Pseudomeningitis hysterica*, a functional disturbance giving a syndrome similar to that pertaining to many intracranial affections with anatomical basis.

The question arising at this point is: Is it necessary for the physician in general practice to become acquainted with the use of the ophthalmoscope? There are things in our medical curriculum whose importance varies according to circumstances. To a physician practising in a great center, the deficiency in the knowledge of ophthalmoscopy will be of very little consequence, and it will not in any way affect the patient's chances of recovery, because of the possibility of referring the patient to the oculist, and of obtaining from him the necessary information; but to the physician living remote from large centers, the ignorance of ophthalmoscopic procedures may be of consequence both to him and to the patient; to him because of his assuming a serious responsibility when treating the patient without the surety of his real conditions, and to the patient himself, because of his being compelled to undergo heavy expense in order to consult a specialist far from home, when such an expense could have been avoided were the physician skilled in ophthalmoscopy. But aside from this, the point on which we must all agree is in the necessity of every practitioner knowing how to interpret an ophthalmoscopic finding reported to him by the eye specialist.

Remaining on the argument of papillitis and neuroreninitis, I consider it of great importance for the physician to know the exact value of such symptoms. Von Graef was the first to notice the frequency of papillitis in cerebral tumors and considered the condition the result of an increased intracranial pressure. The intracranial pressure *in toto* would produce a partial compression of the sinus cavernosus. As a result of the compression a stasis of the ophthalmic vein and of the vena centralis retinæ would follow. Thus we see the cause of the headache is the same as that of papillitis and neuroretinitis. The hypothesis advanced by Von Graef was discussed and disputed by Seseman, Wolfring, Quinke, *et al.*, but the etiological factor remained the same. Intracranial pressure is the cause of papillitis and Manz demonstrated experimentally that by injecting water or defibrinated blood in the cranial cavity of a rabbit he could produce hyperemia and tumefaction of the papillæ. Knowing, therefore, the pathogenesis of papillitis, it is easy to understand that papillitis may exist in any condition producing an increase in the intracranial pressure, such as cerebral congestion, aneurysm of the internal carotid with secondary edema of the sheath of the optic nerve, meningitis basilaris, in pachymeningitis hæmorhagica, and trauma. In rare cases papillitis may exist in brain abscess and in softening of the brain. If the papillitis is unilateral it is logical to ascribe it to orbital tumor.

The process is very seldom limited to the papillæ; generally the retinæ become involved, the affection consisting in a more or less extensive clouding, venous hyperemia, hemorrhage, and the appearance of white patches near the macula lutea in the shape of small points, analogous to those seen in albuminuric retinitis. Von Graef named this condition "neuritis descendens" because of its proceeding from the brain towards the eye. Neuroretinitis may be unilateral, and when it is bilateral does not affect the eyes in the same degree. We find the neuroretinitis associated with processes at the base of the brain, and as small tumors pressing directly on the chiasm, and acute basilar meningitis, especially of a tuberculous nature. Noyes observed descending bilateral neuritis in acute myelitis. We must not forget that neuroretinitis is present also in syphilis, in lead poisoning, in alcoholism, in influenza, in malaria, in diabetes, etc. The visual power in both papillitis and neuroretinitis may be affected, but the visual symptoms are very deceptive if taken as the only indication for the ophthalmoscopic examination. In papillitis due to presence of a cerebral tumor the power of vision and the sense of color remain sometimes perfectly intact at the beginning of the pathological process. In neuroretinitis the power of vision, owing to the participation of the retinæ in the process, is more markedly affected than in papillitis, and so it is apt to be present from the very beginning of the pathological process.

Hemicrania.—If the cephalalgia should appear periodically with intervals of days, weeks, or months, being localized to one-half of the head, accentuating itself in one-half of the forehead and accompanied by nausea or vomiting, gastric crisis, photophobia, vasomotor disturbances, etc., it will be logical to make a diagnosis of hemicrania.

If this unilateral cephalalgia lasts from minutes to hours and is accompanied by scotoma scintillans, transitory hemianopsia, sharp pains in the eyeballs radiating to the temples and neck and accompanied sometimes by nausea and vomiting, the condition is *ophthalmic hemicrania.*

If with the pains and disturbances of vision there are also vertigo with palpitation, transitory paresis of the limbs of the painful side, or transitory aphasia, the case is one of *hemicrania opthalmica comitata* (Charcot).

If during the attack of hemicrania we have total paralysis of the third pair of the affected side, and sometimes of both sides, the case is one of *hemicrania ophthalmoplegica unilateralis or bilateralis.* It is important to remember that hemicrania is in such direct rapport with the epilepsy as to constitute in certain cases a real epileptic equivalent, the attack of hemicrania being substituted by an epileptic one. It is also important to know that hemicrania ophthalmica can develop transitory psycopathic forms known as *disphrenia hemicrania transitoria.* Finally, hemicrania represents one of the most serious symptoms of the premonitory stage of progressive paralysis (Meynert).

If the headache is always present during the daytime, and is characterized by a sensation of diffused intracranial tension in "helmet" form, or with localization in the occiput, growing worse during mental strain, diminishing toward evening, and disappearing at night so as to allow the patient a long and peaceful sleep, in all probability we are in presence or *neurasthenic cephalalgia.*

If the cephalalgia is accompanied by nausea, vomiting, drowsiness, asthmatic attacks, amblyopia, polyuria with low specific gravity with or without albumin, we must ascribe the cephalalgia to uremia.

When the patient is anemic and we can exclude every other cause and the cephalalgia is persistent, generally frontal, accentuating itself in the standing position and after mental strain, the diagnosis of *anemic cephalalgia* is probable. We must remember at this point that the dyscrasic condition of the blood

constitutes one of the main factors in the etiology of nervous diseases. The nervous disease is a process of reaction of the organism against improper blood supply. "The future of medicine belongs to hematology." This was the warning given a few years ago to the seekers of medical progress by one of the most eminent hematologists of our days. My belief, notwithstanding the lack of our deeper knowledge of hematology, is that, "In the blood we find the causes or the effects of disease in general, and we must in consequence look upon the conditions of the blood in every pathological condition of the organism, not only as the key to diagnosis but as the element to be principally considered in the adoption of therapeutic measures."

Abnormal conditions of the stomach, liver, uterus, and annexes, etc., but especially lesions of the nasal mucous membranes, of the middle ear, and of the pharynx, may cause severe headache. The so-called *cephalalgia pharyngotympanica* (Legal) is a very severe cephalalgia, paroxysmal in nature, the pain being principally localized in the temporo-occipital region, and easily differentiated from other forms of neuralgia because of the presence of a painful occipital point, with pains affecting the occipital, the supraorbital, and the temporal branch of the subcutaneous malar nerves. The cephalalgia pharyngotympanica is caused by catarrh of the pharynx or of the middle ear. In cases of this nature simple insufflation of the middle ear is sufficient to cure entirely the headache.

We notice also a cephalalgia affecting weak and nervous young people. Some writers speak of it as *cephalalgia adolescentis*. I consider this form of headache as one related to both the anemic and the neurasthenic headaches, and in such cases I lay special attention on two probable etiological factors, viz., masturbation and excessive mental occupation.

I have noticed sometimes very obstinate headaches appearing in people when compelled to live away from home. At the beginning I was inclined to consider the headache as due to the change of the climate, but I have been compelled to look upon the matter in an entirely different way. A persistent headache has been noticed to appear in recruits from Sardinia (Italy) when compelled to leave the island in order to serve in the army. It was noticed that on the recruit returning to his native land the headache and many other abnormal physical conditions would disappear. But this discovery could not be utilized in therapy in a country where the military service is compulsory and where the mission of the army is to amalgamate the elements of the various Italian provinces, so different one from the other in traditions, tendencies, political aspirations, and patriotic conceptions. By mere chance the observation was made that when a few of these soldiers from Sardinia were allowed to be together in the same company, to eat together, to sleep in the same ward, and to go on duty together, this condition would pass. Since then, in regiments receiving recruits from Sardinia, the rule followed is to keep the men together as much as possible and, if possible, to put them under the command of non-commissioned officers also from Sardinia. I had last year, as a patient, a lady from Texas, who was suffering from intense headaches, appearing always while she was in New York. The patient, a very intelligent woman, confessed to me without hesitancy that while in New York she always felt homesick, and that she despised the place because it was devoid of that free, generous, and warm-hearted western atmosphere where she had lived all her life and where she had all her friends and her husband. She told me that while in Texas she was always well and was troubled with headache only when in New York. I considered her case at the time as one identical to the above-mentioned. No other explanation would justify as well such a condition. I would suggest for such a form of cephalalgia the term *nostalgic headache*.

The majority of writers talk about a toxemic headache as the headache resulting from the introduction into the blood of poisons of many and diverse description. I consider such a denomination quite useless, for the reason that almost all headaches are produced by the absorption of toxic products. We can designate by this term the headaches of fevers, bilious headaches, dyspeptic headaches, the headache of gout, of rheumatism, of malaria, of lead-poisoning, that from inhalation of sewer gas, etc. So I think it would be more suitable to give a well-defined denomination to the different forms of headache, taking as a base of such denomination the pathological condition presumably causing it. To insist upon such a question may be considered somewhat academic, but in my estimation the fact of training ourselves in making under all circumstances a causal diagnosis of headache would also induce us to give more consideration to our therapeutic measures. The causal diagnosis in the pathology of diseases sinemateria has the same value that the anatomical diagnosis has in diseases having an organic base. The training of thought constitutes the foundation of medical science. Diagnosis is a work of synthesis. We all can detect symptoms; the real difficulty consists in correlating them as causes and effects. So for the vague and imperfect diagnosis of toxemic headache I would substitute, according to the causes, the terms cephalalgia alcoholica, intestinalis, saturnina, oxicarbonica, malarica, etc.

From the above description it is easy to see that the clinical significance of the symptom headache is as multiform as its pathology.

As a natural consequence its treatment constitutes one of the most complex questions of therapeutics. As the success of the general practitioner depends very largely upon the ability and resource which he exhibits when confronted with the so-called minor ailments which affect mankind, it is easy to understand that the treatment of headache constitutes for him one of the elements measuring in some degree his success or failure. The standard of our success in the treatment of headache is given by the expedition with which we relieve the patient. But we shall do better to educate our patients not to expect to be immediately relieved, but to realize and understand instead the conditions causing the ailment, and in advising them to undergo the rational hygienic and therapeutic course best adapted to the case, and to considering success not so much the speed with which our results are obtained as their permanency.

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Multiple Warts.—Cooper (*British Medical Journal*) reports the cure of multiple warts by taking lime water internally. He came upon this accidentally by taking lime water, a wine-glassful before meals, for digestive disturbances. At the end of two weeks a wart on his thumb which had resisted local treatment disappeared. He tested other cases with marked success. The warts generally disappear in from four days to six weeks. He administers it in milk. Hall reports in the same periodical that warts may be cured by active purgation extending over two months. Sulphate of magnesia and aloin have both been tried with success. In one case reported there were 367 present on one hand and wrist alone.—*Mobile Medical and Surgical Journal.*

THE RELATIONSHIP OF THE LIFE INSURANCE COMPANY TO THE APPLICANT SHOWING GLYCOSURIA.

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THE problem of the applicant for life insurance who is suffering from glucose in the urine presents itself in a double aspect.

From the standpoint of the life insurance company it is only fair and right that in its position as agent for its policyholders it should carefully guard their interests by refusing to incur extra risks in cases of real persistent glycosurias and diabetics. Reports of several English companies state that diabetes represents from one to two per cent. of all their death claims.

From the standpoint of the applicant it is his right to obtain an insurance policy after passing the necessary examinations prescribed by the particular company; but it is equally his right to have these examinations conducted in a thorough and competent manner, and if his application is refused on account of an inaccurate report from a careless or incompetent examiner it is a gross infringement of his personal rights.

I am led to these observations by the very large number of patients who have told me that their first intimation of an abnormal condition of their urine came when they presented themselves as applicants for life insurance. In most of these instances the applications were refused, with perfect justice, but to a certain number of those rejected a real injustice was done, owing to the improper methods employed in the examination of the urine, or to the failure to recognize the transitory and harmless nature of the accidental finding. Some of these patients have not only been denied the benefits of insuring their lives, but have also been started on an unnecessary and actually harmful course of antidiabetic treatment and have been subjected to the worry and anxiety of believing that they were subjects of an annoying and serious disease.

First of all, then, it is necessary, as a matter of right and justice both to the insurance company and to the applicant, that the existence or nonexistence of a glycosuria should be accurately determined. It is needless to say that the urine of every applicant should be examined for glucose.

A quite common fallacy is one which depends upon the erroneous statement found in a number of textbooks to the effect that urine of a low specific gravity never contains glucose. As has been pointed out in another place (The Rational Treatment of Diabetes Mellitus, *New York Medical Journal*, September 15, 1906), I have seen many instances in which glucose was present in urine with a specific gravity under 1018, and in one with a specific gravity of only 1006 glucose could be positively identified. Another erroneous view, but I believe even more widely held, is that the reduction of Fehling's solution demonstrates the presence of glucose. I have records of several persons who were refused life insurance because the urine reduced Fehling's solution, yet these urines, although containing a reducing body such as glycuronic acid, uric acid in excess, or pentose, did not contain a pathological amount of glucose.

What, then, are the methods we should employ for the detection of glucose? If one reads over the various textbooks and monographs on this subject he is bewildered and perplexed by the great number of tests presented to him, and while as a rule many tests are described, attention is rarely directed to the amount of labor required by any given one, or the substances which may be present and vitiate its value.

It is to-day an established fact (Pavy: Carbohydrate Metabolism and Diabetes, London, 1906, p. 12) that normal urine contains a trace of glucose. This is so small in amount that it responds only to a very delicate test. It is obvious that for the purpose at present under discussion our tests should be delicate enough to detect glucose if present in abnormal quantities, but should not confuse us by demonstrating the trace normally present. Another element to be considered is the time required for the examination, and those tests should be selected which, with all due regard for accuracy, can be applied with the least expenditure of time. Our methods must be simple, but accurate, reliable, and to the point. Accuracy and reliability and speed in application of even simple tests depend to a very large degree on one's familiarity with the reaction, and one must use a given test many times before he can recognize all the finer details with the meaning of slight variations.

Having the above objects in view and having familiarized myself with most of the tests recommended for the detection of the various carbohydrates of the urine, I have come to use the following tests as a routine for the detection of glucose. The reactions are described in detail, because the conclusions reached are based upon the supposition that the reactions are conducted in the exact manner here laid down. Although the reasons are not given in detail, the methods described are the results of many little points observed in a long series of examinations (the work covers a personal experience in the examination of something over 20,000 specimens of urine), and I believe a variation from the method will lead either to inaccuracy or to a loss of time.

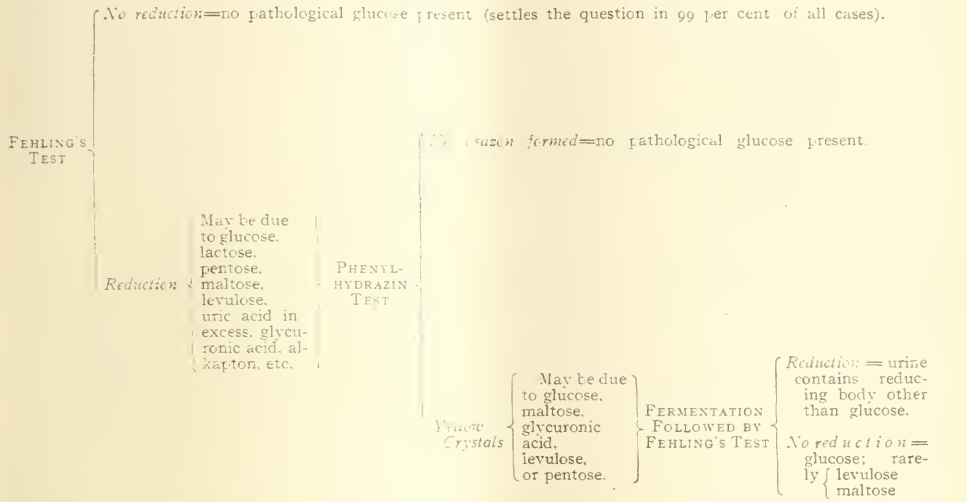
The first test which I use is *Fehling's*, applied in the following manner:

Two solutions are kept in separate bottles (if kept mixed they are apt to deteriorate), one, the copper solution, consists of 34.64 grams of crystallized copper sulphate dissolved in 500 c.c. of distilled water; the other, the alkaline solution, is made by dissolving 173 grams of potassium and sodium tartrate and 125 grams of potassium hydrate in 500 c.c. of distilled water. In a large test tube we place 1 c.c. of the copper solution, 1 c.c. of the alkaline solution, and 2 c.c. of distilled water. This is mixed and thoroughly boiled, noting that no reduction of the copper takes place. To this we add 2 c.c. of the urine to be tested,* and the whole is thoroughly boiled and the mixture then allowed to stand. If at the end of three minutes the original blue color of the mixture is unchanged an abnormal glycosuria is not present. If, however, there is any change of color to a green, yellow, or red, it indicates that some reducing substance is present in the urine; this may or may not be glucose, even a bright yellow precipitate does not neces-

*The urine must not be boiled before adding to the Fehling's solution, for many urines so treated will produce a slight reduction of Fehling's solution. An exception may be made in testing albuminous urines when the albumin must be removed by filtration after boiling and the addition of acetic acid before the application of Fehling's test. Any reduction after such procedure should be further investigated by means of the test hereafter described.

sarily indicate the presence of glucose. To such a urine further tests must be applied, as the reduction may be due to glucose, levulose, lactose, or pentose; uric acid, creatinin, or xanthin in excess; glycuronic acid following the administration of morphine, chloroform, chloral, camphor, salicylates; chloroform used as a preservative, etc.

in a warm place (99° F.) for twenty-four hours. At the end of this time, if the suspected urine contains a fermentable sugar, this tube will show a gas bubble larger than that found in the control tube. The suspected urine which has been fermented should then be retested with Fehling's solution; if no reduction then occurs it is positive evidence that


No reduction=no pathological glucose present (settles the question in 99 per cent of all cases).
Fehling's Test
Osazon formed=no pathological glucose present.
Reduction
May be due to glucose, lactose, pentose, maltose, levulose, uric acid in excess, glycuronic acid, alkapton, etc.
Phenylhydrazin Test
Yellow Crystals
May be due to glucose, maltose, glycuronic acid, levulose, or pentose.
Fermentation Followed by Fehling's Test
Reduction = urine contains reducing body other than glucose.
No reduction = glucose; rarely levulose maltose

Any urine which reduces Fehling's solution should be subjected to the *phenylhydrazin test*. The simplest way of applying this test is as follows: In a large test tube we place 5 drops of pure phenylhydrazin, 10 drops of glacial acetic acid, and 1 c.c. of a saturated solution of sodium chloride; to this is added 6 c.c. of the urine to be tested. This mixture is boiled for about two minutes, or until the fluid is evaporated to one-half of its original volume. The test tube is then set aside and allowed to cool slowly (rapid cooling is to be avoided); if the test is positive, bunches of long feathery yellow osazon crystals separate and may be readily recognized under the microscope with a one-fifth objective. If a large amount of glucose is present the crystals form in two or three minutes, but when only a trace is suspected it is better to allow the test tube to stand for twenty-four hours before examining the sediment. The crystals only are characteristic, the dark yellow globules, sometimes covered with spicules, are not of diagnostic value. The absence of the characteristic crystals after standing for twenty-four hours assures us that a pathological glycosuria is not present. A positive finding may be due to glucose, levulose, maltose, or pentose. Lactose and glycuronic acid each form an osazon under certain conditions, but not in the quantities found in the urine when the test is conducted in the manner described above. Uric acid, creatinin, xanthin, dextrin, alkapton, and chloroform do not form osazons.

A urine which reduces Fehling's solution and forms osazon crystals with the phenylhydrazin test should be tested by *fermentation*. This is most easily conducted in the Einhorn fermentation tubes. Ten c.c. of the urine is shaken up with a piece of fresh yeast (the ordinary compressed yeast cake), the size of a large pea, and put into the fermentation tube, filling the closed upright tube and being careful to expel all air bubbles. A similar control tube is prepared with yeast and a urine which does not reduce Fehling's solution. Both tubes are placed

the suspected urine contained sugar which has been broken down by fermentation. The only fermentable sugars found in the urine are glucose, levulose, and maltose. Pentose does not ferment; lactose does not ferment with ordinary yeast. Maltose is extremely rare, and I have met with it in urine only on one occasion. It may be distinguished by its greater rotation than glucose and by its failure to react to Barford's reagent.* Levulose may be distinguished from glucose by its negative rotation when examined in the polariscope and by giving a positive Seliwanoff reaction.*

The application of these three tests, Fehling's, the phenylhydrazin, and the fermentation, to a suspected urine requires about ten minutes of one's time on one day and five minutes more twenty-four hours later.

If it be objected to this scheme that it is somewhat long and cumbersome the reply is that the negative Fehling's test will settle definitely a very large percentage of all the cases, and the small number of doubtful cases are in all fairness entitled to the benefit of the doubt as to whether sugar is present until the other tests have been applied.

URINES REDUCING FEHLING'S SOLUTION BUT CONTAINING NO GLUCOSE

Name	Specific gravity	Reaction	Sugar: Albumin	Sugar: Fehling's	Sugar: Phenylhydrazin	Sugar: Fehling's after Fermentation	Reduction Due to—
A. F. B...	1032	ac.	O	+	O	+	Chloroform used as a preservative.
M. G....	1015	ac.	tr.	+	O	+	Glycuronic acid.
P. B. D.	1019	ac. +	O	+	O	+	Lactose.
J. F. M...	1028	ac. +	O	+	O	+	Uric acid.
J. M.....	1032	ac.	O	+	O	+	Chloroform used as a preservative.
J. F.....	1020	ac.	O	+	+	+	Pentose.

*Wood: Chemical and Microscopical Diagnosis, 1905.

URINES CAUSING ONLY A VERY SLIGHT CHANGE OF COLOR ON APPLYING FEHLING'S TEST, BUT WHICH CONTAIN GLUCOSE

			Sugar				
Name	Specific gravity	Reaction	Albumin	Fehling's	Phenyl hydrazin	Fehling after Fermentation	Diagnosis
H. A.	1005	ac.	tr	+	+	0	Diabetes [illegible]
H. L.	1009	alk.	+	+	+	0	"
H. W. R.	1014	ac.	tr	+	+	0	" acetone present
M. K.	1018	ac.	+	+	+	0	Nephritis with glycosuria.
J. S.	1012	ac.	0	+	+	0	Diabetes and Basedow's.
E. R. W.	1021	ac.	0	+	+	0	Diabetes and obesity (acetone present)
G. C. H.	1023	ac.	0	+	+	0	Diabetes mellitus
S. K.	1017	ac.	0	+	+	0	Glycosuria (transient).
M. W.	1012	ac.	0	+	+	0	"
J. D.	1011	ac.	0	+	+	0	Diabetes mellitus

The above tabulations illustrate a few of many instances in which a series of tests have been of value in determining the presence or absence of a glycosuria.

As an instance of the injustice and harm done by inadequate chemical tests I may recall the following case. A young salesman, twenty-eight years old, applied to one of our large life companies for insurance. His history and physical examination were satisfactory, but a policy was refused on the ground that he had glycosuria, and he was referred to his family physician for further advice. After some months of treatment for his "diabetes," he was brought to Dr. E. G. Janeway for further advice, and while under observation it was my fortune to watch the patient and make a number of examinations of his urine. His urine constantly gave a slow but definite yellow reduction to Fehling's fluid, also readily demonstrable phenylhydrazin crystals, but failed to ferment with yeast, neither producing gas nor ceasing to reduce Fehling's solution after attempts at fermentation. It was plain that the reducing substance in this case was not glucose, and further investigation with the polariscope, the orcin test, the melting point of the osazon, etc., identified this reducing substance as pentose. Following the administration of 100 grams of dextrose in a single dose, no glycosuria could be discovered.

Here, then, was a man who was refused insurance on his life, worried by the thought that he was the host of a serious disease, and subjected for months to the discomforts and positive evils of a "diabetic diet," merely because his examiners, by neglecting the use of one or two simple tests, failed to recognize that he was the subject of an interesting but perfectly harmless anomaly of metabolism.*

It is a fact well known by insurance examiners that occasionally dishonest men who know that they are suffering from diabetes will prepare themselves for examination by a course of rigid diet in order to avoid the detection of glucose. This probably succeeds so rarely that the aggregate loss to the insurance companies is comparatively insignificant.

There are, however, methods by which these fraudulent attempts may be thwarted. One of these is the routine examination of the urine for the acetone bodies. As I have pointed out in another place (*American Journal of the Medical Sciences*, August, 1906), the withdrawal of carbohydrate food from a diabetic is usually followed by a persistent excretion of acetone and diacetic acid in the urine.

If Legal's, Arnold's, and Gerhardt's tests were used in the routine examinations of the urine few diabetics would escape detection. The detection of acetone or diacetic acid in the urine does not necessarily mean diabetes, for they are found in many other conditions, such as starvation, pregnancy, following operations, and the administration of drugs, such as benzol, morphine, antipyrin, etc. Such a discovery may, however, put us on the right track. Our next step should be to determine our patient's tolerance for glucose. This is best done in such a case by having him take in our presence 100 grams of glucose in 250 c.c. of water on an empty stomach, and examining all the urine passed in the succeeding hour or two. A man of normal assimilative powers will pass through this ordeal with a urine free from glucose, but the presence of a glycosuria will indicate that his tolerance for carbohydrates is below the normal.

This aspect is illustrated by the following case:

E. W. P., a merchant, thirty-two years of age, applied for life insurance and passed a satisfactory examination with the exception that in two trials the examiner had found a very small amount of glucose in his urine; on a third test the urine was found to be free from glucose. Pending the consideration of his application he was advised by the life insurance company to place himself under my observation in order that he might obtain my report for further guidance. When he consulted me he gave me the above facts and wished me to examine his urine and make a report of my findings which he could present to the company. I questioned him about his diet, which he recounted to me in detail for the preceding twenty-four hours, and which, according to his statement, consisted of an ordinary mixed diet with no inconsiderable amount of carbohydrate food. I tested both a mixed specimen which he had brought with him, and also a specimen passed in my presence. Both were absolutely free from glucose. On applying Legal's and Arnold's tests a small but abnormal amount of acetone and diacetic acid were found to be present.

He was at once given three ounces of dextrose in eight ounces of water. The urine passed in my presence an hour later contained a large amount of glucose.

Subsequent observation and confession demonstrated that this patient was suffering from a true diabetes of medium severity, but by systematic and careful dieting he could keep his urine free from glucose for long periods. I recently learned that he decided not to submit my report to the life insurance company, and had withdrawn his application for insurance.

Having settled the question as to whether a glycosuria really exists, it is fair to ask whether there are not some cases of glycosuria which are good risks for life insurance. This is doubtless open to debate. In my own opinion I do not believe that any case of real diabetes, no matter how mild the type, is a good risk. The reasons for this opinion are that an accurate prognosis in mild diabetes, with its liability to develop serious complications, is exceedingly difficult. It is well to remember, however, that glycosuria and diabetes are not synonomous. Glycosuria may be quite transient, as, for example, when it follows a febrile attack, such as influenza, etc., or as occasionally is seen after moderately severe exercise, or again, after slight injuries to the scalp.* Glycosuria is also frequently seen in persons who have just partaken of a large amount of saccharine food. It is probable that

This case was reported in detail by Dr. T. C. Janeway in the *American Journal of the Medical Sciences*, September, 1906.

*Higgins and Ogden, *Boston Medical and Surgical Journal*, February 28, 1905.

everyone has a definite limit to his tolerance for sugars, but glycosuria cannot be produced in a healthy individual by the ingestion of starchy food, even in excess (von Noorden*), and a healthy man should be able to take 100 grams (3 1-3 ounces) of dextrose on an empty stomach without showing a glycosuria. An insurance company is justified in regarding with suspicion an applicant who has once shown a glycosuria, but such a one who is able to take the above test meal of dextrose without excreting glucose in his urine is entitled to have this suspicion forgotten.

Another class of cases in which glycosuria is a common finding are the obese. Sir Hector Mackenzie says that glycosuria may be observed in about a third of all cases of marked corpulency. These applicants would probably be refused because of their overweight, but it is worth while noting, contrary I believe to the commonly accepted idea, that in these cases the prognosis is not very good, and such statistics as I have been able to obtain indicate that the underweight cases are the better risks.†

Glycosuria may, of course, be associated with other conditions which independently render the subject a poor risk; such, for example, are diseases of the liver, of the central nervous system, and of the kidneys. In gout glucose in the urine is usually transient and unimportant.

Among other factors which may influence one's estimate of the probable risk are the following:

Race.—The Hebrew race seem to be particularly prone to this disease.

Family History.—According to Williamson thirteen per cent. of diabetics show that some other members of the family have suffered from this disease.

Occupation.—"The insuring classes are affected with diabetes to a much greater extent than the working classes." (Mackenzie.)

Age.—Other things being equal, a glycosuria after thirty-five years of age is much less likely to be a serious matter than one occurring under this age.

Until extensive statistics bearing on this question are at our disposal, it will be impossible to lay down general laws, but I am personally firmly convinced that many of those who have once shown a glycosuria, when individually considered, may be selected as perfectly good risks.

Conclusions.—1. The life insurance company owes it to itself and to the applicant that a diagnosis of glycosuria should be carefully and thoroughly made.

2. The presence of a slight glycosuria cannot be positively asserted on the strength of one test.

3. The following tests applied as described above and in the following order is the shortest accurate method of ascertaining the presence or absence of glycosuria: (*a*) Fehling's test, (*b*) phenylhydrazin test. (*c*) fermentations followed by Fehling's test.

4. Many attempts to hide a persistent glycosuria by self-restricted diet may be detected by the routine use of tests for the acetone bodies.

5. No true diabetic is a good risk for life insurance.

6. Certain cases of transient glycosuria may be perfectly good risks. In studying such cases the race, family history, occupation, age, and weight all have a bearing and should be considered, together with individual tests for the acetone bodies and the use of a test meal of 100 grams of dextrose.

*Von Noorden: *Diabetes*, New York, 1905, p. 33.

†Transactions of the Life Assurance Medical Officers' Association, London, 1902-1903, p. 60.

The Colon—A Strategic Point in Medicine.—Dunning S. Wilson treats as synonymous the terms colon and large intestine. There is no practical difference in their structure or function. The function of the large intestine is twofold. It serves as an absorbent of the material occupying its lumen as well as playing the part of sewer. The writer explains his use of the word strategic by saying that this point may serve admirably in fighting disease, but unless it is taken care of and watched closely it may prove even in health to be the cause of death. He quotes Metchnikoff, who believes that the colon and other parts of the large intestine are responsible for the low average of human life. In order to put this large gut into a condition as nearly harmless as possible, the writer suggests the following measures: Plenty of pure water should be drunk. This will aid in the elimination of phenol, indol, and the like. The use of milk which has undergone lactic acid fermentation greatly reduces the products of intestinal putrefaction. The careful use of an occasional saline laxative will flush the whole intestinal canal. Finally, the writer advises the regular employment of colon lavage, which cleanses the large intestine as nothing else will do. He believes that such diseases as perityphlitis, appendicitis, dysentery, and certain forms of fevers of the typhoid type can be prevented by simple measures, which keep the colon comparatively clean. He believes, too, that headaches would be less frequent, neuralgia could be cured, and gout would be robbed of its sting if patients could be persuaded to follow a few simple rules.—*The American Practitioner and News.*

On the Theory of Natural and Artificial Feeding in Infancy.—Franz Hamburger, in discussing the difference between albuminous bodies of different kinds of animals, states that the caseins of human and cow's milk, while they possess the same chemical elements, have a different chemical structure, as is shown by biological experiments. Their biological action on the living animal is not the same. Proteid bodies, while corresponding to each other, may have different biochemical structures. The writer believes that the chief difference between natural and artificial nourishment consists in the difference in the proteids in human and cow's milk. It is said that cow's proteid is changed into the human proteid in the intestines. The intestinal cells during infancy are not mature enough to take up the work of digestion, so they react to other than human albumen as if to a poison. This unaccustomed work is bad for the tender intestine, and offers one of the chief disadvantages of artificial nourishment. It has been proved that the antitoxins of human milk may cross over into the tissues of the nursling, while those of another kind do not. However, a proteid of another kind can go over into the tissues of an infant during the first days of life apparently unaltered. In artificial feeding assimilation differs theoretically from that of breast feeding, the one compelling the child to transform bovine casein into that of the human, while the other merely alters the maternal proteid into that of the infant. Much remains to be done by means of experimental investigation in this field. The writer concludes that it is more than likely that it will never be possible to make any artificial nourishment equal to that of breast milk.—*Archives of Pediatrics.*

Treatment of Pneumothorax.—Morphine or other sedatives may be needed to relieve pain, and sometimes even chloroform may be necessary. Stimulants, too, are usually required. Cupping the chest, or even venesection, is particularly useful when there is much cyanosis. The removal of the air is needed when there is great distention and consequent dyspnea. A fine trocar should be introduced and the air be allowed to escape. Anything in the shape of aspiration would probably reopen the wound in the pleura, and more air would thus pass into the pleural cavity.—*The Hospital.*

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INTRATRACHEAL INJECTIONS IN THE TREATMENT OF CHRONIC DISEASES OF THE LUNGS.

At the present time physicians are pretty well agreed that the chronic diseases of the lungs with tuberculosis at the head of them are best treated by placing the affected individuals in the most favorable physical surroundings, by providing them with good food, pure air, physical rest, and equable mental life. Thus only the natural defences of the organism are put in the best conditions for attacking the bacterial invaders of the lungs and for nullifying their toxic products. But to prescribe good food, pure air, and physical rest to the majority of our clinic patients is to ask of them the impossible. Tuberculosis, it is true, spares the rich man no more than the poor, but while the former has every means at his command of fighting the dread disease, the latter is usually compelled to carry on his daily avocation, every new phase and symptom of the disease making the exercise of it more and more difficult. Symptomatic treatment aimed at the alleviation of the more disturbing factors can never, therefore, be banished from the therapeutics of the chronic disease of the lungs, and every new means of such treatment must receive the careful consideration of the modern practitioner.

In this connection it has always been the problem to attack the lungs directly, for many symptoms, such as cough, dyspnea, etc., are due more to the local conditions than to the general intoxication of the organism. Inhalation of drugs in the state of very fine division has met with some success, especially in the practice of throat and nose specialists, and many years ago, in 1853, Dr. Green of New York originated the method of intratracheal injections. At the time the New York Academy of Medicine frowned upon this plan, as offering great difficulties in technique and many possible dangers for the patient. Since then, however, Reichert and Jacob, Mendel, Massei, and many others, have used the method with some success. In a dissertation dealing with the subject in *Russkii Vratch*, No. 26, 1907, Dr. Galebsky considers the method again, and brings much experimental evidence to show its superiority over inhalations. The author studied three phases of the problem experimentally, namely, the effect of such injections upon animals, the parts of the lungs reached by the liquids used, and the character of the reaction, if any, set up in the lungs. The dogs experimented upon stood the injections very well, the amount used reaching 30 c.c., introduced by means of a modified Pravaz syringe, 5 c.c. at a time. In using eucalyptol and menthol it was possible to show that the drugs reached the alveoli of the lungs, while the direction of penetration could be easily controlled by placing the animal on one or the other side for some minutes after the injection. Oil of sweet almonds and salt solution produced hardly any reaction, while eucalyptol and menthol, which later were used on patients, in dogs produced some slight changes, such as mild catarrhal reaction and the appearance of some granulation tissue in the interalveolar spaces. The method was then applied in the treatment of seventeen patients, fourteen of whom were suffering from tuberculosis, two had putrid bronchitis, one simple bronchitis, and one suffered from bronchiectasis with beginning gangrene of the lungs. The patients were always placed in the position for laryngoscopy, and the point of the syringe was introduced beyond the vocal cords under the control of the mirror. Cocaine used in the first injection was dispensed with later on, and the drugs used—chiefly eucalyptol and menthol—were introduced dissolved in sweet almond oil. The patients were then placed on one or the other side, depending upon the localization of the disease in the lungs.

The most important effect was found in the diminution of cough, which before treatment was robbing the patients of sleep and interfering with their general wellbeing. Moreover, the alleviation of this symptom was not attained by lowering the sensitiveness of lung tissue and thus diminishing the reflex cough caused by the accumulation of material in the bronchi. Apparently the formation of the sputum was diminished, and at the same time it became thinner and was more easily expelled than was usually the case. The intolerable smell accompanying the case of putrid bronchitis soon disappeared, and the subjective condition of all the patients showed improvement running parallel to the amelioration of the physical symptoms. The physical signs showed some improvement, both coarse and fine râles being much diminished.

Galebsky believes that this method of treating local conditions in the lungs will compare quite favorably with the more usual one of inhalation. The drugs used may be brought more directly to the lungs in the amounts desired; to a certain degree their action may be localized to one or the other side of the lungs, and finally the slight sensibility of the trachea does away with such reflex symptoms as cough, vertigo, and fits of choking that are quite frequently observed in the use of inhalations with nervous patients. Moreover, Galebsky's animal experiments with subsequent pathological study apparently prove that the injected liquids reach the alveoli of the lungs, the interstitial tissue, and the bronchial glands much more surely than the drugs introduced by inhalation.

THE WELSH CANCER CURE.

ALTHOUGH this is called a hard and practical age, there was probably never a time when people were more gullible in matters spiritual and matters medical than they are to-day. In no way has this been shown more clearly than in the matter of Christian Science. This cult has gained thousands of adherents, and its professors, or rather those at the

head of this strange mixture of religion, faith healing, and materialism, have made millions of dollars, despite the fact that its uselessness in cases of serious sickness or of accident has been demonstrated times without number. However, the followers of Mother Eddy are by no means the only people who are moved by the wiles of the honest fanatic, who bases his power upon religion or on an appeal to that mysterious something which is inherent in every individual. The person who is sick unto death of an incurable disease is apt, whether he be ignorant or educated, to try any remedy that promises relief, and to believe in cures which in his rational moods he would be the first to deride.

This weakness of human nature is receiving at the present time conclusive proof of its existence in an out-of-the-way part of Great Britain. Two uneducated Welshmen living in the little town of Cardigan claim to have discovered a cure for cancer. Their claim has been accepted as genuine by thousands of sufferers who have flocked into Cardigan from America, Canada, France, Germany, Africa, and Egypt, and letters have been sent from all portions of the globe addressed to these simple men who have undertaken to accomplish that which has baffled the skill of the best minds of the medical profession for generations past. Even distant Japan has written for information with respect to the precious fluid.

These Welsh healers are brothers of the simplest type and of the most intense faith in themselves and their remedies, and, like Christian Scientists, have inspired their patients with the greatest enthusiasm and confidence. These patients are many of them in good positions, clever men of business, and women of intellectuality and standing. It appears that the cure consists in painting the affected part for an indefinite period with a fluid the composition of which is a secret to which the brothers Evans alone are supposed to hold the key. A physician has been investigating the matter recently, and has published the results; his account affords pathetic and instructive reading. The principle of the treatment is somewhat as follows: The cancer curers believe that cancer is a kind of living octopus, with innumerable tentacles attached to its body and spreading in all directions, and that this body, with the tentacles attached may be drawn to one definite focus, so that the strange creature can be extracted in its entirety. The investigator of this cure found that the fluid used was a solution of one of the strong mineral corrosives which have been used in all ages and countries, and have formed the secret remedies of quacks of every description from time immemorial. Many years ago the "canquoin" treatment for cancer was popular in America. This consisted of a paste made of chloride of zinc and flour. The remedy used by the Welsh brothers is a solution of chloride of zinc.

The results of the treatment are just what one would look for. In some cases the disease was not cancer and the patients recovered. In some cases it probably was cancer and disappeared under the destructive influence of the zinc chloride or spontaneously. In other cases the disease was certainly cancer, and the confiding sufferers, after a brief period of hope, were cruelly undeceived and went home to die.

The Procreation of Genius.

In a paper on the "Genesis of Genius," read before the recent International Congress on Psychiatry, at Amsterdam, Dr. Louise G. Rabinovitch of New York called attention to the remarkable fact that comparatively few geniuses have been the first-born of their parents. In a study of 74 biographies of great men and women—poets, writers, politicians, painters, and musicians—she found but 10 first-born. Among 42 writers and poets, but six were the eldest children; among 17 painters, but one was the first-born of his mother (he was a natural child); among 15 musicians, there were only two first-born. Not only were these men of genius not the first-born, in a very large number of cases they were the youngest or next to the youngest of the family. Thus Coleridge was the last of thirteen children; James Fenimore Cooper was the eleventh of twelve children; Washington Irving was the last of eleven; Balzac, the last of three; George Eliot, the last of four; Napoleon was the eighth, and probably the last; Daniel Webster, the last of seven; Benjamin Franklin was the last of seventeen, and the last-born of the last-born for several generations; Rembrandt was the last of six children; Rubens, the last of seven; Sir Edwin Landseer, the fifth of seven children; Joshua Reynolds was the seventh child of his parents; Carl Maria Weber, the ninth; Richard Wagner, the last of seven; Mozart, the last of seven; Schumann, the last of five; Schubert, the thirteenth of fourteen. The parents, therefore, of great men were, for the most part, of a ripe age at the time of the conception of the latter; that is to say, the cellular potentiality of the parents was then at its maximum from the mental as well as the physical point of view. Herein lies hope for Osler's superannuates who have passed the dead-line of forty years. If they can do nothing more for the world with hands or brains, they can at least strive to people the earth with men of genius, who will carry on and perfect the work which they themselves, at the acme of their usefulness, have been condemned by the Oxford professor to lay down.

Ciliated Cells Found in the Spleen.

Some time ago we commented upon the fact that microscopical structures of great value are often discovered by mere chance, citing as an instance a human Graafian follicle containing two ova that was found by Welch (Medical Record, June 22, 1907). In *Russkii Vratch*, No. 27, 1907, Dr. Kalachnikoff of the University of Tomsk reports another such finding of perhaps still greater interest; this consisted of a group of ciliated cylindrical cells seen in sections of a spleen from a patient dead of typhoid fever. In structure these cells resembled quite closely the normal ciliated cells found in the trachea; their nuclei were oval and large, taking up about one-third of the cell, while the cilia showed node-like thickenings at their origin from the distal borders of the cells. They were found in a number of sections, and apparently were arranged in cylindrical columns of different lengths, depending upon the number of elements in each group, but all of the same thickness equal to the length of one cell. Both superficial and deep sections contained them embedded in the normal tissue of the spleen; no new growth whatsoever was to be found in any of the remaining organs of the patient. The author considers that his find may serve as some corroboration of the theory of Cohnheim, holding embryonal inclusions responsible for the origin of tumors, and

calls attention to the remarkable fact that the cells in question had probably lived for some thirty-eight years, which was the age of the patient, among other cells quite foreign to them and strongly phagocytic at the same time. He thinks, indeed, that experiments with the transplantation of embryonal elements may clear up many biological problems, and especially throw light upon the origin of new growths.

Meat Eating and Cancer.

An English physician, Dr. G. Cooke Adams, has, according to newspaper reports, just concluded a two years' study of cancer in Chicago, as a result of which he has joined the ranks of those who believe that excessive meat eating is the cause of the disease. This is an old theory, one of the first indeed to be offered when investigators began seriously to search for a cause of the increase of cancer in modern times, but Dr. Adams varies it somewhat by the suggestion that it is the consumption of the flesh of diseased animals chiefly that leads to the development of cancerous growths. Some time ago Oldfield had something of the same notion, but his theory was that it was the flesh, not of diseased animals (the tuberculous, the actinomycotic, etc.), but of those which had been overfed, that favored the production of cancer. In other words, it was not autointoxication of the human, but rather that of the animal whose flesh was eaten, which gave the impetus to malignancy of cell growth. Dr. Adams's theory, if he is correctly reported, would seem to be of the same order—that the toxic principle, whatever that may be, causing the disease is present in the meat itself, and is not formed by an autotoxic process in the intestine or tissues of the consumer. Dr. Robert Bell of London holds the autointoxication theory, but does not regard meat as a special cause, except indirectly as leading to a more ready production of toxic material. Should the autotoxic theory prove to be correct, it may possibly be found that diseased meat differs from sound meat, and both from other foods, only in the fact that the elaboration of a cancer-producing substance from the former is a more rapid process, and one requiring a smaller amount of the offending food.

The Milk Supply of New York.

The Health Department of this city has sent a circular to all the dairymen and farmers who contribute to the milk supply of New York, calling their attention to certain rules in respect of cleanliness which they are expected to follow if they wish to sell their milk to city customers. The provisions of this circular are not unreasonable; indeed, they are no more than any farmer with a fairly developed hygienic conscience would follow without urging; but the opposition which they have aroused is rather disquieting to those innocent souls who have been nursing the comforting belief that the milk supply of New York is, on the whole, fairly good. The literary members of the class affected have been writing sarcastic letters to the New York papers regarding what they evidently consider counsels of perfection, to be followed only by the elect or by the elite of the amateur dairymen; those unable to wield the pen have contented themselves with ejaculatory remarks and threats to give their milk to the pigs, thereby producing a famine which will bring the New York Department of Health to terms. They probably will not, for milk is milk, and the money it brings is money, but it is not unlikely that they will demand and receive a higher price for their product. Whether the factories, which receive and distribute the milk of the small farms, or the city consumers will pay this increased cost remains to be seen; but that the consumer will get cleaner milk, if the inspectors do their duty, is certain. The milk will even then be far from ideal, but it will be fit for pasteurization. If the farmers can be reformed, there will be some hope for the Aldermen of the city, and when the latter have come to a realizing sense that the lives of the babies of the great mass of their constituents are worthy of more consideration than the pockets of a few of them, they will perhaps consent to a pasteurization ordinance. Then New York will have milk that is fit to drink and to be given to infants, and it will no longer in this respect be behind Vienna and many other cities of Europe in its care for the health of its future citizens.

The Medical Explorer.

An interesting echo of the life and work of David Livingstone occurs in *The Lancet* for September 7. A new mission has recently been established in Central Africa under the supervision of Mr. Malcolm Moffat, a nephew of Dr. Livingstone and Dr. Alexander Brown. These not long since made a journey to the spot where lie the remains of the great explorer who died in 1873. They obtained an interview with a native chief, Chitambo, who told them what he heard from his father of Livingstone's last hours. "He was sick," said Chitambo; "he was here just one day and another day. His boys built him a 'msasa' (booth or hut) under the 'mupundu' tree, and it was there that he died. His men took his body; they buried the heart and other parts, but his body they kept. They buried them under the mupundu tree; the body they dried in the sun. They stayed three moons drying the body; and the old Chitambo called the people from all the country round and they brought forth the drums, and they wailed the Engelsea. . . . . Three months his men stayed in the village, and they dried his body and put it in a box, and they tied it round and round, and Chitambo said, 'Engelesa has died here; it is his country now.' Then Engelesa's men brought forth much cloth, and gave it to the people, and they went away with the body to the North." It is certainly affecting to learn of the love and veneration which Livingstone had inspired in the minds of these natives. As *The Lancet* truly says, "Livingstone's conquests were more than those of science. They were conquests of humanity."

News of the Week.

Dr. Albert Warren Ferris of this city has been appointed by Governor Hughes as president of the State Commission in Lunacy, to succeed Dr. Charles W. Pilgrim resigned. Dr. Ferris is a graduate of the College of Physicians and Surgeons, New York, in the class of 1882.

Dr. Julius Grinker was recently appointed Consulting Neurologist to the County Hospital for the Insane and the Cook County, Ill., Infirmary at Dunning.

Seventy Years of Practice.—On August 1, Dr. William Bayard of St. John, N. B., celebrated the seventieth anniversary of his graduation in medicine from the University of Edinburgh. The members of the local medical associations took part in making the day a memorable one for Dr. Bayard, who is now ninety-three years of age, but is in good

health and recently performed an operation. At its last commencement the University of Edinburgh conferred on Dr. Bayard the honorary degree of LL.D.

A Federal Milk Inquiry.—The United States Public Health and Marine Hospital Service has taken up the milk question and is beginning by collecting data in regard to the transmission of disease by milk supplies. To this end a circular letter is being distributed which invites medical men to communicate to the Service the results of any observations bearing on the subject that they may have made. The data asked for include the date, the place, the number of cases, the mortality, the number of cases among milk consumers, the circumstances attending the outbreak, the locality in which the original case or cases occurred, the manner in which the milk was infected, and the reasons for believing that the disease was conveyed in this way.

Plague in San Francisco.—Five surgeons of the Marine Hospital Service are now in charge of the measures for combating bubonic plague in San Francisco. Twelve district headquarters have been established, from which daily reports are made for the purpose of guiding the Board of Health in its work.

Beriberi.—A bark 130 days out from Honolulu with a cargo of sugar for New York has been obliged to put in at San Juan, P. R., owing to the fact that most of the crew were incapacitated by beriberi.

Cholera.—According to despatches from St. Petersburg, up to the present 4,512 cases of cholera have been reported in the affected districts of Russia. Of this number 2,320 were fatal. The crop report of the Central Statistical Committee, just issued, shows that another year of famine is to be expected.

Famine in China.—It is now estimated that 2,000,000 persons perished by famine in Kiang-su and neighboring provinces during the first six months of this year. Owing to the excessive rainfall last summer the crops entirely failed and food is now unobtainable, with no prospect of relief.

Epileptic Colony Favored.—At a recent meeting of the Madison County Medical Society, Illinois, resolutions were presented and adopted urging that the influence of this Society be exerted in favor of establishing a State colony for the care and treatment of epileptics. One copy of the resolution was sent to the State authorities, and another to the Illinois State Medical Society for similar action.

Violent Deaths in Chicago.—The Coroner of Cook County reports that during August there were 367 deaths reported to him. Of the deceased, 31 committed suicide, 27 were killed by railroad accidents, 15 by street cars, and 13 were murdered Lockjaw caused 5 deaths; elevators, 5 deaths; illegal operations, 3 deaths; alcoholism, 14 deaths; burns and scalds, 13 deaths; drowning, 24 deaths, and electrocution, 2 deaths.

Births and Deaths in Pittsburg.—During the year 1906 there were 7,644 births reported in Pittsburg and 7,038 deaths. Up to September 1 of this year 5,386 births have been recorded and 5,475 deaths, but it is believed that this state of affairs is not due to lessened fertility of the citizens so much as to neglect of the physicians and midwives to report the births occurring under their care.

Railway Hygiene.—By order of Dr. Samuel G. Dixon, Health Commissioner of the State of Pennsylvania, porters are forbidden to brush the clothing of passengers in the aisles of railway cars. It is also required that sheets in the berths of sleeping cars shall be sufficiently long to turn over the upper end of the blanket at least two feet, so as to prevent the blanket from coming in contact with the face of the occupant of the berth.

A Cancer Exhibition.—In connection with the general meeting of the International Surgical Society in Brussels, in September, 1908, at which a discussion on cancer will take place, it is proposed to arrange a cancer exhibition, and a circular has been issued inviting contributions, not only from members of the society, but also from others. All objects connected with cancerous disease will be received, but the following classes are enumerated: (1) Macroscopic or microscopic specimens, either instructive from a surgical standpoint or of special interest on account of their localization or method of dissemination; (2) topographical anatomical specimens or drawings illustrating individual operations for cancer; (3) topographical anatomical preparations of the lymphatic vessels and glands of particular regions; (4) statistical wall charts illustrating the duration of the treatment of cancerous diseases; (5) statistical wall charts illustrating the frequency of primary cancer and its metastases in particular organs, based upon clinical or pathological experience; (6) statistical charts dealing with the spread of cancer in different countries, exact plans of so-called cancer foci, and family trees of families in which cancer has existed for several generations; plans of cancer institutions and hospitals, their reports of work done, and financial statements; (8) reports of movements to encourage the early treatment of cancerous diseases, appeals to the public, and proposals as to the means by which a knowledge of the importance of the early diagnosis of cancer may be brought home to the public without exciting panic. Communications should be addressed to Prof. A. Depage, 75 Avenue Louise, Brussels, who will take charge of the specimens, arrange them for exhibition, and return them at the close of the meeting. Exhibitors will have an opportunity of demonstrating their specimens to members during the meeting.—*British Medical Journal.*

American Hospital Association.—The ninth annual meeting of this Association was held at Chicago on September 17, 18, 19, and 20, and was attended by representatives of over 150 hospitals in twenty-four States and provinces of the United States and Canada. The Association entertained as its guests Miss Jane Addams of Hull House, Chicago, Dr. Richard C. Cabot of Boston, Hon. J. Ross Robertson, founder of the Hospital for Sick Children, Toronto, and Dr. A. J. Ochsner, author of "Hospitals: Their Organization and Management." A resolution was adopted making hospital trustees, as well as hospital superintendents, eligible to active membership. The following officers were elected for the ensuing year: *President,* Dr. S. S. Goldwater, New York; *Vice-Presidents,* Hon. J. Ross Robertson, Toronto, and Dr. John M. Peters, Providence, R. I.; *Secretary,* Dr. W. L. Babcock, Detroit; *Treasurer,* Asa Bacon, Chicago.

The Missouri Valley Medical Association.—At the annual meeting of this organization held in Omaha on September 6, officers for the ensuing year were elected as follows: *President,* Dr. W. F. Milroy of Omaha; *Vice-Presidents,* Dr. C. B. Hardin of Kansas City and Dr. A. E. Keen of Blockton, Ia.; *Secretary,* Dr. C. Woods Fassett of St. Joseph; *Treasurer,* Dr. H. B. Jennings of Council Bluffs.

Canadian Medical Association.—At its meeting held in Montreal on September 13 this organization

decided to hold next year's meeting at Ottawa. Officers were elected as follows: *President,* Dr. F. Montizambert of Ottawa; *Vice-Presidents,* Dr. F. R. England of Montreal, Dr. W. H. B. Aikins of Toronto, Dr. Alex McNeill of Summerside, P. E. I., Dr. Ross of Sackville, N. B., and Dr. M. A. Currie of Halifax, N. S.; *Secretary,* Dr. George B. Elliott of Toronto; *Treasurer,* Dr. H. B. Small of Ottawa.

Washington County (Vt.) Medical Society.—Officers as follows were elected at the meeting of this society held in Montpelier on September 10: *President,* Dr. A. C. Bailey of Randolph; *Vice-President,* Dr. M. F. McGuire of Montpelier; *Secretary,* Dr. O. G. Stickney of Barre; *Treasurer,* Dr. E. A. Colton of Montpelier.

American Electrotherapeutic Association.—At the seventeenth annual meeting of this Association held in Boston on September 19, officers as follows were elected: *President,* Dr. H. F. Pitcher of Haverhill, Mass.; *Vice-Presidents,* Dr. Edward C. Titus of New York and Dr. Jefferson D. Gibson of Denver, Col.; *Treasurer,* Dr. Richard J. Nunn of Savannah; *Secretary,* Dr. Albert C. Geyser of New York.

American Roentgen-ray Society.—The eighth annual meeting of this organization will be held in Cincinnati, Ohio, October 2, 3, and 4, 1907, under the presidency of Dr. P. M. Hickey of Detroit. Exhibits of negatives and of apparatus will be displayed and lantern demonstrations will be used to illustrate the papers read.

The Medical Society of the County of Westchester, at its stated meeting on September 17, at the New York Academy of Medicine, listened to a paper by Dr. S. E. Getty of Yonkers on "Ectopic Gestation." The paper was based upon twenty-five cases treated in St. John's Hospital, and illustrated the advantages of prompt diagnosis and immediate celiotomy. Dr. Charles E. Nammack, president of the First District Branch of the State Medical Society, asked the participation of the members in the annual meeting of that branch, to be held in New York City at 2:30 P.M. on October 28.

New York Skin and Cancer Hospital.—An alumni association of the New York Skin and Cancer Hospital was recently organized and the following officers elected: *President* Dr. J. Francis Aitken; *Vice-President,* Dr. H. H. Whitehouse; *Secretary,* Dr. Jerome Kingsbury.

Yorkville Hospital.—At the annual meeting of the medical board of this institution, the following officers and additional members of the medical board were elected: *President,* Dr. H. B. Sheffield; *Vice-President,* Dr. O. P. Honegger; *Secretary,* Dr. M. Talmey. Dr. Abram Brothers was made visiting gynecologist, Drs. M. W. Ware and A. E. Isaacs visiting surgeons, and Dr. Ch. B. Meding visiting eye, ear, nose, and throat surgeon.

For a Chinese Hospital.—A committee of Chinese merchants of this city is planning to equip a $25,000 hospital in the lower part of the city for the treatment of Chinese patients. For the past three years these merchants have been supporting a charitable institution for the care of their sick countrymen, though the fifteen Chinese physicians connected with it had no other authorization to practise than a certificate issued by the Chinese consul affirming that the holder was a Chinese doctor of medicine. On investigation by the counsel of the County Medical Society, it was learned that through ignorance of the present laws governing medical practice in this State, the Consular office had issued the certificates in good faith. The hospital building at 105 Park street is being remodeled and will later be conducted by physicians who have passed the State Board examinations.

Columbia University.—The opening exercises of the 154th year of Columbia University were held in the gymnasium, on Morningside Heights, last Wednesday. The annual address was delivered by James Rignall Wheeler, Professor of Greek Archæology and Art, upon "The Idea of a College and of a University." The opening exercises of the College of Physicians and Surgeons were held at the college on Thursday afternoon. The address of welcome was delivered by President Butler, and Dr. George S. Huntington, Professor of Anatomy, also spoke on the methods and scope of natural object teaching in the medical course.

Post-Graduate Medical Schools in Düsseldorf.—The second medical school in Germany devoted exclusively to post-graduate instruction has been recently opened in Düsseldorf. About three years ago the first institution of this sort was created in Cologne.

Revolt of Internes.—The house staff of St. Joseph's Hospital, St. Paul, Minn., resigned in a body on August 21, dissatisfaction with their treatment by the attending staff and by the hospital authorities being alleged as the cause.

Bequest to Philadelphia Institutions.—By the will of the late Matilda Elkin of Philadelphia the sum of $5,000 is bequeathed to the Presbyterian Hospital, in memory of a sister of the decedent Margaret P. Leeds. By the will of the late Miss Amelia Priestman, bequests are made to the following charitable institutions: St. Joseph's Asylum, $2,000; St. John's Asylum, $1,000; St. Agnes's Hospital, $5,000; Pennsylvania Home for Blind Women, $2,000; Home for Incurables, $2,000; Home of the Merciful Saviour for Crippled Children, $1,000.

Obituary Notes.—Dr. George Newby died on September 19 in Flushing, at the age of eighty-seven years. He was born in England, but had lived in this country for about sixty-five years, and had practised for many years in this city. He was for some years a director of the Metropolitan Art Museum.

Dr. Elmer R. Reynolds of Washington, D. C., died on September 17 as the result of being run over by an automobile while alighting from a street car. He was born in Dansville, N. Y., sixty-one years ago and served from 1861 to 1865 in the Tenth Wisconsin Light Artillery. He was schoolmaster in the navy from 1866 to 1876, and since then had been a medical examiner in the Pension Office. He became prominent as an ethnologist and archæologist and received numerous distinctions for his work in these fields. He was the author of many monographs on the archæology of the District of Columbia, Maryland, and Virginia, and had also written several romances. He was a member of various historical and geographical societies in this country and abroad, and was one of the founders of the American Anthropological Society.

Dr. Edward Fowler of Laurel, Del., died on September 20, at the age of seventy-two years. He served on the Delaware State Board of Health for two terms, and was a founder and director of the Peninsula General Hospital at Salisbury, Md. He was a native of Spring Hill, Md.

Dr. George Archbold of Jersey City died on

September 16 of carcinoma of the liver. He was born in Ford Village, Scotland, in 1840, and received his medical degree from the University of Edinburgh. He took up chemistry as his life work and became prominent as a consultant in this science. In 1890 he was appointed chief chemist of the War Department, and during his incumbency of this office the naval laboratory at Washington was equipped. He was the recipient of many honorary degrees, and was a member of the Society of Science, Letters, and Art, in London.

Dr. CHARLES B. BRIDGHAM of Cohassett, Mass., died on September 17 of nephritis, at the age of sixty-six years. He was born in Buckfield, Me., and was graduated from Bowdoin College in 1863. He served in the Civil War as assistant surgeon, and at the close of the war began practice in Oxford County, Me. In 1887 he removed to Cohassett.

Dr. HARRIET A. LEONARD of Manitou, Col., died on September 8, at the age of seventy years. She was graduated from the Keokuk School of Medicine, and had practised in Manitou for twenty-five years.

Dr. JAMES F. DUFFIE of Blackstock, S. C., died on September 9, at the age of seventy years. He was a graduate of the Charleston Medical College, and served in the Confederate Army as surgeon.

Dr. LESTER S. HILL of Providence, R. I., died on September 9, at the age of sixty-four years. He received his medical degree from the New York Medical College in 1872, and since that time had practised in Providence. He was a member of the House of Representatives during 1872 and 1873, and was surgeon of the First Rhode Island Volunteer Infantry in the Spanish War.

Dr. J. HENRY JACKSON of Barre, Vt., died on September 13, at the age of sixty-three years. He was born in Brome, Que., and received his medical degree from the University of Vermont in 1865. He began to practise at Stockholm, N. Y., and in 1870 removed to Barre. In 1882 he was made professor of physiology in the University of Vermont, a position which he held to the time of his death. In 1903 he was elected Mayor of Barre, and he had held numerous other professional and public positions.

Dr. P. L. Murphy, Superintendent of the State Hospital for the Insane at Morganton, N. C., died on September 11, at the age of fifty-eight years. Dr. Murphy had been superintendent of the State Hospital since its establishment about twenty years ago.

Dr. V. O. TAYLOR of Athol, Mass., died on September 10, at the age of sixty years. He was born in Charlestown, Mass., and was graduated from Harvard Medical School with the class of 1868.

Dr. JOEL W. HYDE of Brooklyn died on September 22, at the age of sixty-eight years. He was born in Westbrook, Conn., was graduated from the Yale University medical school in 1857, and practised for several years in Goodrich, Conn. He served in the Civil War as surgeon, and at its close began practice in Brooklyn. Since 1881 he had been attached to the Long Island College Hospital and for years was secretary of the council. Since 1883 he had been chief of obstetrics in St. Mary's Hospital, and was also one of the consulting surgeons in the Bushwick Hospital. He was a member of many medical and other societies.

Dr. PETER M. WISE of this city died suddenly on September 22, at the age of sixty-four years. He was a graduate of the Buffalo Medical College.

Dr. WILBUR O. ATWATER, Professor of Chemistry in Wesleyan University since 1873, died at Middletown, Conn., on September 22. Dr. Atwater was born in Johnsburg, N. Y., on May 3, 1844, and was graduated from Wesleyan in 1865 and the Sheffield Scientific School at Yale in 1869. Dr. Atwater from 1875-77 was the Director of the Connecticut Agricultural Experiment Station, and was well known for his research work in metabolism and allied subjects.

Dr. WILLIAM G. B. HARLAND of Philadelphia died at Worcester, Mass., on September 13, at the age of thirty-nine years, as the result of an operation for appendicitis. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1890. He was Associate in Otology in the Philadelphia Polyclinic and Instructor in Laryngology in the University of Pennsylvania.

Dr. M. G. LESH died at Stroudsburg, Pa., on September 16 of a carbuncular affection of the face, at the age of fifty-seven years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1873. He was for twelve years surgeon for the Delaware and Lackawanna Railroad Company.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

THE SCIENCE CONGRESS—DEBATES ON ANESTHETICS AND ON ALCOHOL—OBITUARY.

LONDON, September 6, 1907.

IT is somewhat unfortunate that so many conferences take place at the same time. The medical and the scientific this year being held simultaneously, the discussions could hardly hold our attention at both, when the same subjects were debated. The British Association (for the Advancement of Science) has fixed next year's meeting for September 2 at Dublin and elected Mr. Francis Darwin President. The physiological section of this, the older and more important society, is always interesting and sometimes its discussions overlap those of its junior sister. This year there were two unusually able debates of special value to the profession—those on the action of anesthetics and on the use of alcohol in medical practice. The former formed the subject of the opening address of the President of the Section, Dr. Augustus D. Waller, who has devoted much time to the investigation into the condition of anesthesia and its production. From life to death by this way, he said there were three stages divided by three finger posts. Two should be carefully watched for, the third should never be sighted. During the first stage sensation and voluntary motion became suppressed, while reflex and automatic movements were preserved. The finger post between this and the next was the conjunctival reflex. During the second stage voluntary and also reflex movements were wholly suppressed (as indicated by the conjunctiva), but the automatic movements of respiration continued. This was the degree for major operations, and the finger posts to its boundaries were on this side conjunctival reflex, on that movements of respiration. The third finger post must not be passed, it was arrest of the heart's beat. Arrest of the pulse meant an almost hopeless state. Stoppage of respiration meant danger; stoppage of pulse death. This was a clear picture of the process of anesthesia and its principal danger—cardiac syncope. Dr. Waller went on to consider the dosage of chloroform and the deaths under it. He assumed that the deaths were more numerous under it than under other anesthetics because it was the most powerful and convenient and therefore more often used. This, he held, was no reason for substituting other drugs, but for more careful administration. He further assumed that chloroform was remarkably uniform and certain in its effects, acting in strict conformity with the dose and unaffected by irregularities or impurities. His experiments showed it to be the most trustworthy anesthetic. But safety consisted in continuous administration of the vapor at a strength in air of between one and two per cent. How to secure this essential limitation? Methods and apparatus were legion. All which delivered definite percentages are based on one of

two principles. On the first or vacuum system the patient inspired air through a vessel containing liquid chloroform by a broad inlet tube and a closely fitting face piece (Snow's and Harcourt's apparatus are examples). On the second or plenum system the patient inspired from a freely open face-piece in which the air and chloroform at the required percentage were supplied in excess by a pump, as in Dubois' apparatus and the wick vaporizer. By the plenum system there was a more uniform supply and the patient breathed more freely. Whatever methods were employed accurate percentage is of the first importance. It is difficult to estimate this. Dr. Waller described a simple and ready method of estimating percentages and testing the degree of accuracy to which any plan or apparatus was subject under the ordinary conditions of administration.

Sir V. Horsley moved a vote of thanks to the President and said he had made the haphazard administration of chloroform a thing of the past. He had shown that a two per cent. vapor was safe and sufficient. Dr. F. Hewitt seconded and remarked on the great value of Dr. Walker's and Professor Harcourt's work. But there were cases in which exact percentages could not be used and an underdose might be fatal. He also urged that students must be more thoroughly taught. He agreed with Dr. Waller that the plenum system was better than the vacuum. The community was deeply indebted to Dr. Waller. Professor Vernon Harcourt followed with a further tribute to the President. He deplored that death from chloroform was often put down as "misadventure." Ten per cent. had sometimes been given, and it was proved that two per cent. was enough. He had learned much from the President's address.

Prof. Schäfer thought that by watching and influencing the effect on the heart—a point not raised by the president—some fatalities might perhaps be prevented.

Prof. Schüster said the number of operations being much larger than formerly, the ratio of fatalities was less than it used to be, though still too large.

Prof. Gotch was glad that the universities, including his own (Oxford), were taking up this matter and insisting on special training of their medical students in the administration of anesthetics.

The President acknowledged the vote and remarked on the difference between a skilled anesthetist like Dr. Hewitt and the young man who often had to administer chloroform far from help, perhaps abroad or in a colony without any apparatus.

Responding to several requests, Dr. Hewitt explained his remark as to an underdose being fatal. Though when well under, he said, there was not much effect on respiration, but at the beginning of an operation various reflex effects might be set up, some implicating respiration. This if not relieved in time might go on to suspension of breathing—reflex asphyxia, due to imperfect anesthesia.

The debate on alcohol at the Science Association was on a much higher plane than the rather loose talk indulged in at the Medical Association and embraced both the physiological and therapeutic actions. The interest in this discussion was increased by the presence of a lively opposition to the total abstinence view. Dr. Waller, as president, said that the debate was not intended to deal with the question of alcohol as a beverage so much as with the effects of small doses as determined by physiological experiments and therapeutical observations.

Professor Cushing opened the discussion by remarking that, though the exaggerations of the opponents had caused a reaction in the public mind, the uses of alcohol in medicine in the past had been entirely erroneous. As to the supposed digestive qualities he endorsed Binz's dictum that a healthy stomach needed no stimulant, so no alcohol must be the standpoint of the physician to-day and that the more because of its other effects. It had been shown to behave like other nitrogen-free foods. Also it left the tissues in an impaired state and its abuse lessened resistance to invasion of pathogenic organisms. On the central nervous system the effect differed in different individuals. How often it acted as a pure depressant needed to be more generally recognized. The results of investigations on the mental state went to show that alcohol acted as a narcotic, but this would not exclude its use in therapeutics. It might be useful, but not indispensable. The president had not reached a decided conclusion as to the toxic effect. There were various forms of alcohol. He found that brandy diluted with water or with saline solution differed in effect.

Dr W. H. R. Rivers had experimented on the immediate effect of single doses, contrasting it with the habitual use, but said further experiments were required.

Dr Dixon said as to alcohol being called a poison on account of experiments on protoplasm, the same could be said of distilled water, beef tea, etc. Ethyl alcohol could be distilled from the tissues of animals or men who had never tasted it. He had been working for three years at the effect on the circulation, and thought he had proved that up to 0.2 per cent. in the blood it facilitated the work of the heart, but this was reversed when the amount was increased to 0.5 per cent. He said the man who wanted to do mental work was a fool to take it. But that was no reason why men should never take it. It was said to produce fatty degenerations—so did sugar. It had a value as food, being so easily absorbed.

Sir Victor Horsley remarked as to the previous speaker's analogy that "sugar does not make you beat your wife," and added that the well-known effect in increasing diastolic relaxation of the cardiac walls could not be regarded as a stimulation or an advantage to the circulation.

Mr. C. J. Bond presented a series of curves of the rise and fall in the consumption of alcohol at different periods from 1845 to 1900. He found them to be connected with changes in the nation's commercial prosperity, and held that as there had been a continued fall since 1900 the argument should be that the tendency was to be regretted.

Dr. Reid Hunt of Washington described his experiments on young guinea pigs, extending over two years, and designed to be strictly analogous to human beings who were moderate drinkers. The question of tolerance in animals and men had not, he thought, been duly considered. Increased power of oxidation of alcohol was acquired. Alcohol also lessened resistance to poison, but sugar increased it. He thought that most probably the continued use of alcohol produced definite physiological changes in the body processes—sometimes for good, sometimes for evil.

The President closed the debate with a brief speech, in which he said he had no conception of what was an extremely moderate dose, but he had learned from Dr. Dixon's experiments that the amounts which could be present in the blood as physiological and pathological standard amounts were 0.2 and 0.5, and they were proportional to 0.02 and 0.05 for chloroform. He hoped more definite information might be forthcoming at the next congress.

The death is announced by telegraph of Lt. Col. H. J. Dyson, F.R.C.S., I.M.S., on Tuesday last at the Presidency Hospital, Calcutta. He was only forty-seven, entered the service in 1885, was in the Burmese Expedition 1886-88, for which he held medal with clasp, and afterwards was Deputy Assistant Sanitary Commissioner in the Punjab, Sanitary Commissioner in Bengal, and Civil Surgeon at Jenore.

Dr. Walter C. Hirst of Chapeltown, Leeds, was shot dead at his own door on the 31st ult. by a lunatic, who committed suicide immediately. It seemed from a letter the assassin sent to a friend that he was under a delusion that the doctor had caused him to have fits. Dr. Hirst was M.B. Lond., 1899, and had only returned from his honeymoon a few days before the tragedy.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent)

HEALTH CONDITIONS—INEXPLICABLE CASES OF CHOLERA—A PLAGUE CASE FROM CHINA—PERSONAL.

MANILA, P. I., August 8, 1907.

THE report of the Bureau of Health for the fiscal year which ended June 30, 1907, shows most satisfactory health conditions in the Philippines. It seems probable that the effects of the sanitary reforms which have been persistently carried out during the past few years are commencing to show in a most concrete manner. The public health is probably more satisfactory than at any time since American occupation of the Philippines, from which it is reasonable to infer that health conditions are better now than at any time for the past one hundred years or more. The death rate per thousand for the city of Manila has been reduced from 40.09 to 30.01, and if the deaths from cholera, which prevailed largely last July (1906), could be deducted, the rate would be about 28 per cent., which compares favorably with many cities of the United States. The present rate from all causes already ranks Manila as one of the tropical cities with the lowest death rate. The rate for Americans during the year was only 5.59, which is a reduction of 3.75 over the previous year, and among Spaniards and other Europeans it dropped from 17.40 to 15.84.

There has not been a single case of plague in the islands for more than a year, and probably less smallpox than at any time since the American occupation. In those provinces where the number of deaths annually from smallpox alone was six thousand, not a single death took place from this cause.

The solution of the leprosy problem has passed from the theoretical to the practical stage; the number of

lepers September 1, 1905, being 3,580, and for the year which is just ended, 2,826.

So far as is known, no cases of cholera have made their appearance in Manila since November, 1906, until July 13, 1907, when a man was removed from a lighter in the river, who had a history of having eaten a large quantity of sour rice. His clinical symptoms were rather those of a severe ptomain poisoning than those of cholera. He died a few hours after arrival at the hospital, and, on post-portem examination the gross pathological findings were not typical of cholera, but a bacteriological examination of the intestinal contents revealed the cholera organism present. Whether he actually died of cholera or from acute ptomain poisoning it has not been possible to determine accurately.

On July 15 another case, with all the clinical symptoms of cholera, was found in the person of a launch engineer who had arrived in the city of Manila three days previously from the province of Sorsogon. He was removed to the cholera hospital, and the laboratory examination showed that the spirillum of Koch was undoubtedly present. He died three days later, with all the clinical symptoms of cholera. On autopsy the gross pathological findings were typical. The man came from a province in which no cholera is known to have been present for more than three years, but in view of the fact that the experience of the last few years has shown that in the great majority of instances the incubation period for cholera is less than forty-eight hours, it is reasonable to infer that he must have contracted the disease in the city of Manila. No further cases occurred until July 23, when an old lady who resided on Calle Magallanes, in the Walled City, was suddenly seized with the symptoms of cholera. She was removed to the cholera hospital and found to have all the typical clinical symptoms of the disease, and, in addition, to be positive upon bacteriological examination. This woman resided in a family with eight other persons; ate at the same table as other members of the family, and with a history that she had not left the house for some days previous to her illness. The family was kept under close observation for more than five days, but no symptoms suggesting cholera could be detected, nor have any other cases been found among residents of the Walled City. The next case occurred August 5, in the person of a Japanese fisherman who resided in the district of Tondo. So far as the history of his illness is concerned, it was similar to the case reported above. The appearance of this disease among these different people, who have no connection with one another, and live in widely separated sections of the city, is almost inexplicable, from the behavior of cholera as generally taught in text-books, or from any experience heretofore had in the Philippines. It is most difficult to understand how the infection could have taken place in these cases, and it is still more strange why the disease does not show more tendency to spread.

On July 23, 1907, there arrived in the port of Manila the steamship *Ferd Lacisz*, from Chinese ports, the last port of call being Hongkong. At the quarantine inspection of the vessel a case of plague was found in the person of a Chinese member of the crew. He was removed to the plague hospital and the vessel sent to Mariveles for disinfection and fumigation. At the end of seven days the vessel was released, no further cases having made their appearance.

Colonel L. M. Maus, United States Army, who was formerly Commissioner of Public Health for the Philippine Islands, arrived here August 4, 1907, for another tour of duty in the islands. He has been assigned as Chief Surgeon of the Department of Luzon, with headquarters at Manila. He takes the place of Col. John Van Hoff, who was made Chief Surgeon of the Philippines Division upon the return to the United States of Colonel Byrne.

Captain George H. Gosman, Medical Department, United States Army, who has been stationed at Camp Downes, Leyte, during the past two years, has been ordered to return to the United States on the August transport.

Corneal Abrasions.—In order to render abrasions or ulcerations of the cornea clearly visible ophthalmologists instil a very minute drop of a 2 per cent. solution of fluorescin. The excess is washed out and any areas denuded of epithelium become conspicuous through their taking up the green stain.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 12, 1907.

Operative Treatment of Varicose Veins of the Lower Extremity.—After some remarks an anatomy, J. L. Bottomley passes in review the Trendelenburg, Schede, and Madelung operations. He sums up by saying that: (1) The important etiological factor is a congenital one; in a small proportion of cases it is inflammatory. (2) The operation that will give the best results must have as its essential feature extirpation of the internal saphenous vein; but to this such other procedures must be added as are suitable to each individual case. (3) Before operative measures are undertaken it must be demonstrated that the deep venous circulation of the lower extremity is not obstructed to any marked degree. (4) In properly selected cases, it is believed that a permanent cure may be promised. (5) The operation is almost, but not entirely, free from danger. Bottomley has had fifty-seven operative cases in the last three and a half years, in conjunction with a hospital colleague, and, while he has tried the various methods above indicated, he prefers the one about to be described. He extirpates the internal saphenous vein as low as possible; all incisions are closed by lock sutures of horsehair and covered with collodion dressings. Eczematous areas are covered with compound tinctures of benzoin; superficial abrasions are wiped with iodine tinctures before operation. Duration of stay in bed averages two weeks. A bandage from toes to knees is usually recommended for the next three or four months. The operation preferred by him is that suggested by Mayo, although it is not applicable to any individual case. The leg is held elevated and extended. The internal saphenous is then divided between hemostats in the upper third of the thigh. The proximal end is ligated and the distal end is threaded into the ring of an enucleator and again grasped by a hemostat. The vein put under moderate tension is then extirpated subcutaneously by pushing the enucleator in the direction of the knee. When six to eight inches of the vein have thus been freed, the ring is pushed up against the skin from underneath, a short incision made down on it, the vein grasped, enucleator withdrawn, the freed segment pulled out, rethreaded into the ring, and the process repeated down to a point from four to six inches below the knee. If the main trunk breaks during the operation, pressure is applied over the point of rupture, and incision made lower down, the vessel divided between hemostats and extirpated from below upwards to the point of rupture. Incisions in and very close to the fold of the knee are avoided owing to the danger of keloid in that locality. Various operative details are elaborated in the original paper.

Rectal Anesthesia.—J. H. Cunningham reviews the historical and clinical aspects of this method of inducing narcosis. He believes that it may be employed to produce narcosis preliminary to the administration of ether by the mouth, especially if the patient is known to take ether badly. He has devised a special apparatus to overcome rectal disturbances and to control the degree of anesthesia. In his own cases there had been no diarrhea or bloody stools. In a few cases temporary colicky pains and painful abdominal distention have been present. Details of administration cannot be discussed here. The author believes that the lung eliminates ether as fast as the rectum absorbs it, so that danger is lessened. Comparatively little ether is required. There is no stage of excitement. Vomiting is infrequent. Excess of secretion is reduced to a minimum. Recovery is rapid. The paper is an excellent exposition of the general question of rectal anesthesia.

New York Medical Journal, September 14, 1907.

Electrolysis and the Nervous System.—Sir J. A. Grant gives the clinical histories of four cases. He says that the umbilicus may be considered the storm center so far as collateral influence on the sympathetic is concerned. Here not only is the solar plexus near the surface, but there are wide and extensive anastomoses with all the visceral nerves, and it has extensive connections with the cerebrospinal axis. Consequently electrolytic treatment applied at this site will have a maximum effect for good. When the tear and wear become changed by electrolytic action, so as to afford the freer transmission of nerve force, the constitutional changes for the better become more marked. Of especial value is this treatment in disturbances of the alimentary canal where the weak defences of the system allow the entrance of bacterial toxins. Very fre-

quently imperfect digestion is followed by gradual debility, and moderate edema of the extremities entirely outside of renal, cardiac, or hepatic complications. Under such circumstances the local application of electricity to the abdominal walls brings about a change for the better. Energy is restored to the ganglionic centers, the dilated and clogged colon gradually resumes its normal caliber and functions, while owing to the increased activity of the absorbents the dropsy is removed. The author has frequently observed in regions of the limbs a lessened degree of sensation to the electric current of short duration. He considers this defective response as interesting in the light of the clefts or indentations in the medulla of the axis cylinder, defined by various physiologists as small irregular masses separated by fluid. This may account for an imperfect nervous impulse, the importance of which cannot be overestimated, provided the sudden return of complete sensation is the result of electrolytic action restoring the continuity of the medulla of the axis cylinder.

The Ideal Ligature.—The results of extensive investigations by A. D. Whiting lead him to present the following conclusions: (1) The ideal ligature is obtained by treating catgut before it has been twisted into a solid cord or string. (2) Catgut treated before it is twisted is much stronger than catgut sterilized after it has been made into a solid cord or string. (3) It is possible to thoroughly impregnate the untwisted gut with a chemical which will become a component part of the catgut when twisted. (4) Silver iodide gut will remain sterile as long as it is retained in the living tissues and will possess germicidal powers until it has been absorbed or replaced by living cells, the fluids of the body breaking up the silver iodide into silver, iodine, and various compounds of these chemicals. (5) It is possible and practicable to produce catgut that is absolutely free from germ life and that has antiseptic and germicidal powers by treating the gut with various chemicals before it is twisted into a solid string or cord.

Movable Kidney in the Genesis of Bile Duct Disease.—Basing his opinion on the observation of ten cases reported in his paper, A. E. Gallant proposes as worthy of at least tentative adoption the following conclusions: (1) That the inception of disorders of the biliary tracts arise from traction or pressure on the bile ducts by a prolapsed kidney. At first there is but slight mobility, slight traction, and a slight attack, of a "bilious" nature, with or without jaundice. It is owing to the transitory nature of the attacks during its incipiency that examination is but seldom made, or the kidney cannot be palpated because it has slipped back, as soon as the patient lies on her back, and the gall-bladder empties itself as soon as the tension is released. The mobile kidney gradually increases in size and mobility, exerting greater traction, causing greater obstruction, greater bile stasis, greater colic and jaundice, with infection, precipitation, stone formation, ulceration, perforation, and sometimes cremation. (2) That these attacks can almost always be arrested and the diagnosis established by placing the patient in a bed with the foot raised ten inches, and replacing the kidney by careful manipulation. (3) That by the early recognition of the kidney mobility as the cause, in the early stage of the disease and the early wearing of a special corset, exacerbations can be prevented, further progress of duct disease avoided, gallstone formation eliminated, operations for its removal reduced to a minimum, and at the same time by the use of the corset we overcome the bad effects arising from ptosis of other abdominal viscera. (4) When pain, fever, and jaundice do not diminish or subside within twenty-four to forty-eight hours, or unmistakable signs of severe infection or peritoneal invasion are present, operate quickly and thoroughly.

Traumatic Edema in the Cornea of the New-born Infant.—An interesting case in which it was necessary to distinguish between congenital corneal opacity from intrauterine keratitis, corneal abnormality from faulty embryonic development, superficial keratitis and hydrophthalmus, is reported by A. Bray, whose patient seen thirty-six hours after instrumental delivery exhibited a white covering over the cornea of the left eye. The entire eyeball bulged somewhat, and there was a conjunctival hemorrhage. These two latter conditions were undoubtedly due to the forceps, but the author felt less certain as to the nature of the corneal difficulty. The natural treatment in such a case is expectant, as time will restore an edematous cornea to a normal condition. In the case reported to the author used a one per cent solution of dionin, which he believed hastened the absorption of the exudate by increasing the activity of the lymphatic elements in the cornea. He was not sure as to the outcome until the effects of the manifest trauma to the organ as a whole could pass off, but in six days the cornea was clear, the eyeball had assumed a normal shape, the fundus reflex was well seen, the cornea was of good luster, and the opacity had entirely disappeared.

Journal of the American Medical Association, September 21, 1907.

Prevention of Peritoneal Adhesions.—E. Marvel recommends the use of adrenalin chloride after separating peritoneal surfaces to prevent readhesions. He allows the solution to flow from an irrigating nozzle over the oozing surface. The natural method of preventing adhesions is removing the exudation by absorption and the peritoneum can take care of it; but subsequent exudation should also be prevented. By its vascoconstrictor action, adrenalin shuts off further leakage, and the normal salt solution in which it is dissolved also serves to keep apart the separated surfaces. He uses a dram of the adrenalin chloride solution to one quart of normal salt solution, making approximately a strength of 1 to 50,000; the temperature ranges 100° to 110° F., and the amount used varies from 500 to 1,500 c.c., according to the size of the cavity and the extent of the adhesions.

Intestinal Obstruction.—R. D. McClure gives a detailed account of experiments undertaken to answer the question as to the cause of the symptoms (vomiting, collapse, disturbances of blood pressure, sweating, etc.) following intestinal occlusion, whether they are reflexes from nervous irritation or are due to the absorption of poisons from the obstructed intestine. His methods were along lines similar to those of previous experimenters (Kukula, Albeck, and others), and consisted in introducing some of the contents of an obstructed intestinal loop of a dog that presented the above symptoms into the isolated loop or the peritoneal cavity of another dog. When this was done into the peritoneal cavity the symptoms appeared, but the animal soon recovered; but when the intestinal content was introduced into a loop entirely isolated, the continuity of the gut having been re-established by anastomosis, death always occurred in a few days, with symptoms like those of obstruction. In all instances the isolated loop became greatly distended and contained great numbers of bacteria, as in ordinary obstruction. It evidently acts like a culture tube, and it would seem that the symptoms and death were due to the absorption of toxins from the bacteria. Still, not all the experiments were free from objections, as in several the mesentery became twisted, interfering with the vitality of the loop, and in one or two ulceration and perforation occurred. Excluding, however, conditions of ulceration leading to peritonitis, or those in which infarction renders the walls permeable to bacteria, it seems that obstruction may persist for days with enormous distention of the gut and growth of bacteria. The bacterial poisons alone may be absorbed, while the germs themselves do not leave the intestinal lumen. It seems probable that this may also occur in man, though there may be a later invasion of the tissues by bacteria with septicemia. In animals the symptoms are such that it is difficult to see how irritation of the intestinal nerves can be their cause, and it seems just as reasonable to assume that in many the symptoms of obstruction are rather the result of intoxication than of any mechanical disturbance of the nervous mechanism of the intestinal wall. The article is illustrated.

Postoperative Ileus.—F. Martin reviews the literature of postoperative mechanical ileus, showing from this and other evidence that it is not a rare complication and that it occurs after laparotomies of all kinds, in percentages ranging anywhere between 0.1 per cent. and 2 per cent. Its diagnosis, while of the utmost importance, is sometimes exceptionally difficult. There is an early syndrome of obstruction—a sort of pseudo-postoperative ileus, which clears away, but which may mask the symptoms of the more formidable condition. Then, if the case is of the strangulation type, every hour of delay jeopardizes the patient's chances. One of the most important symptoms, in Martin's opinion, is the intense and, though with slight remissions, persistent abdominal pain, usually referred to the umbilicus; there is generally slight change in temperature or pulse; there is soon persistent vomiting, and marked peritoneal shock following; very high leucocyte count, anywhere from 30,000 to 40,000. Soon assymmetrical distention is noted, and later on Von Wahl's loop and visible peristalsis. In mechanical obstruction the pulse is not much disturbed; it is full and of good tension. In peritonitis on the other hand, the pulse is small and the tension low. The symptoms are described in consider-

able detail. The prognosis of post-operative mechanical ileus is better than that of the paralytic or adynamic type, but depends largely on how soon operative procedures are resorted to, and also on the nature of the original affection calling for laparotomy. In the absence of infection, the prognosis is usually good. As the chief causal factor is adhesions, operation is the only rational treatment. A number of cases are reported.

An Improved Inhaler for Anesthesia.—W. C. Pedersen describes an inhaler devised by himself to meet the requirements of: 1. Leaving the normal work of the lungs unaffected. 2. Offering no obstruction to the inflow and outflow of the tidal air. 3. Allowing the admission of fresh air with each inspiration, and controllable by the anesthetist. 4. Preserving sufficient expired air and ether fumes to warm the fresh ether fumes, thus reducing refrigeration. The first two requirements are met by taking two tubes larger than the adult trachea, fitted gastight over each other, with two matching windows opposite each other, so that when the indicator is at the word "air" of the scale the windows are closed, and when it is at the word "ether" they are wide open. Outside the windows of the outer tube, screened with wire gauze, is the packing of the ether chamber. Breathing through a tube larger than his own trachea, the patient evaporates his ether from the ether-soaked gauze in the windows in a manner provided for in no other inhaler known to Pedersen, and has, besides, no obstruction of his tidal air to overcome. Fresh air is admitted with each inspiration by means of the inspiratory valve at one end of the T-formed bag-carrier. This fresh air is controlled by the cut-off valve just within the tube. Warming of the ether fumes is afforded as in other bag inhalers—by the bag which receives and stores the warm expired ether fumes, to be rebreathed by the patient mixed with fresh ether fumes from the windows. All the details of the inhaler and its mode of use are given, with illustrations. It can be used, according to the author, with the following anesthetics and sequences of anesthetics: 1. For gas alone. 2. For gas and air in definite proportions. 3. For gas and oxygen in definite proportions. 4. For gas-ether sequence. 5. For the gas-ether sequence with oxygen. 6. For the ethyl-chloride-ether sequence. 7. For the ethyl-chloride-ether-oxygen sequence.

Salpingitis Caused by Appendicitis.—I. S. Stone reports two cases of salpingitis due to disease of the appendix, and emphasizes the fact that such cases occur and are more frequent than is generally supposed. He was able not only to observe the appearance of the diseased organs, both before and after removal, but also to note clinical and pathological differences existing between these cases and those of the more common gonorrheal origin. The gonorrheal diplococcus tends to close the fimbriæ and to protect the peritoneum until the tubal mucosa has been destroyed, and perhaps rupture occurred. Streptococcic and staphylococcic infection, on the other hand, cause lymphatic and connective tissue invasion. In both his cases the colon bacillus was present, indicating intestinal origin of the disease. Unfortunate mistakes in diagnosing the gonorrheal salpingitis have occurred because of the non-recognition of the possibility of this other route of infection.

The Lancet, September 7, 1907.

The Treatment of Cancer.—L. Drage regards the surgical treatment of cancer as absolute. Several years ago he called attention to the possibility of relieving cancer patients by the artificial production of leucocytosis, which denotes an increase in the cells of the blood which are most highly endowed with the properties of living cells. The first drug used for this purpose was cinnamate of soda. He reports several cases with favorable results under this general plan of treatment. The author admits that the published reports of his work have made practically no impression on the surgeons. By cooperation with the Buffalo (N. Y.) Laboratory for Cancer Research, he has been able to avail himself of certain new substances, viz., coumarate of sodium and tylmarin. Life has not always been saved, but has often been prolonged, while suffering has been greatly relieved. He believes that much is to be expected in the future from the employment of these new substances and of others which may be elaborated. The author further claims that very definite results have been obtained in connection with the prevention of local death of the tissues invaded and the absorption of the products of decomposition into the system. In his experience in the old days a large proportion of the cases died septic, but no case treated by him with the new remedies has so died. The drugs used are very active in destroying all forms of fission fungi. Tests by the Rideal-Walker method against the typhoid bacillus showed the activity of tylmarin as 4.5, carbolic acid being taken as 1, while that of ortho-coumaric acid was 6.5. That of formalin under the same conditions was only 0.30.

Pyemia Due to the Influenza Bacillus with Multiple Arthritis and Meningitis.—L. S. Dudgeon and J. E. Adams report a case, their patient being a girl baby of ten months. Full clinical and post-mortem notes are given. The bacteriological tests showed the influenza bacillus in the various joints affected. The primary lesion seems to have been epiphysitis of the upper extremity of the radius. There was no evidence of any sore or wound on the limbs, as sometimes met with in cases of acute epiphysitis and osteomyelitis due to the *Staphylococcus aureus*. There was no history obtainable of any influenzal affection in any other member of the family, and apart from the fact that the child was not thriving for one month before the onset of this disease her condition caused no anxiety. When first seen the case appeared obscure and examination by *x*-rays failed to throw further light on the exact lesion. This was doubtless due to the absence of ossification in the epiphysis and the very small amount of destruction of bone at the time this examination was made. At the post-mortem examination, however, there was irregular pitting at the upper end of the radial shaft which would have been rendered evident had a second skiagram been taken. The disease proceeded with great rapidity both in the elbow joint and also as regards the systemic infection, and the sequence following the radial epiphysitis appears to have been first the elbow joint and then the right hip joint, followed very closely by the diffuse meningeal infection, and terminating in acute bronchopneumonia. From all these situations, except the lungs, the influenza bacillus was obtained in pure culture. The splenic juice gave a similar result, while microscopic sections of the lung showed a bacillus morphologically identical present in the polymorphonuclear neutrophiles. The pus in the hip joint showed no such definite characteristics.

Peritonitis and Its Treatment.—J. Berry thinks that the surgery of the peritoneum has been overdone. The doctrine, "here is a septic focus; let us take it out at all costs," as applied to appendicitis, is, in his judgment, productive of much harm. He pleads not for the abandonment of operative measures, but for more discrimination in the choice of an operation. He believes that if we should all go back to the old treatment of appendicitis in vogue twenty-five years ago, the mortality from the disease would be less than at present. We do not get the full records of the unsuccessful operations. If we did we should be appalled at the showing, taking all results, good and bad, together. By far the most serious and dangerous forms of peritonitis produced by appendicitis are those in which it is not the appendix which suddenly ruptures, but an abscess that has slowly and quietly formed outside the appendix and ruptures secondarily through its wall. When the peritoneum is suddenly invaded by bacteria there is an immediate rush of blood to the affected area. The abdominal veins are capable of holding a very large quantity of blood, and a very large quantity of blood is now needed for the great fight which is to take place between the blood plasma and white corpuscles on the one hand and the bacteria on the other. The abdominal viscera then, and especially the great omentum, become engorged with blood. This filling up of the abdominal veins leaves less blood in other parts of the body. Hence in severe cases we have collapse. The arteries are empty and the pulse is feeble. The author admits that other factors, such as reflex inhibition of the heart, may play a part in the production of shock, but he lays special stress on this cause of the shock and feeble, rapid pulse that we may meet with in peritonitis because it ought to teach us that the proper mode of treatment is to replenish the empty vessels by giving the patient fluid, plenty of fluid, to replace that which has gone off to the abdomen. For general purposes of treatment Berry makes four classes of cases: First, no perforation of a viscus and no peritoneal fluid. Here free saline purgation with large amounts of fluid by rectum or hypodermoclysis will often suffice. Opium should be avoided. Second, recent perforation of a hollow viscus. Immediate operation Third, considerable peritonitis involving much of the cavity with more or less tendency to concentration of the inflammation in one place. Immediate operation is not always necessary. Purgatives and large enemata should not be given, nor food by the mouth. Small

arterial enemata will often carry the patient over, and he can do well enough for a day or two without food at all. Fourth, general diffuse peritonitis with general distention and purulent fluid diffused over a large area. For this form the author believes that the Ochsner method of treatment will give, on the whole, the best results.

Berliner klinische Wochenschrift, August 26 and September 2, 1907.

The Differentiation of Sporadic Cases of Epidemic Cerebrospinal Meningitis from Other Forms of Meningeal Disease.—Hölker is of the opinion that although the direct transfer of infection from a patient with meningitis to persons in his environment has only rarely been proved, cases of the disease should, however, be kept in isolation. In sporadic cases of epidemic meningitis the diagnosis is often difficult to make early in the disease, particularly as the specific organism sometimes does not appear until very late. Of fifteen cases sent to the Charité Hospital of Berlin with the diagnosis of epidemic cerebrospinal meningitis a definite diagnosis could be made during the first week from the bacteriological findings only six times, two of the cases being instances of epidemic meningitis. In two other cases the diagnosis of epidemic meningitis was confirmed later on, while in seven cases the examination of the spinal fluid did not afford ground for diagnostic conclusions. In the four cases of true epidemic meningitis the meningococcus was sooner or later identified, though in one instance not until the fifth week, and it is this fact that leads the author to emphasize the necessity for caution in the disposition of suspected cases.

The Effect of Radium Emanations on Man.—Loewenthal has found that the use of water impregnated with radioactive substances is beneficial in cases of certain affections both when added to the water used for bathing cures and when given internally. A favorable effect is to be observed in cases of chronic articular rheumatism of moderate severity, regardless of whether the condition started as a chronic affection from the beginning or was the result of an acute or subacute invasion. Typical cases of arthritis deformans are not susceptible of improvement in this way, and the author believes that this fact may be of use in differentiating this obscure symptom complex from the true rheumatic affections. Another group of affections capable of being influenced by the emanations consists of the forms of chronic neuritis. Improvement was observed in cases of sciatica and of brachial and facial neuritis. Two specimen cases are described in detail in which chronic articular rheumatism and sciatica were entirely relieved by means of brine baths plus radioactive emanations, and a relapse in each case was cut short by the internal administration of radioactive water as the sole therapeutic measure.

Gonorrheal Pyelitis.—Sellei and Unterberg state that it is a matter of the greatest difficulty to determine whether or not a pyelitis can be produced by the gonococcus alone. The requisite information can be obtained only by ureteral catheterization, but there is always a possible source of error through the contamination that is likely to occur during the passage of the instrument through the urethra and bladder. By taking especial precautions in observations on five patients the authors reached the conclusion that the gonococcus alone is sufficient to produce pyelitis, although in most cases mixed infections are present. The process appears to be the result of direct ascension and not of hematogenous transmission. The affection is usually unilateral and the symptomatology is not characteristic, so that the diagnosis can be made with certainty only with the ureteral catheter. The temperature is considerably elevated only during the most acute stages; later on there are only slight intermittent elevations. In some cases fever and pain are entirely absent. The polyuria and pyuria appear to be constant, however, but these symptoms are also common to other forms of pyelitis. In most cases the process may be cured by rest and internal medication. Where these measures are ineffectual lavage of the renal pelvis is indicated. For this purpose boracic acid solution and 1 per cent. silver nitrate solution may be used.

Muenchener medizinische Wochenschrift, August 27, 1907.

The Gastric Disorders Accompanying Chronic Lead Poisoning.—Wałko has studied the gastric manifestations present in forty-three cases of lead poisoning of various degrees of intensity and chronicity. In most cases the symptoms of intoxication had persisted only for a few weeks and were very severe. As a result of his observations he concludes that even in the early stages of chronic plumbism functional disturbances of the stomach appear which may be characterized by a diminution or entire absence of hydrochloric acid and ferment secretion. At first there may be increased motor activity, which is later followed by a diminution in motility. The course of these gastric affections is very protracted, and the disturbances are partly purely functional in nature and more rarely are due to actual parenchymatous changes in the mucous membrane. They may be induced through the constipation accompanying the chronic intoxication or through the involvement of the gastrointestinal nerve plexuses. The prognosis is usually favorable even in cases of marked severity, though there is always the possibility that later on other evidences of intoxication, such as encephalitis, may appear.

The Experimental Reversion of Mouse Carcinoma to the Type of Adenoma.—Apolant says that the conditions existing in the growth of a malignant tumor may be compared to the course of a stream which remains in its normal bed as long as the banks offer the necessary barrier to the flood. If these natural barriers are broken, however, either through a rise in the waters, corresponding to the increased avidity of the tumor cells, or through destruction of the banks, which would correspond to the weakening of the powers of resistance of the organism, the inundation can be impeded only by the erection of artificial obstacles or dams. That some such measures are actually possible of application is shown by experiments on mice in which the author succeeded in causing malignant carcinomatous growths to revert to the benign adenomatous type in consequence of a procedure of immunization. In one set of cases this was effected by injections of juice from virulent spontaneous tumors and in the other by the injection of blood from healty mice. In a considerable portion of cases the reversion of the previously malignant tumor was observed. The author regards these experiments as further evidence in favor of not attempting to differentiate too sharply the adenomatous growths from the cancers, since the fact that a transition may occur from the benign to the malignant forms and back again indicates the advisability of regarding the entire group of new growths as more or less of an entity.

French Journals.

Composition of Human Milk and Its Chemical Analysis.—H. Lescoeur believes that the ordinary methods of chemical analysis of human milk are misleading and useless. In the cow the amount of cream obtained depends on the period of the milking at which the specimen is taken, the most cream coming at the last. In the woman the sample taken is very small and does not represent the total product. Therefore the variations in the total solids depend mainly on the variation in the amount of cream. A much more useful test depends on the density of the whey. When mother's milk coagulates there is no separation of curd, as in cow's milk, but proper filtration will separate the milk into a precipitate and an opaline liquid. The density of this liquid normally will be 1036; when the milk is poor it will vary down to 1033. A milk, then, whose density is below 1036 is a poor milk. Variations in the solids of the milk result from the age of the milk, return of the menses, pregnancy, and disease, and they are a matter of quantity, not of quality, since there is little difference among nurses in quality. In case of defective nutrition, substances are separated from the milk that are injurious to the infant, but these cannot as yet be discovered by chemical analysis.—*Le Nord Médical*, July, 1907.

Human Actinomycosis.—L. Thevenot says that in France actinomycosis is not as rare as is ordinarily stated. The cervicofacial form is most frequent, and that of the limbs is rare. That of the pleura and lungs is relatively common. The diagnosis is difficult and many cases are regarded as tubercular. The sputum is examined for the tubercle bacillus and the characteristic yellow granules of actinomycosis are passed by. Only when abscess is formed is the disease recognized. The author has studied eight cases of the disease; in only one of them were there any general symptoms; they were lack of appetite, emaciation, and mild fever. In all the cases iodide of patassium in doses of two to five grams brought about a complete cure. In none of them was there a recurrence. It is necessary to look for this disease in order to find it. That being done, we shall see it more and more frequently. The recognition of a new growth, the finding of yellow granules, and the microscopic examination are the diagnostic points.—*Lyons Médical*, May 19, 1907.

Book Reviews.

Experiments on Animals. By Stephen Paget, with an introduction by Lord Lister. Third and Revised Edition. New York: William Wood & Company, 1907.

The camps of the antivivisectionists are so largely occupied by those beyond the appeal of reason that it is doubtful whether even so admirable a work as the present is destined to make many converts among the well meaning but ill-advised defenders of this curious creed. That some unnecessary suffering has been caused in the effort to advance medical science by laboratory methods no one can deny, but the advantages to humanity that have been conferred as the result of animal experimentation are so incalculable that it is difficult to understand the attitude of mind of those who would close this avenue to further progress. Mr. Paget's volume is really an epitome of the history of medicine as we know it, and is so clearly written that it should be intelligible to the educated layman. It may be commended warmly both to medical readers (on account of its general interest) and for circulation among the public, at least that part of it that requires demonstration of what to most people is a self-evident proposition. The first section deals with the benefits resulting from the experimental study of physiology, the second with those related to experiments in pathology, materia medica, and therapeutics, and the third to a discussion of the British legislation referring to experiments on animals. The closing section is an exposition of the case against antivivisection and forms a most convincing arraignment of its adherents.

Klinik für Psychische und Nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil., o. Professor an der Univ. Giessen. II. Band. 1. Heft. Inhalt: I. Rauschburg, Dr. Paul, Leiter des psychologischen Laboratoriums an den ung. Kön. heilpädagogischen Instituten zu Budapest: Ueber Art und Wert Klinischer Gedächtnismessungen bei nervösen und psychischen Erkrankungen. II. Lechner, Hofrat Prof. Dr. Karl, in Kolozsvár (Klausenburg): Die Schlaflosigkeit infolge von Störungen des Vorschlafes. III. Hampe, Dr. J., Nervenarzt in Braunschweig: Beitrag zur Psychologie der Aussage. Halle a. S.: Verlag von Carl Marhold, 1907.

Very interesting and suggestive to the psychiater, especially Part I, by Dr. Rauschburg.

A Treatise on the Principles and Practice of Medicine. By Arthur R. Edwards, A.M., M.D., Professor of the Principles and Practice of Medicine and Clinical Medicine in the Northwestern University Medical School, Chicago; Attending Physician to Wesley and Mercy Hospitals. Philadelphia and New York: Lea Brothers & Co., 1907.

This is a new treatise on the practice of medicine by a new writer, and one is tempted to ask whether it is needed. There are several modern books on the subject already in the field and every newcomer must therefore justify its birth by demonstrating its superiority in one or more points over its rivals. In one important point—the most important point indeed—this book is superior to one at least of its predecessors; that point is treatment. Under the malign influence of a former authority in American medicine, therapeutic nihilism at one time threatened to dominate medical practice in this country. Fortunately a reaction has set in and the authority who once held sway is now placed as a pathologist rather than a therapeutist. In this book the cure or alleviation of disease is proclaimed as the final object of medical study. The author, while not apparently an optimist, is at least not a pessimist, and there is in his work a note of hopefulness in the treatment of disease which comes as a cooling zephyr to dispel the sultry mists that have beclouded medical practice in this country. We welcome it as a sign of the times and as an indication that the practitioner of the future will not fetter himself with the formula, "a self-limited disease," and its corollary, "expectant treatment." The author is not as hopeful as the modern practitioner is justified in being, and he omits mention of many remedies which have proved their efficacy in the hands of other competent men; nevertheless, he counsels action in the presence of disease and for this we are thankful.

The arrangement of the work is such as to facilitate ready reference, different styles of type being used to indicate the various sections and their varying degrees of importance. The author is not as careful as he might have been in certain directions. The name of the yellow fever mosquito, for example, is not *Culex fasciata*, nor is the name of the Havana physician who first made this great discovery spelled Findlay. Ballottement is not a good name for the fluctuation obtained in ascites. There is no such word as sanitoria, yet this is used repeatedly. Other incorrect words, such as hydrogogue and Neuheim, may be put down to faulty proof-reading, of which there are many instances in the book. It is trying to find, in a book published in the present year of grace, that cyestrain as a factor in the etiology of migraine is dismissed with a quotation from Möbius that "this cause is epidemic in the United States." In the section on the treatment of pneumonia, even if the author had not thought it worth while to speak of the quasi-specific effect of calomel in large dose, of quinine, and of carbonate of creosote, something at least might have been said of the benefits of open air, or at least of proper ventilation of the sickroom. These and other important defects are present, but we are disposed to forgive them in observing the general tone of therapeutic hopefulness which pervades the work. In this respect Edwards' Practice is to be warmly commended to students and young practitioners.

Ulceration of the Cornea. By Angus Macnab, B.A., B.Sc., M.B., Ch.B., F.R.C.S., Chief Clinical Assistant Royal London Ophthalmic Hospital. New York: William Wood & Company, 1907.

This work, which forms a small volume of 196 pages, is written in a vigorous, authoritative style and displays a very comprehensive acquaintance with the subject. The writer has undertaken to classify ulcer of the cornea according to the determining cause, namely, the bacteria to the presence of which the ulcer is due. Those forms in which a specific microorganism is not known are considered separately. The study of ulcer of the cornea from this point of view not only imparts a knowledge of the various clinical pictures that individual species of bacteria may produce, but it makes it possible to formulate exact and effective methods of treatment.

The work begins with a short chapter on "Methods of Examination." The various forms of ulcer of the cornea are then described quite fully, and the work is concluded by a short chapter in which the "Operation for Excision of the Lacrymal Sac," the "Saemisch Section," and the "Corneal Plastic Operation" are described. A number of excellent illustrations are found in the text.

The author is to be congratulated on the production of a work which frees the subject of which it treats of much ambiguity. Every ophthalmic surgeon should familiiarize himself with the contents of this brochure.

Studies from the Zoological Laboratory of the University of Nebraska. No. 70. Iconographia Parasitorum Hominis. By Henry B. Ward. A collation of figures with brief explanatory text, to aid in the study and diagnosis of the less common parasites of man. For ready reference of students in pathology, clinical microscopy, medical zoology and comparative medicine. Lincoln, Neb.: published under the direction of Henry B. Ward, 1907.

This pamphlet contains twenty plates, each with several figures, and facing each plate are short explanatory notes. This explanatory text is exceedingly brief, and might with advantage be enlarged. The student will find this little work of real value for reference, and it will also serve as a supplement to the well-known Leuckart charts.

A Primer of Psychology and Mental Disease. For Use in Training Schools for Attendants and Nurses, and in Medical Classes, and as a Ready Reference for the Practitioner. By C. B. Burr, M.D., Medical Director of Oak Grove Hospital (Flint, Mich.) for Mental and Nervous Diseases, etc. Third Edition, Thoroughly Revised. Philadelphia: F. A. Davis Company, 1906.

In this third edition the author has rewritten the section on insanity to conform with the Kraepelin classification, and has added treatment. The section on psychology has been revised. The book is, perhaps, better suited to the medical student, or general practitioner, than to the mental capacity of the average attendant.

Surgery of the Rectum. By Fred C. Wallis, B.A., M.D., Cantab., F.R.C.S., Surgeon to Charing Cross Hospital, St. Mark's Hospital, and the Grosvenor Hospital for Women and Children, London. New York: William Wood & Company, 1907.

The first five chapters contain the author's original views of the cause and treatment of most of the inflammatory affections in and around the rectum. The operation for excision of hemorrhoids is fully described. The author strongly inclines to the opinion that rectal ulceration is not a syphilitic affection. The various operations for rectal carcinoma are fully discussed. The book presents the surgery of the rectum in a practical and condensed form. Original drawings are freely inserted.

Society Reports.

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Held at Exeter, July 27 to August 2, 1907.

(Special Report to the MEDICAL RECORD.)

SECTION OF TROPICAL DISEASES

(*Continued from page 499.*)

Second Day.—Thursday, August 1.

Diabetes in the Tropics.—Sir RICHARD HAVELOCK CHARLES, K.C.V.O., Lieutenant-Colonel I.M.S., opened this discussion. It could scarcely be said that diabetes was a tropical disease, but it could be said that its peculiar prevalence amongst the Hindu races in India, and especially its very considerable increase in that country of late years, gain it sufficient interest to afford a practical subject of debate in the Tropical Section. In India, as in Europe, one defined diabetes as an intractable and constant glycosuria, associated with serious general symptoms and marked impairment of health. If the brunt of disease in cold climates fell on the respiratory system, in the tropics it was on the gastrointestinal canal that the burden was heaviest. Hence, malassimilation of food and its consequences was the root of many troubles. Regarding glycosuria as a symptom of malassimilation, its relationship to dyspepsia as a cause was easy to comprehend. There were cases of "simple glycosuria," supposed to be comparable to cases of "physiological or intermittent albuminuria; that is, they were called so when the practitioner could easily control them; but when control failed, then he called them diabetes mellitus. The typical diabetic case was easy of diagnosis, for in association with the glycosuria would be the cardinal signs of polyphagia, polydipsia, polyuria, and possibly emaciation. But every exception and variety existed; nothing but the lapse of time could enable us to say definitely as to the benign nature of a given case. We might surmise, but when it was borne in mind that glycosuria would entirely disappear for a long period and then recur, with possibly considerable malignancy, we must be guarded, as such periods of latency could not be justly estimated; and the very causes assigned for glycosuria were as commonly associated with the onset of diabetes mellitus, though we admitted that all who had glycosuria were not diabetics. Practically every case coming before the speaker had had symptoms of dyspepsia, and one might say: No diabetes without indigestion, its forerunner. What was there in lower Bengal to account for the commonness of the disease there? The lazy and indolent rich suffered; the overworked medical and legal practitioners were taxed with the scourge. What was there in common between these classes? Simply indigestion and its consequences. The menial element even afforded examples in Calcutta, though up-country, so far as the speaker knew, is was rare amongst this class. Why? Money was more plentiful, excesses more possible, life's conditions more irregular and strenuous—the result being digestive disturbances. The Marwari in Rajputana were but comparatively little attacked; in Calcutta they were very common victims. In that city they had high finance, and thus, working the machine to the utmost and attending least to its needs, received offended Nature's punishment for errors of diet and digestion. The Calcutta climate and hustle even overthrew the Chinaman, here furnishing the exception to his so-called immunity from diabetes. In the Punjab diabetes was a comparatively rare disease, whilst in Bengal it was exceedingly common and growing more so. For Bengal, the speaker said, he would divide the somewhat indefinite and unsatisfactory causes into remote and immediate. Amongst the forms were: (1) Depressing climate; (2) defective hygienic conditions, indolence, lack of exercise, overcrowding; (3) city strain *versus* bucolic ease—the disease was more common amongst old residents of Calcutta than inhabitants of the rural areas; (4) severe struggle for life under altered circumstances; (5) rich living, too great excess of carbohydrate food, special tendency to digestive troubles. Among the more immediate causes were: (1) Excessive venery; (2) mental or nervous strain, fright, bereavements—in fact, the overtaxing of the nervous system in the pursuit of knowledge, business, or pleasure was, one might say, the direct incentive to the onset of the disease, and then, if the essential cause—toxic agent or otherwise—were present, diabetes was the result. What struck one the most in India was the great preponderance which this disease bore to the Hindoo people, attacking them more than Musulmans, Beharis less than Bengalis. The Sonthal or Hill man rarely suffered, though Nepalese high officials furnished many cases. The Marwaris of Calcutta were more a prey to it than their brothers in Rajputana. In Bengal the Brahmins, Kyasths, Byades were more affected than the other castes. As in the West, it affected mostly those of the upper classes; but by no means always so, for very frequently cases from the menial orders were treated in hospital. The speaker did not think that any people in the plains of India were immune to this disease. Regarding sex, while it was true that males suffered mostly, still the speaker's experience had led him to form the opinion that the women of India were by no means as free from the disease as was formerly considered. Assurance companies in India should be on their guard in all cases of glycosuria. This was more especially for those taking chiefly Indian lives. Considerable experience in assurance work had taught him that companies had suffered losses through carelessness in accepting risks with a history of glycosuria.

Dr. RAI KOILAS CHUNDER BOSE, Bahadur, C.A.E., Calcutta, said that there was not the slightest shadow of a doubt that, with the progress of civilization, of high education, and of increased wealth and prosperity of the people under the British rule, the number of diabetes cases in India had enormously increased. Nearly 10 per cent. of the well-to-do class of Bengali gentlemen suffered from it. From close observation he had been induced to believe that the factors of diabetes lay in the liver, the gastrointestinal tract, and the nervous centers. It was difficult to state the part food played in the production of diabetes. True it was that the Indian's diet chiefly consisted of rice, flour, pulse, and cereals of diverse kinds; but so long as there did not exist the essential cause of diabetes, which was still unknown, they exerted little or no deleterious effects upon health, and a man might continue to take carbohydrates and sugar his life long and still not suffer from diabetes. He might suffer from temporary glycosuria. The speaker did not agree with those who believed that carbohydrates were the only factors of diabetes, for meat-eaters were not immune against the disease. In confirmed cases ants clustered round the limbs of a diabetic patient, and often caused breaches in the continuity of the surface of the skin. He had seen cases where patches of epidermis had been actually eaten up by ants. It was very difficult to say whether the disease was transmitted from one generation to another, or whether the succeeding generations, following the habits of their predecessors and living under the same environments, rendered themselves liable to the influence of diabetes. He had seen a regular group of diabetic patients in one family, and had also seen husband and wife suffering from the disease. Males were more susceptible to diabetes than females, and the proportion was about three to one. It was not always wise to attach any special value to high or low specific gravity of urine in determining the progress of the disease. Low specific gravity did not necessarily mean arrest of progress, nor did sudden disappearance of sugar from the urine indicate cure. In chronic cases the sudden disappearance of sugar foretold approaching complications of a serious nature. Sciatica was an obstinate complication of the Indian diabetes. When a

patient gave a history of bilateral sciatica he probably was the subject of diabetes. Indeed, the speaker never missed finding diabetes in patients who suffered from sciatica on both sides. The skin of a diabetic patient was always covered by patches of eczema. The prepuce was mostly affected by it. Phimosis was a common complication, and gave much trouble. The females suffered from prurigo. Carbuncle was a grave complication, and early interference was necessary to save the life of the patient. In some cases its appearance was preceded by a pause in the excretion of sugar. Gangrene was a fatal complication. Elderly people usually succumbed to it; young men might occasionally recover. A tight shoe or a puncture from a pin might give rise to it. We had no cure for diabetes. We simply palliated the symptoms and gave temporary relief to the patient. Aspirin and antipyrin reduced the micturition and relieved thirst and burning, but antipyrin should on no account be given when the kidneys were seriously affected. Jumbul reduced the specific gravity and the quantity of sugar; its prolonged use was followed by gastric troubles; it could never effect a cure. Codeine was gradually getting out of vogue and, in fact, did no good except in reducing the frequency of micturition. Milk was the best diet. Change of air seemed advisable; the Indian diabetics invariably did well in the hills of Darjeeling.

Dr. Rai Devendranath Roy of Bahadur said that the ancient Hindu physicians called diabetes mellitus *prameha* or *madhu meha* (sweet discharge), and diabetes insipidus *soma roga* (water disease). The causes were believed to be sexual excesses, grief, hard labor, mental worry, lassitude, indiscretion in diet, and dyspepsia. As symptoms they described a very large flow of urine, loss of eyesight, intolerance of heat, lassitude, inordinate thirst, a voracious appetite in some, loss of appetite in others, general loss of flesh and strength, premature senility. As complications they mentioned: (1) *Saráhiku*, circular inflammation, with raised edges and depressed center; (2) circumscribed inflammation resembling the back of a tortoise, accompanied by severe burning sensations; (3) *Jalini*, the inflamed surface was studded with small ulcerations and looked like an ordinary fishing net, and it was accompanied by severe burning sensation; (4) *Billüta*, affected part livid, very painful and ulcerated, usually on the abdomen or back; (5) *Alâji*, blackish or reddish eruption, very painful; (6) *Musurika*, very painful papules the shape and size of musur (a sort of lentil); (7) *Sarsapika*, a painful eruption the shape and size of a mustard seed; (8) *Putrini*, a large inflammatory area studded with minute pustular eruption; (9) *Bidárikâ*, inflammatory masses the shape and size of large tubes; (10) *Bidradhi*, inflammation, followed by accumulation of pus. In the treatment the patients should avoid night-keeping and exposure to heat. Long walks in the fresh air, riding, and physical exercises were advised. Sexual excesses should be avoided. The following articles of diet were recommended: New rice, curd, flesh of animals living in swamps, fish, sweets, wines, vinegar, excess of oils and onions. They should not drink milk, eat fish and meat at the same meal; sugar cane and preparations made from its juice should not be touched; excesses of acid and salt should be avoided. The following articles of diet were especially recommended as most beneficial: Barley, flour of old wheat, Moong dal, Arabar dal, Chena dal (Bengal grain), fried rice, sesame seeds, meat juice, old wines, old honey, whey, sparrows, pigeons, rabbits, snipe, peacock, venison. Of medicines they recommended jumbul, seeds and roots of lotus, dates, all bitters and astringents.

Dr. Sandwith, F.R.C.P., consulting physician to Kass el Ainy Hospital, Cairo, said that diabetes was one of the common diseases among Egyptians, who lived chiefly on bread and vegetables, instead of meat, and were very fond of sugar in all forms. The statistics of the Kass el Ainy Hospital showed only 65 admissions for diabetes during eleven years, the total number of medical cases having been 8,191. During ten years there were only four admissions for this disease in the Egyptian army hospitals, with the average strength of the army for these years at 18,160. As regards treatment, well-to-do patients should be warned not to travel during the acute stage, nor with any unnecessary fatigue, for he had seen three visitors, who had been recommended to winter in Egypt, die within a few days of their arrival there. The favorite remedy for diabetes among the Egyptians themselves was a pill made of ox bile and the seeds of a common indigenous plant, called in Arabic "helba," being the *Trigonella fœnum græcum* (fenugreek). He had tried this remedy upon patients for more than a month at a time, but without benefit.

Lieutenant-Colonel G. M. Giles, M.G., F.R.C.S., suggested that possibly diabetes within the tropics might be due to injury of the nervous system owing to exposure of the bare head to the sun. In India diabetes was essentially a Bengali malady. Now, the Bengali went about with a closely-cropped bare head, and in this respect he differed from every other Indian and almost from all other tropical men. Diabetes was also common among the upper classes in Egypt. Here again the well-to-do Egyptians, though they did not go bareheaded, wore only the very inadequate fez cap, which, though of good nonactinic color, protected only a small portion of the skull.

Professor Ziemann said that diabetes was extremely rare among the negroes of Lower Guinea. The negroes of West Africa did not protect their heads from the action of the sun.

Major G. T. Birdwood, T.M.S., mentioned the case of a friend who contracted diabetes shortly after his wife had contracted the disease, and subsequently his two children became affected. As regards life insurance, he thought any permanent trace of sugar in the urine should be regarded as most serious. He pointed out that the dieting of natives suffering from diabetes was extremely difficult. Their staple food was rice or wheat, and if we cut this off there was little to fall back upon.

Dr. H. Fernando, B.S.C., Senior Physician to the General Hospital of Ceylon, said diabetes was very common among the educated higher classes of natives of Ceylon. He did not consider dyspepsia an important cause. It was certainly common among the long-standing cases, but at the commencement the patients had good digestive powers. Colonel Giles's theory that the disease in the tropics might be due to insolation was not borne out by the experience in Ceylon. The Tamil coolies, who worked with their heads bare, did not suffer, as a rule, from diabetes.

Major A. H. Nott, T.M.S., considered the influence of dyspepsia as very doubtful in the causation of diabetes.

W. H. de Silva, M.B., F.R.C.S.E., Lecturer on Materia Medica in the Ceylon Medical College, Surgeon Victoria Eye Hospital, Colombo, said ocular symptoms were not in any way specific in nature, but were due largely to malnutrition and toxemia, or to an arteriosclerosis as the result of chronic diabetes. They disappeared under ordinary treatment, with the improvement of the glycosuric index. With regard to the dietetic treatment of diabetes, it was often felt in countries like Ceylon, where the staple food of the people was rice, that it was extremely difficult to get the patients to give up their ordinary starchy food entirely, and it was worth while investigating whether any of the cereals recommended by the older Indian medical writers, like Susruta and Charaka, were advisable.

Sir Patrick Manson, K.C.G.M., F.R.S., said diabetes was rare in China, although there the natives exposed themselves freely to the sun; many were overfed, many were overworked, and subjected themselves to all the usual accepted causes of diabetes. The interesting point of this Bengal diabetes was its endemicity. It was curious how history repeated itself. It might be that in the matter of the etiology of diabetes it was about to repeat itself again. Diseases formerly attributed to food, exposure, nervous

influences, heredity, and so forth, were now known to be germ diseases. Thus with leprosy, tuberculosis, and sleeping sickness. In his mind the endemic diabetes of Bengal suggested a germ disease.

Dr. Louis W. Sambon, lecturer to the London School of Tropical Medicine, agreed with Manson as to the germ nature of diabetes. He said the disease presented many features common to parasitic diseases. It had a peculiar distribution both geographically and topographically: it showed a marked tendency to increase or decrease in periods and places; it attacked animals as well as man; it affected the infant as well as the adult, though far more frequently the adult male, no doubt owing to greater exposure; it exhibited an undoubted tendency to occur in families, frequently passing from husband to wife and from parent to child. Indeed it had long been regarded as hereditary. The contagiousness of diabetes had already been suggested by Schmitz on account of the frequency of conjugal diabetes. Cases of conjugal diabetes had been recorded by most authors. Hofmeister mentioned no less than 200 cases. The disease was rare in children, but many cases had been now recorded in children under one year of age. True diabetes mellitus had been described in dogs by Friedberger, Fröhner, Schindelka, Eichorn, and others; in horses by Heim, Rueff, and Dieckerhoff; in monkeys by Leblanc. In comparison with its incidence in European countries diabetes was a rare disease in America. A very interesting fact, however, was that the disease was gradually increasing in the United States. It would be important to have accurate information as to the presence of true diabetes in China, Japan, Australia, and the Pacific, where until lately it was believed to be absent. His experience of diabetes in the south of Italy was contrary to the food theory. Diabetes mellitus, like pellagra, scurvy, gout, beriberi, was now attributed to faulty metabolism; he had no doubt that all these so-called food-diseases would soon take their place among the germ diseases.

Dr. P. J. Cammidge said he had no doubt that in at any rate the majority of cases of diabetes lesions of the pancreas, and particularly the islands of Langerhans, were responsible for the disease. This disease might arise either by extension from the duodenum or by way of the blood-vessels. With regard to disease of the blood-vessels the most common was arteriosclerosis. This arteriosclerosis was also responsible for the albuminuria which occurred in the later stages of some diabetics; it was not, as was commonly thought, the effect of the irritating action of the sugar on the kidneys.

Dr. W. Carnegie Brown, M.R.C.P., said that the belief that diabetes was rare in the Chinese race was erroneous. That error had been copied by one writer from another through several generations of textbooks. As a matter of fact there was no race predilection for diabetes, and it was very common among the upper classes of Chinese. With regard to what had been said about the possibility of diabetes being of parasitic origin, it was perhaps rash with our present experience to say that it could never fall into the voracious grasp of the parasitologist, but at present clinical experience would seem to indicate that if there was one disease which was purely and certainly an endogenous disorder of metabolism, the problems of which were to be solved by biochemistry alone, that was diabetes. Though our knowledge of the pancreatic ferments was still incomplete, the comprehension of the processes of intestinal digestion was now greater and clearer than it had ever been before and we knew enough about the interrelations of the secretions of the duodenal mucosa and the pancreas to justify the hope that the whole problem of sugar metabolism was not far from solution. In the tropics there were excellent opportunities for clinical determination of how far the absence of presecretion from the duodenum and secretion from the pancreatic juice might be remedied by the administration of trypsin or pancreatic or duodenal extract or substance. So far, we had in diabetes no means of determining whether the particular case was due to the duodenum failing to supply presecretion, or the pancreatic cells failing to respond to the stimulus of that substance, or even whether these ferments were normal, but the liver and muscular tissues were unable to deal with the sugar, so that the administration of pancreatic remedies must be to some extent haphazard; but it was significant that they had been highly successful. The speaker's own experience of pancreatic substance and of trypsin had been considerable, and it was altogether encouraging; the potential motility of this line of treatment seemed to be all the greater in that it enabled a patient to take during this administration a limited amount of carbohydrate food without aggravation of his symptoms. Irksome and disagreeable as the restriction of carbohydrates was to a European, it was to an oriental far more severe, and often altogether intolerable. The sudden arrest of his staple and invariable form of nourishment was not infrequently followed by dangerous nausea and depression. As a matter of fact, rice was less hurtful to a diabetic than other forms of farinaceous food, and small quantities should be allowed. Combined with pancreatic treatment, a considerable amount was readily tolerated. Sugar in any form was impossible, even in a greater degree than in temperate climates, and its ingestion was invariably followed by polyuria and consequent exhaustion. In the tropics opium was preferable to codeine, though neither seemed to be of much use. The systematic administration of narcotics in diabetes was as unsuccessful as it was unscientific.

Dr. T. M. Mallick said carbohydrate given to a diabetic patient brought out more sugar in the urine than that introduced as food—sometimes twice or thrice as much. This, he thought, was due to the breakdown of the tissues caused by sugar circulating in the blood and acting as a toxin. That this was the result of breakdown of the tissue was supported by the fact that there was an increase in urea as well as in the total acidity of the urine. If carbohydrates were withheld early in the onset of the disease, sugar in the urine disappeared, and very often the power of carbohydrate assimilation was restored after some time. Urea eliminated by Indians was very much less than that stated in European books—very often half of that quantity. This was due to their food being poorer in nitrogenous material, and to their deficient musculature, as well as to their comparatively less active life. In diabetes this invariably increased along with the acidity of the urine. Diabetes was very common among the educated Hindus in Lower Bengal because (1) being vegetarians they did not get sufficient amount of proteid element in their food, especially in the building period of life (early life). This caused their growth to be defective, especially their muscles. Bengalis were notoriously poor in musculature. (2) Their staple food was rice, which contained the largest amount of starch (95 per cent.) and only 5 per cent. proteid. Starch with a poor association of proteid was always less assimilable than when the proteid associate was more. The same quantity of starch brought out more sugar in the urine when given as rice than when given as wheat. (3) The educated Bengali, as a rule, greatly neglected physical exercise. Thus there was a very large intake of carbohydrate of the least assimilable sort, and little output of it by muscular exercise, causing a large excess of sugar in the blood which very naturally flowed out through the urine. (4) Mental strain or worry in life. Being married early in life, they were already saddled with a family before they had finished their education period and commenced earning for themselves. This caused a severe strain in their early professional life, and they broke down under it. There was nothing like mental worry to distort metabolism and assimilation.

(*To be continued.*)

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-ninth Annual Meeting, Held at Washington, D. C., May 7, 8, and 9, 1907, in Connection with the Seventh Triennial Congress of American Physicians and Surgeons.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 503.*)

DR. A. W. DE ROALDES OF NEW ORLEANS, LA., PRESIDENT.

Thursday, May 9—Third Day.

The Problem of Asepsis in the Routine Office Work of the Laryngologist.—DR. THOMAS HUBBARD of Toledo, O., read this paper. He made a plea for the same aseptic precautions in office work as in major surgery and believed that in future more of the minor work now done in the office would be transferred to special hospitals. Most of the office work was now done under conditions which did not measure up to the requirements of modern aseptic and antiseptic surgery. All operators had experienced anxiety over cases having symptoms of sepsis and cases of delayed healing arose which could not be accounted for by defective operation. He then presented detailed features of office routine which he considered essential, dwelling on disinfection of instruments, sterile solutions, napkins, care of instruments to prevent rusting, etc., sterilization of the area to be operated on, avoidance of too firm packing, quality of air used in atomizers and air tanks, etc. A little trouble taken in all these respects would remove practically all the possibly injurious factors which existed in the routine work of the office as ordinarily carried on. The surgeon, in whatever special field or working environment, must bear in mind that only by high ideals in the refinement of cleanliness in both theory and practice could he expect to stimulate his assistants and associates to the proper discharge of their part of the work. The aim of every operator should be to develop a thoroughly consistent system of approximate surgical cleanliness.

DR. GORDON KING presented a device for sterilizing sprays in office practice. He had been very much interested in Dr. Hubbard's statements in regard to the sterilization of instruments and of the air. Filters placed over the ends of sprays showed conclusively that as ordinarily used the spray must project many microorganisms over the operative field. Dental napkins were of much service in office work, but paper napkins could be used instead, and they were practically sterile.

DR. W. F. CHAPPELL of New York spoke of the danger of infecting the doctor from the sputa of patients. He himself had had a septic dermatitis of the face, eyes, and neck during the past winter from the expectoration into his face by a patient of pus from an old pharyngeal abscess.

DR. GEORGE L. RICHARDS suggested the use in such cases of ordinary automobile goggles which could be made to hold a gauze mask.

DR. R. C. MYLES was accustomed to cover his patient and himself with a special kind of oiled silk. He frequently had a nurse hold a pane of glass before his face during operations. Such a device was more convenient than a glass shield suspended from the ceiling. Instruments must be boiled frequently. Asbestos-packed syringes were the only ones meeting all requirements. It was true that we had no definite knowledge of the occurrence of much sepsis in office practice, but it was possible that there were some forms of septic conditions not localized in their manifestations.

A Review of the Methods in Use for the Removal of Adenoids, with a Description of a Method which is Thorough, Rapid, and Safe.—DR. GEORGE L RICHARDS of Fall River, Mass., exhibited a large collection of various instruments. He thought that undue stress had been laid on the necessity of cleaning out the fossa of Rosenmueller on account of its effect on the ear. His own preference was for the adenotome of Schuetz, which had been presented to the Association some years ago by Dr. Farlow It found its best employment in young adults without anesthesia. The operator should have three sizes, as there were but few pharynges in which one size or the other would not answer every requirement. In cases of young children under anesthesia, and held in the arms of the nurse, a palate hook should be used, so as to gain a good idea of the size and exact location of the mass to be removed. A little side dissection of the growth with the finger toward the center aided in getting it within the fenestrum. The instrument was then pushed firmly back against the nasopharynx, and as the knife cut through the growth came out in one piece. Instruments of different sizes might be used in the same case if necessary to remove small fragments left after the main cut. The adenotome was a slender instrument and the knife might occasionally break. The instrument should be carefully examined before each operation and care also was required in taking it apart and putting it together again.

DR. JOHN W. FARLOW recalled a previous meeting of the Association, at which he had presented the adenotome advocated by Dr. Richards. The disadvantage of the instrument was that we could not well see into the nasopharynx and determine just how large an instrument should be used. Hence he did not prefer the adenotome for very young children. In proper cases, however, the guillotine seemed to him to be the ideal instrument.

DR. D. BRYSON DELAVAN said that his experience with this particular instrument had not been fortunate, as he had had one break, leaving a portion of the metal in an adenoid mass. Fortunately it was removed without untoward incident. One objection was that the pharynx had to fit the instrument, whereas the latter should fit the pharynx. His own preference was for the Frothingham modification of the Gottstein knife. Hard rubber palate retractors were preferable to those of metal. He believed that it was absolutely necessary thoroughly to clear out the fossa of Rosenmueller in order to obtain relief from ear symptoms.

DR. W. K. SIMPSON of New York was also an advocate of the Frothingham curette. The Concannon forceps he thought to be the best model of this class of instrument. It had a guard which enabled the adenoid to be removed in one mass.

DR. L. A. COFFIN believed that the success of any instrument depended largely on the "man behind the gun" and his experience. There were very many poor models on the market of good instruments which had been changed by the makers from the original models.

DR. HENRY L. SWAIN was also a partisan of the adenotome. If, however, we had in the nasopharynx a central mass on two sides, we were liable to miss with this instrument the side strings from the main masses. The adenotome ought to be followed up with a blade-curette.

DR. W. E. CASSELBERRY had used the adenotome for a long time, but was not satisfied with it. There was a liability to leave small pieces of tissue behind the posterior nasal openings. Some sort of supplemental operation was therefore necessary. This was a limitation of the efficiency of every adenotome he had ever seen. The adenotome would answer if used with the curette.

DR. G. A. LELAND said that unless the fossa of Rosenmueller was cleared out, there would be recurrent earache. Smaller instruments than generally used would suffice for the purpose of cleaning out the fossa.

DR. R. C. MYLES said that the finger ought always to be introduced into the nasopharynx in order to guide the intelligent application of any cutting instrument. The axis of the instrument should be kept in line with the axis of the head. Unless this was done, parts would be damaged. The fossa of Rosenmueller ought always to be cleaned out.

Dr. G. Hudson-Makuen exhibited a modified Gottstein instrument which he had found of great service.

Straightening the Nasal Septum.—Dr. A. W. Watson of Philadelphia discussed this question, with special reference to the operation devised by him several years ago. It was his view that when a septum could be put in proper place without resection the patient was better off than if the septal framework had been removed. The methods of his operation for which he claimed originality were the overlap and the beveled incision. This procedure was applicable to the vast majority of cases. In every case the two conditions to be met and overcome were resiliency and redundancy of tissue. The author thus described his operation: Incision on convex side of septum from behind forward just beneath the angle of deflection, following the angle to its anterior extremity and then curving upward for a short distance. This cut should be beveled and by preference was *not* carried through the mucosa of the concave side. The upper part of the septum was then pushed over the lower portion into the opposite side, thus overlapping the lower portion. If the angle was perpendicular the incision was then made behind the angle, the bevel being from behind forward. An incision was also made at the base forward from the first incision, forming a triangular flap. The posterior edge of the anterior portion was then pushed over the posterior portion. If, as was frequent, both horizontal and perpendicular angles existed, both incisions were made meeting at the base. The anterior fragment was first made to overlap the posterior and then the upper portion, including the anterior portion, was made to overlap the basal portion. This formed a double locking. If the deflection extended into the bony septum the bony deflection was easily broken and replaced with forceps. If the septum thickened below the horizontal angle the thickened base which protruded into the formerly obstructed naris should be dealt with as were spurs, etc. If the septum was thin in the lower part and projected unduly into the naris, it might be broken into a perpendicular position in line with the upper portion, thus increasing the overlap and making the septum more firm, the bony base uniting by bony union. The author passed into the formerly obstructed side a folded piece of antiseptic gauze long enough to extend the length of the former deflection and about one-third to half an inch wide, thick enough to pass easily. This should be changed every three or four days until healing was complete, about four weeks. The instruments used were a straight knife like a tenotome and the same with a blade at an obtuse angle. These sufficed for the horizontal incision. For the perpendicular incision he used a knife with a small blade bent on the flat almost to a right angle and sharp on both edges. The forceps was a modified Adams, the fenestra being lengthened to an inch and a quarter, so as to reach any part of the bony septum.

Dr. A. A. Bliss of Philadelphia had had much satisfaction with the Watson operation. Submucous resection was being overdone. For the angular deflections the Watson operation was preferable.

Dr. Emil Mayer would also commend the Watson operation for angular deflections. He would like to lay stress on the matter of freshening the edges of the floor on the concave side, after having performed the operation on the convex side. This gave a double opportunity for holding the part pushed over into the concavity. He preferred rubber tubing to gauze for packing. No one operation sufficed for every case.

Dr. W. E. Casselberry asked if it was not possible to obviate the second operation sometimes called for, namely, the removal (as he would take off a spur) of the thickening along the long part of the horizontal cut protruding into the naris of the convex side after healing. The Watson operation could be done quickly, efficiently, and without difficulty. He preferred to operate under general anesthesia.

Dr. Watson stated that by preference he went through the mucosa of one side only, but this restriction was not always possible.

Dr. W. L. Ballenger of Chicago thought that if we could save the framework of the septum it was most advisable so to do. He had had one sinking in of the nose after a submucous operation, not having made due allowance for the chondritis undoubtedly following the injury.

Dr. R. C. Myles referred to the various operations devised during the last few years. Submucous operations were not free from danger, as he knew of two cases resulting fatally. The deeper the operation on the bony septum the greater the element of danger. He thought the perpendicular plate of the ethmoid a very difficult thing to handle.

Dr. J. Solis-Cohen made comparisons between the mechanical principles involved in the Watson and in the Gleason operations. He had seen serious cerebral effects follow the latter.

Large Tumor of the Laryngopharynx removed by Subhyoid Pharyngotomy.—Dr. W. F. Chappell of New York City reported this case. (See page 55.)

A Plea for Local Anesthesia in Operations on the Maxillary Sinus.—Dr. Gordon King of New Orleans read a paper with this title. He took the position that we ought to minimize the dangers of anesthetics as much as possible and that we ought consequently to employ local instead of general anesthesia whenever and wherever possible. In operations around the mouth and pharynx general anesthesia caused annoyance and delay from nausea and vomiting, inhalation of blood and secretions into the larynx and frequent interference with the administration of the anesthetic. The author was led to employ local anesthesia in antrum operations two years ago and had used them since that time. He was a loyal adherent of the Caldwell-Luc operation and had been able to finish it in less than twenty minutes. He swabbed the mucosa briskly with a 10 per cent. cocaine solution and when the area had become insensible to the needle point he injected a solution of 2 per cent. strength with 1-2.000 adrenalin along the line of incision, at first superficially into the submucous tissue and later into or under the periosteum. This done, incision was made down to the bone and the periosteum elevated until the exact situation of the infraorbital foramen could be made out, when to insure perfect and widespread anesthesia a few drops of the solution were injected into or around the trunk of the infraorbital nerve at its point of exit. He found it prudent not to lay bare the nerve itself, as this might lead to postoperative neuralgia or neuritis. The bone being sufficiently exposed to allow of easy access to the antral cavity, the latter was opened with a chisel or electric burr, when several drops of 10 per cent. cocaine and some adrenalin solution are introduced into the cavity, which was then swabbed by means of a cotton carrier. A few minutes must be allowed at this point for absorption of the solution, and the time might be utilized by applying a pledget of cotton saturated with the solution under the inferior turbinate, where the counter opening was to be made into the nose. The antrum was then curetted, the counter opening made and the buccal wound sutured. Adrenalin lessened the blood flow and prolonged the effect of the cocaine, while offsetting the toxic tendency of the latter. The author had followed the foregoing plan in some fifteen cases and with most satisfactory results. In two instances he had performed the radical operation on the frontal sinus under local anesthesia, but here the results had not been so satisfactory, as this region was more sensitive and less susceptible to thorough cocainization.

Dr. R. C. Myles stated that he had operated on two hundred antral cases during the last fifteen or twenty years, but that during the last eight or ten years not more than 2 per cent of the operations were done under general anesthesia. He had gradually diminished the strength of

the cocaine solution until now he rarely used more than one-eighth per cent. The operation was practically painless, unless we got near some dental nerve. Water, by its pressure on the nerves, sometimes gave as good anesthesia as did cocaine. Of late years he had preferred the nasal route, introducing a light platinum needle under the inferior turbinate and then introducing the cocaine and adrenalin through the opening thus made, for the most of the pain was in the antral mucosa. He did not believe in putting the cocaine on a region on which he did not intend to operate, and therefore considered it unwise to spray it into the nose. He knew of several deaths from general anesthesia. They were more common than published reports would lead us to believe.

Dr. W. E. Casselberry could also commend the use of local anesthesia for these operations. He had not been able, however, to operate as quickly as had Dr. King. The injection of some of the solution into the region of the infraorbital nerve, as had been suggested by Dr. King, would doubtless be a very useful addition to the procedure.

Dr. King, in closing the discussion, said that local anesthesia facilitated the operation. It obviated all the objections which arise from the use of a general anesthetic in operations about the mouth. After an opening was made into the antrum, a 10 per cent. solution could be injected, and by the time the antrum was thoroughly opened it was pretty insensitive to pain. A still stronger solution could be swabbed on the interior surface of the cavity.

Myxofibroma of the Nasopharynx.—Dr. D. Braden Kyle presented a specimen removed from a man of twenty-four years, who complained of inability to breathe and of almost continuous pain or aching in the region of the frontal sinus or over the bridge of the nose. On the right side a mass almost protruded from the naris. The mirror outlined a mass in the nasopharynx, but it did not extend below the margin of the soft palate. There was considerable catarrhal discharge, but no evidences of sinus or ear trouble. A distinct swelling was evident at the inner corner of the right eye. The left naris was occluded, owing to pressure of the tumor on the septum. The mass was removed without difficulty and six weeks later the patient was in good condition, with both nares of practically the same size. The interesting points in the case were the site of origin, at the posterior end of and under the superior turbinate, the symptoms of nasal occlusion by septal pressure, the fact that the growth did not follow the path of least resistance, the practical absence of hemorrhage, the pedunculated nature of the mass removed, the absence of ear and sinus involvement. The bony septum seemed to have been softened by the pressure and inflammatory process. It was easily forced back into the median line by the nasal dilator and remained in position without the aid of splints.

Dr. John W. Farlow stated that one symptom in a patient of his, not present in that of Dr. Kyle, was a change in the voice. The growth was larger even than in Dr. Kyle's case. The character of the voice changed immediately after the tumor was removed. His patient had formerly pronounced the letter "m" as "p," but as soon as the growth was removed the "m" came out very clearly.

Dr. A. W. Watson had had a similar case in which the circumference of the growth was about six inches. It had involved both sides of the septum and extended into one antrum, producing some facial protrusion on that side. The large mass filling the nasopharynx was removed with the snare. The entire vault of the pharynx was covered, however, with similar material, which was reproduced as fast as it was cleared away, but under the influence of electric needles it began to diminish and finally ceased growing.

Dr. Gordon King had recently removed a myxofibroma as large as a hen's egg and found the site of attachment to be the ala of the nose.

Dr. William Lincoln of Cleveland said that not all cases were so favorable as was that of Dr. Kyle in regard to distribution of the blood-vessels. In a recent case of his own, snares and forceps were useless and he was obliged to remove the nose on one side, lay it over on the face and so gain free access to the tumor. Adhesions were separated with the spatula and the cautery used. In removing the nose he had cut in on the sound side so that the inevitable suppuration was discharged, not through the wound, but into the pharynx. The mass projected into the nasopharynx and needles were used here, as explained by Dr. Watson.

Dr. J. N. Mackenzie gave the history of a case illustrating the occasional impossibility of removing these tumors through the internal passages. They might become rooted in many places. In one instance he had been compelled to turn the patient over to the general surgeon, who did a modified Langenbeck operation, dissecting out the growth in that way. Severe hemorrhage accompanied the procedure.

Dr. W. E. Casselberry said that the tumor mentioned by the last speaker was probably a fibroma, while Dr. Kyle had spoken of myxofibroma, which was quite another form of neoplasm. The two conditions should not be confused, because the treatment of one was entirely different from that of the other.

Dr. Kyle, in closing the discussion, said that it was difficult to see why such soft growths should cause so much bony displacement.

Epithelioma of the Tongue; Early Diagnosis; Operation; Recovery.—Dr. Robert C. Myles of New York reported the history of a patient, a man of sixty-four years, who had been annoyed for a few weeks before coming under observation by a sensitive spot on the left side of the tongue, a little in front of the insertion of the palatoglossus muscle. At this site there was a small, hard, and roughened area, suggesting malignancy. Iodides were tried without avail and operation was decided on. This was done by Dr. J. A. Bodine, who thoroughly dissected out all the superficial and deep cervical glands and also the submaxillary, salivary, and sublingual glands and much of the connective tissue along the jugular vein and carotid artery, in order that many of the small undetectable lymphatics might be removed. Then with heavy scissors section was made of the affected area in healthy tissue at a distance of from one-half to three-quarters of an inch from the margin of the growth. It was necessary to sever the left palatoglossus muscle and parts of the geniohyoglossus, styloglossus, hyoglossus, and lingualis. This caused the tongue to curl upward at the tip and to fall back on the epiglottis at the left base. The patient made a good recovery from the operation, which was done six months ago. The microscopist reported that the growth removed was a squamous-celled carcinoma. The glands removed were somewhat inflamed, but showed no metastases.

Dr. J. H. Bryan of Washington was very much interested in the subject of cancer of the tongue and related the histories of two personal cases under his recent care. The fate of the patient depended on the early recognition of the disease. The cases should be recognized in the precancerous stage. Recurrence sometimes took place on the side opposite to that of the original disease because of the richness of the tongue in lymphatics, the circulation of which the raphé was not able to shut off. The glands ought to be excised on both sides.

Dr. J. N. Mackenzie said that the Baltimore surgeons believed that the whole floor of the mouth ought to be excised.

Dr. George E. Shambaugh of Chicago said that he had had a recent case of cancer of the neck, which seemed to him to be rather unusual. He thought that the development of the tongue explained it. The anterior part of the tongue developed in halves, while the back part developed as a central piece.

A Prize Fund.—At the closing executive session it

was announced that the retiring President, Dr. de Roaldes, had offered the Association $500 for the establishment of a Prize Fund. This offer was gratefully accepted and it was voted to attach to the fund the name of the donor.

New Members.—The following were elected to membership: Honorary Fellows. Professor Leopold von Schroetter of Vienna. Active Fellows: Dr. Joseph S. Gibb, Philadelphia, Pa.; Dr. Christian R. Holmes, Cincinnati, O.; Dr. Chevalier Jackson, Pittsburg, Pa.; and Dr. George E. Shambaugh, Chicago, Ill.

Officers.—The election of officers for the coming year resulted as follows: *President*, Dr. Herbert S. Birkett, Montreal; *First Vice-President*, Dr. J. Payson Clark, Boston, Mass.; *Second Vice-President*, Dr. J. Edwin Rhodes, Chicago, Ill.; *Secretary and Treasurer*, Dr. James E. Newcomb, 118 West Sixty-ninth street, New York City; *Librarian*, Dr. Joseph H. Bryan, Washington, D. C.; *Member of Council* (to serve four years), Dr. A. W. de Roaldes, New Orleans, La. The determination of date and place for the next Congress was left to the Council.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.

Held at the Academy of Medicine, New York City, September 9 to 14, 1907.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 497.*)

DR. EDWARD L. KEYES OF NEW YORK, VICE-PRESIDENT, IN THE CHAIR.

Leprosy; Proposals for Diminishing the Diffusion of the Disease.—Prof. R. CAMPANA of Rome, Italy, in this paper, said that considerations regarding the nature and special symptoms of leprosy led to the conclusion that a mutual understanding should be arrived at amongst civilized nations concerning the treatment of this disease and its aspects as an evil which affected the individual and society. Local treatment was necessary in leprosy in the initial stages of macular and tubercular symptoms. These could be arrested by radical surgical treatment, followed by cauterization. The most rigorous aseptic and antiseptic treatment of the ever-varying lesions was indispensable, according to the manner in which they developed in the patients, and this was especially the case in the latter stages of the disease. Tubercular leprosy was a purely local disease of much gravity, and its contagiousness, which had been proved experimentally, was in direct proportion to the shortness of the time that the malady had lasted. Hence the radical treatment of the disease was to destroy its manifestations as soon as they appeared. The severe mutilations and the grave febrile and phthisical phenomena which might occur in leprosy were the consequences of septic conditions caused by ulceration and trophic changes. Hence the treatment of patients in whom these lesions had occurred ought to be directed towards diminishing the injurious effects of these trophic changes, more particularly those of the joints, to prevent breaches of surface, and to arrest the continuance of sources of sepsis in the individual patients and in their houses and in leper asylums. When the phenomena of sepsis had occurred, the suitable treatment was to attack them courageously, studying when possible the special nature of the various sources of sepsis, and in abating them to bear in mind the unusual condition of the patients in whom they had developed.

Dr. DOUGLASS W. MONTGOMERY of San Francisco said it was frequently difficult to establish the source of the infection of leprosy, and so far as the first evidences of the disease were concerned, the physician rarely saw them. The early symptoms were such that the patient himself did not usually attach much importance to them, and it was only later, when the disease was well established, that medical advice was sought. A long time frequently elapsed between the initial symptoms and a well-marked case of lepra.

Dr. H. E. MENAGE of New Orleans recalled cases that had apparently originated from late lesions of tubercular leprosy.

Dr. WALTER REMSEN BRINCKERHOFF, U. S. Laboratory, Honolulu, said the question of the diffusion of leprosy was a public health problem of great interest. In Hawaii the disease had been kept under control for over forty years by means of segregation, and in watching the methods by which this had been brought about, he had been struck by the extreme difficulty that had been encountered in persuading lepers to go into segregation. The popular conception was that when a patient once entered a leprosarium it was to die, and this prejudice against these institutions should be overcome.

Prof. CAMPANA, in reply to a question, said the bacilli were found in the early lesions of leprosy, but not after the disease had attained its full bloom. The infectious character of the disease was most marked in its early stages; its virulence gradually diminished and finally disappeared entirely.

Dr. ISADORE DYER of New Orleans believed it was the experience of everyone who lived in a leper center that the bacilli of leprosy became attenuated with the attenuation of the types of the disease. In other words, that the trophic types were evidence of the fact that the disease was more or less effete. The disease spread gradually, and while it could not be traced from individual to individual, it spread numerically wherever it had been introduced. The method of isolation practised in Louisiana had not only reduced the number of cases from year to year, but had reduced it to nearly one-quarter what it was when isolation was commenced. He and his associates had come to regard the treatment of leprosy as practically the same as that of tuberculosis. The patient received plenty of fresh air and sunshine, with two or three baths daily, as warm as could be borne. In addition to this, they had followed the traditional treatment of leprosy, depending mainly on chaulmoogra oil, but in cases where that could not be tolerated in large doses, cod liver oil or some other oil was substituted with practically equally good results. Under this general method of treatment, after two or three years, some good results were achieved, and some evidences of the disease were removed.

Dr. PRINCE A. MORROW of New York City said the views expressed by Prof. Campana were certainly somewhat startling. Personally, he thought it was impossible to say whether the bacilli which escaped from the lesions of advanced tubercular leprosy were dead or alive. There was absolutely no culture method which could be relied upon, nor was there any experimental method. It would be a practical impossibility to isolate cases of leprosy only during the early stages of the disease, simply because in a large proportion of the cases the disease remained undetected in those stages. It was a matter of general knowledge that leprosy might exist for five, ten, fifteen, twenty, and even thirty years, with positive evidences of disease of the skin in the shape of macules and certain nerve lesions, and still remain unrecognized by the physician without a very thorough examination.

Dr. H. RADCLIFFE-CROCKER of London, England, said that leprosy was by no means a hopeless disease, and in the milder nerve forms the prognosis was fairly good. At all events, the duration of the disease was so long and the symptoms so trifling that they scarcely incommoded the patient.

Dr. BURNSIDE FOSTER of St. Paul said that his experience with leprosy among the Scandinavians had led him to recognize the communicability of the disease, but he believed that it was communicated with great difficulty, that

it could be engrafted only upon a peculiar soil, and that there were many who could not be inoculated with it.

Prof. Campana, in closing the discussion, said he did not wish to have it understood that he was opposed to isolating cases of leprosy, because it was difficult to state the exact time when the infective period of the disease disappeared. He simply wished to insist on the scientific accuracy of the observation that the infectious character of leprosy disappeared with the full development of the disease, and that in order to prevent the spread of the disease it was necessary to destroy the sources of infection. Nothing was said against the advisability of protecting the community against the spread of leprosy by proper segregation.

The Treatment of Leproma by Perforation and Cauterization.—By Dr. José Vineta-Bellaserra of Barcelona, Spain. The author stated that lepers were subject to febrile attacks of varying severity and duration. These attacks were already pointed out by the physicians of the middle ages. The fever frequently was so slight that the patient paid no attention to it. The attacks were brief, transitory, ephemeral and intermittent, and many patients mistook them for attacks of malarial fever, while others attributed the fever to a cold. They usually appeared in the evening or afternoon. In other cases there were severe chills, with a considerable rise of temperature. The chills and fever might be severe enough to suggest that of acute pneumonia, smallpox, etc. Frequently, a sudden and severe chill made its appearance, accompanied by an infection or digestive disturbances which threatened the patient's life, the attack coinciding with the infiltration and suppuration of the leprous tubercles. Sometimes they coincided with the invasion of the bullous eruption (pemphigus leprosus) or the lymphangitis and the edema which might occur during the course of the disease. When these symptoms were demonstrated, the speaker said he took the fine point of the galvano-cautery and proceeded at once to perforation and thermic cauterization of all the tissues invaded by the germ of leprosy. Immediately after the performance of this operation, a rather considerable quantity of pus was apt to escape. After cleansing the affected regions, the lymphangitis subsided, as well as the general symptoms, *i.e.* fever, intestinal troubles, nervous disturbances, etc. As regarded the general condition of the patients, they were built up by good food and tonics, especially the sulphate of quinine. Chaulmoogra oil was administered in large doses, and benzo-naphthol was given for the disinfection of the digestive canal. The speaker said he had tried the same procedure for the destruction of tubercular masses, especially on the face, with equally brilliant results.

The Treatment of Leprosy and of the Microbic Dermatoses with the Products of the Brazilian Flora.—Prof. Egas Moniz Barreto de Aragao of Bahia, Brazil, presented this paper.

Treatment of Lupus Vulgaris with Béraneck's Tuberculin.—By Dr. A. Lassueur of Lausanne, Switzerland.

Cutaneous Tuberculosis in the City of Mexico.—By Dr. Jesus Gonzalez Urena of the City of Mexico. The author stated that among 5,268 skin patients treated in the "Consultorio Central de Beneficiencia Publica" in Mexico from February 9, 1905, to August 20, 1907, there were 42 cases of cutaneous tuberculosis, distributed in the following manner: Tuberculous gummata, 19; lupus erythematosus, 11; lupus tuberculosis planus, 7; tuberculous ulcerations, 3; lupus pernio, 2; tuberculosis verrucosa, 2; tuberculous adenitis, 2. This gave an average of 8.73 per thousand of cases of skin tuberculosis for the total number of skin patients observed during this period. It was a noteworthy fact that in Mexico, a city situated at an altitude of 2,222 meters (7,221 ft.) above sea level, with a sky almost always blue and a very bright sun, lupus erythematosus was far more common than lupus vulgaris. It should likewise be noted that the ulcerative, gnawing, destructive forms of the latter were practically unknown there. The seven cases that came under observation all belonged to the flattened variety (lupus planus).

Contributions on the Nature and Treatment of Lupus Erythematosus.—Prof. Campana and Dr. G. Lanzi of Rome, Italy, presented a paper on this subject in which they made the following statements: 1. That lupus erythematosus often became an incurable disease under the treatment at present generally used. 2. That there were cases of lupus erythematosus upon which tuberculin acted in the same way as it acted on true lupus. 3. That there were some cases not cured under the most active surgical treatment, but which were afterwards cured with surprising ease by the use of mercury ointment, which had been recommended by Hebra as most efficacious, although not proving so in practice in many instances. One must be guided by an analysis of the conditions in order to distinguish the special peculiarities forming the basis of the disease in each case. To begin with an injection of tuberculin and get no local or general reaction would certainly assign the case to a basis quite other than the tuberculoid predisposition accepted by many, but not admitted by all in lupus erythematodes. To begin with local and general treatment with mercury and obtain no apparent improvement therefrom would not predispose one to continue that method of treatment. In cases where the mercury had failed, and the tuberculin had given a positive reaction, local surgical treatment was possible; where the contrary happened, and the physician in charge had not attempted precautionary tests, local treatment was injurious and even disastrous. A third remedy had recently been mentioned by many English and American specialists, namely, small, continued doses of sulphate of quinine.

Dr. Milton B. Hartzell of Philadelphia confessed to a certain degree of surprise at the large proportion of cases of lupus erythematosus in which Prof. Campana was able to obtain a reaction after the injections of tuberculin. Certainly that was not in accord with the experience of a vast number of dermatologists in the treatment of this disease. There were a certain number of cases of lupus erythematosus in which it was difficult to make the differential diagnosis between that affection and lupus vulgaris, and it was quite possible that a large proportion of the cases in which the reaction was obtained were in fact lupus vulgaris rather than lupus erythematosus.

Dr. Stafford Taylor of Liverpool, England, said the remedy in the treatment of lupus erythematosus which had proved most successful in his hands was pyrogallic acid. In the common or stationary types of the disease he used a ten per cent. ointment of pyrogallic acid in the same way as he used it in lupus vulgaris.

Dr. Samuel Sherwell of Brooklyn said that in cases where the mucous membranes were not involved, he had almost invariably obtained excellent results by the use of the curette, followed by the application of the acid nitrate of mercury.

Dr. Herman Lawrence of Melbourne, Australia, spoke in favor of scarification, followed by rubbing in iodoform, and then the application of a waxed India rubber pad under moderate pressure.

The discussion was continued by Drs. Joseph Grindon of St. Louis and Jay F. Schamberg of Philadelphia, and was closed by Prof. Campana.

Recent Researches on the Subject if Papulo-Vesicular Eczema.—By Dr. L. Brocq and Dr. G. Ayrignac of Paris, France.

Rosacea: Historical, Clinical, Therapeutical.—Dr. P. G. Unna of Hamburg, Germany, sent a communication on this subject, which was read by title.

Complimentary Deviation in Gonorrhea and Skin Diseases.—Drs. R. M. Miller and M. Oppenheim of Vienna, Austria, in this communication said that the serum of patients having gonorrhea invariably contained circulating substances which might be demonstrated by means of

the method of complementary deviation. These were first demonstrated by the authors in the serum of a patient who had died from gonorrheal arthritis. This original demonstration of antibodies which were produced by the gonococcus was confirmed by Bruck and later by Vannod. These antibodies were likewise demonstrable in gonorrheal epididymitis, prostatitis, metritis, and endometritis of a gonorrheal character, but their presence was not constant. The serum of certain individuals had in itself an inhibiting influence upon the hemolysis. The vast majority of these sera were derived from cases of psoriasis.

Methodical Scraping (Scratching) as a Diagnostic Method in Certain Dermatoses.—Dr. L. Brocq of Paris, France.

On the Value of an Absolutely Vegetarian Diet in Psoriasis.—Dr. L. Duncan Bulkley of New York read a paper on this subject, in which he offered the following conclusions: 1. The cause of psoriasis was as yet unknown. Many facts pointed to its not being a purely local disease of the skin, although the character of the individual lesions strongly suggested a parasitic element in their production; possibly one of the ordinary microorganisms, universally present, took on a pathogenic action when the soil was suitable. 2. Psoriatic patients often appeared to be in perfect health, but metabolic disturbances could generally be discovered by complete quantitative uranalysis. 3. The error was generally along the line of faulty nitrogenous metabolism and diminished excretion of the purin products. 4. Long observation of cases showed a decided increase of eruption with excessive meat eating. 5. Marked improvement in the eruption occurred under the same treatment when a strictly vegetarian diet was faithfully carried out. 6. Continued strict vegetarian diet was often attended with freedom from eruption, and relapses were often directly traceable to dietary errors in this direction.

Dr. H. Radcliffe-Crocker of London, England, said that in cases of psoriasis occurring after middle life in patients with an undoubted gouty tendency, the proper restriction of the nitrogenous diet was certainly indicated, but when we came to include cases of all ages, then he would have to take issue with the reader of the paper. The speaker said he had seen psoriasis in vegetarians and in butchers, and he had come to the conclusion that diet had very little influence upon the course of the disease. He believed, however, that anything approaching an excessive use of alcohol had an aggravating effect on the eruption. His conclusions in regard to the influence of diet upon psoriasis were totally unlike those of Dr. Bulkley. He recalled the case of a girl of thirteen, the daughter of a medical man, with well marked psoriasis, whose father had assured him that she was a natural vegetarian, and that she had never eaten a piece of meat of any size in her life. A study of the age at which psoriasis made its appearance would show that fully two-thirds of the cases had their onset before the age of thirty; that is, during a stage of life when errors in metabolism were comparatively few.

Dr. Veiel of Cannstatt, Württemberg, said that his results with the dietary treatment of psoriasis had not been as satisfactory as those of Dr. Bulkley, which was perhaps due to the fact that the gouty diathesis was not as common in Southern Europe as it was in this country.

Dr Bulkley, in closing, said that this method of treatment was not applicable to every case, nor should we simply limit the treatment to a vegetarian diet. In every case, other treatment was indicated as well, but the main factor was to cut off that kind of food which produced this condition.

Tuesday September 10—Second Day.

H. Radcliffe Crocker, of London, Vice-President, in the Chair.

The Pathology of Brown-tail Moth Dermatitis.—Dr E. E. Tyzzer of Boston, who read this paper, said the exact date of the introduction of the brown-tail moth into this country was unknown, but it was first noted in large numbers in 1897 in one of the suburbs of Boston. This species had since spread throughout the greater part of New England, and had also penetrated adjacent territory. It has been shown that the dermatitis which was produced by these insects was due to very minute, sharp-pointed, barbed hairs, the "nettling hairs" which developed on the caterpillar. The other hairs were harmless. On experimentation with the nettling hairs it was found that when they were mingled with a drop of blood a peculiar reaction took place which served as an index to their toxicity. The toxic principle was removed from the hairs by dilute alkalis and by water heated to 60° C., but it was insoluble in other common reagents. It was quite resistant to heat and withstood baking for one hour at 110° C., but was destroyed by baking at 115° C. The nettling hairs after such treatment no longer gave any reaction when mingled with blood, and produced no irritation when inoculated upon the skin.

Trauma as an Etiological Factor in Skin Diseases.—Dr. Neuberger of Nuremberg, Germany, read a paper on this subject, in which he emphasized the importance of trauma as an etiological factor in the production of certain diseases of the skin.

Dr. Joseph Zeisler of Chicago, in discussing Dr. Neuberger's paper, said this subject was not a new one. Thirty years ago Kaposi and his school had insisted that trauma might act as a focus in the production of various diseases of the skin, and this fact had been pointed out in connection with lichen planus, eczema, psoriasis, and even syphilis.

Dr. A. Ravogli of Cincinnati said that instances were not infrequent where trauma, either directly or indirectly, called attention to certain skin lesions or to a certain diathesis, as, for example, the occurrence of tuberculosis of the knee after injury .

Idiopathic Multiple Hemorrhagic Sarcoma (Kaposi). Dr. M. B. Hartzell of Philadelphia, in this paper, said that in 1872 Kaposi first called attention to an unusual and remarkable affection of the skin characterized by the occurrence of deeply pigmented infiltrated patches and small tumors, situated almost invariably on the extremities, followed after several years by visceral metastases and death, for which he proposed the name idiopathic multiple pigmented sarcoma, a name which he, twenty years later, changed to idiopathic multiple hemorrhagic sarcoma, as being more accurately descriptive of the disease. He regarded the malady as a typical, although special and peculiar, form of round-celled sarcoma, with the occasional occurrence of characteristic spindle cells. Soon after the appearance of Kaposi's paper other observers began to report similar cases and the list had steadily though slowly grown until the number of recorded cases was now something over one hundred. While the affection seemed to be peculiar to no country or race, the great majority of cases on record had been reported by European observers, and fully one-half of these were from the northern provinces of Italy. The number of cases reported in America was extremely small, and some of these occurred in foreign born. Dr. Hartzell then reported in detail a case of this affection which recently came under his observation.

Dr. H. Radcliffe-Crocker of London said that multiple idiopathic hemorrhagic sarcoma was an affection that was rarely met with in England.

Dr. Edward H. Shields of Cincinnati referred to a case of this character that he had observed in Kaposi's clinic.

Dr. Stevens of Detroit mentioned a case that he had seen at Ann Arbor about two years ago. The patient was a man seventy-two years old, a native of Michigan.

Multiple Benign Cystic Epithelioma (Demonstrated from **Lantern Slides**).—Dr. M. L. Heidingsfeld of Cincinnati presented this paper, in which he offered the following conclusions: 1. Multiple benign cystic epithelioma, lymphangioma tuberosum multiplex, and adenoma sebaceum were affections which possessed sufficient clinical and pathological variations to render many of the cases of doubtful recognition and classification. 2. These three affections were doubtless of embryonic misplaced tissue origin, and the clinical and pathological variations which were noted in each were sufficiently common to all to give them a common classification and thereby prevent a somewhat arbitrary, confusing, and redundant nomenclature. 3. Some of the clinical and many of the pathological changes had a striking resemblance to those manifested in early malignancy of the skin. 4. It was highly probable that malignancy of the skin, aside from other causal influences, also owed its direct origin to misplaced embryonic tissue.

Observations on Skin Diseases in the Negro.—Dr. Howard Fox of New York City read a paper on this subject, in which he advanced the following conclusions: 1. In spite of the fact that the negro was more susceptible to disease in general than the white man, and that his mortality was twice as great, he suffered less frequently and less severely from diseases of the skin. 2. The negro skin was decidedly less susceptible to external irritants. 3. The full-blooded negro was almost immune to ivy poisoning. 4. Acne was less common and much less severe in the negro. Rosacea was a rare and very mild affection. Eczema was perhaps not less frequent, though certainly less severe. Psoriasis in the full-blooded negro was very uncommon. 5. Tuberculosis of the skin was not more common in the negro, in spite of the great prevalence in this race of pulmonary and other forms of tuberculosis. 6. Syphilis was certainly more common in the negro than in the white. The acquired form was probably not more virulent, and tertiary forms were not more common. A tendency to the annular syphilide, as well as to keloid, elephantiasis, and fibroma deserved to be classed as a racial peculiarity of the negro. 7. The negro was more subject to new growths of connective tissue origin, and less so to those originating in epithelial structures. Cutaneous epithelioma was very rare in the full-blooded negro. 8. The mucous membranes, as well as the skin, were less susceptible to disease. Leucoplakia was seen in the negro with extreme rarity. 9. Many of the rarer forms of skin disease were observed in the negro, as well as in the white race. 10. Mulattoes were more susceptible to skin diseases than negroes, being especially prone to chloasma.

Dr. Isador Dyer of New Orleans said the social condition of the negro in the South was vastly inferior to that of his Northern brethren, and for that reason a comparison of the statistics between these two sections of the country would be of little value. In the South the negro as a rule did not apply for treatment for a skin condition unless it was disfiguring or caused him suffering. It was not unusual to have a negro present himself for some venereal disease, and reveal, upon examination, a variety of parasitic and other skin lesions. Dr. Dyer said the annular syphilide, as seen in the negro, especially in young children, was ofttimes partly vesicular. The observation had been made in New Orleans that perhaps the only malignant type of syphilis seen there occurred in the negro; it was exceptional in the white.

Dr. Joseph Grindon of St. Louis said he was surprised to hear that syphilis was milder in the negro than in the white man. His own experience had shown the opposite to be the fact. Negroes practically did not figure in private practice, and in dispensary practice they did not present themselves in the numbers that one would expect. Often they treated themselves or remained untreated.

(*To be continued.*)

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

STATE MEDICAL EXAMINING BOARD OF NORTH DAKOTA.

Grand Forks, July 2 and 3, 1907.

ANATOMY.

Answer all questions.

1. Locate and describe fully the sternum.
2. Locate and describe fully the Trapezius muscle and give its relations.
3. Locate and describe the internal carotid artery of the right side, and mention its branches.
4. Locate and describe the thoracic duct.
5. Locate and describe the pancreas.
6. Locate and describe the heart.
7. Locate and describe the pneumogastric nerve, giving its origin and distribution.

PHYSIOLOGY.

1. Describe digestion fully from the time food enters the mouth until the residue is evacuated.
2. What are the principal functions of the hepatic cells?
3. Describe the coagulation of the blood and state what conditions favor it and what retard it.
4. Give the vital capacity of the lungs.
5. Explain the sounds of the heart and the cause of them.
6. What is the function of the sympathetic nervous system?
7. What special centers are located in the medulla oblongata?
8. What is the function of the anterior spinal nerve roots.

MATERIA MEDICA.

1. What is a disinfectant and how does it differ from a deodorant, where use the latter and where employ the former?
2. What is a Seidlitz powder?
3. What are the salines?
4. What is the use of sanguinaria?
5. What is ergot, how obtained, its physiological effects?
6. What is buchu and in what diseases is it employed?
7. Name some of the vegetable astringents.
8. What are narcotics and give the most important chemical constituents of opium.
9. What is lime water—effects and uses?
10. Electricity for medicinal purposes is obtained from what sources?

CHEMISTRY AND TOXICOLOGY.

1. Name the halogens and describe one of the group.
2. Define the following terms and give an example of each: (a) Water of crystallization. (b) Binary compound. (c) Double salt. (d) Double decomposition.
3. Express by equations the chemical reactions when the following substances are combined: (a) Barium dioxide and sulphuric acid. (b) Slaked lime and sal ammoniac. (c) Lead acetate and sulphuretted hydrogen.
4. Give the chemical test for free HCl in gastric contents, and write equation to show reaction.
5. Describe the diazo reaction and give its diagnostic value.
6. Name five vegetable poisons and an antidote for one of them.
7. What is carbolic acid, chemically speaking? Name an antidote for it.
8. How would you detect arsenical poisoning? Give treatment for a case.
9. Give treatment for poisoning by swallowing mercuric chloride.
10. Describe a case of opium poisoning.

HISTOLOGY.

1. Describe the structure of bone.
2. Describe the structure of a medium sized artery.
3. Give the histology of cardiac muscle.
4. Give the classification of glands (as to structure) found in the skin and mucous membrane. Mention examples of each.
5. Describe the microscopical appearance of the section of a nerve trunk.

PATHOLOGY.

1. Define (a) Necrosis, (b) Hyperemia, (c) Edema.
2. Define a tumor. How does it differ from hypertrophic tissue?
3. What pathological changes occur in the liver and pancreas in diabetes?

4. What is inflammation?
5. Define sarcoma and name varieties.

PRACTICE OF MEDICINE.

1. Define pertussis and give incubation period and treatment.
2. Give etiology, symptoms, and treatment of diabetes mellitus.
3. Give etiology, symptoms, and treatment of multiple neuritis.
4. Give cause and symptoms of biliary colic and differentiate from appendicitis.
5. Give treatment with prescriptions for a case of acute articular rheumatism.

OBSTETRICS.

1. Give, in order of their appearance, the signs and symptoms of pregnancy, subjective and objective.
2. Give causes, symptoms, and treatment of phlegmasia alba dolens.
3. Treatment: (a) Threatened abortion.
(b) Inevitable abortion.
4. Symptoms and treatment of placenta prævia.
5. Describe your first case of labor.

DISEASES OF WOMEN AND CHILDREN.

1. How would you repair the perineum?
2. What symptoms may follow displacement of the uterus?
3. How would you diagnose inflammation of the tubes, and what is the most common cause?
4. How would you treat an acute gonorrhea in the female?
5. Give causes of suppressed menstruation and your treatment.
6. Give directions for feeding an infant three months old with artificial food.
7. Give causes and treatment of simple croup.
8. Name causes for infantile convulsions.
9. Give treatment for intestinal worms.
10. Diagnosis between tonsillitis and diphtheria.

SURGERY.

Answer any six questions.

1. In what sex does femoral hernia most frequently occur? Describe operation for cure.
2. Describe operation for gallstones.
3. (a) Give briefly the preparation of a patient and surgeon for an abdominal operation. (b) Locate the attached or cecal end of the appendix on the abdominal wall.
4. Indicate a treatment for hemorrhoids. (a) Palliative. (b) One operative method.
5. (a) What is meant by aseptic? (b) Antiseptic. (c) What is the best method of rendering surgical instruments aseptic? (d) In what strength should bichloride of mercury be used as a lotion? (e) Carbolic acid. (f) What is necessary to render ordinary water sterile?
6. Give diagnosis and treatment of floating kidney.
7. Give symptoms and treatment of fracture of the base of the skull.
8. Name the different forms of sutures, and describe the Glover's suture.
9. Give the signs, symptoms, and approved treatment of fracture of the patella.
10. How would you prepare a patient for anesthesia?

PREVENTIVE MEDICINE.

1. What are the chief causes and what the means of preventing dysentery and diarrhea?
2. Give the cause of scurvy and the method of prevention and cure.
3. What causes military ophthalmia and when it prevails how treat it? Can it be cured?
4. Give the measures to be taken for the prevention of venereal diseases.
5. Is phthisis pulmonalis hereditary or acquired, and what three points in its treatment are essential and most effective?

NERVOUS DISEASES.

1. Give the causes, symptoms, diagnosis, and treatment of epilepsy.
2. Define the terms: Insanity, delusion, illusion, hallucination.
3. Give causes, symptoms, diagnosis, and treatment of acute transverse myelitis.
4. What is chorea? Give causes, diagnosis, and treatment.
5. Differentiate between cerebral hemorrhage, uremic coma and alcoholic coma.

EYE AND EAR.

1. What is ophthalmia neonatorum? Give treatment.
2. What are the diagnostic differences between conjunctivitis and iritis? Give treatment of each.
3. What are the causes, symptoms and treatment of chalazion?
4. Describe fully the effect of nasopharyngeal adenoids on the ear and its function.
5. What are the symptoms, etiology, and treatment of mastoiditis?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE MEDICAL EXAMINING BOARD OF NORTH DAKOTA.

Grand Forks, July 2 and 3, 1907.

PHYSIOLOGY.

2. The principal functions of the hepatic cells are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

3. When blood is withdrawn from the blood-vessels of the living body, it first becomes viscid, then sets, and is converted into a jelly-like mass. This is due to the formation of fibrin. The jelly contracts forming the clot; and at the same time the serum is squeezed out from the clot. Various circumstances and conditions will hasten or delay the process of coagulation. In man, the blood generally becomes viscid in from two to three minutes; it forms the jelly-like mass in from five to six minutes; a few minutes later the serum begins to appear; and the whole process is completed in from twenty-four to thirty-six hours. The clot then floats in the serum. The process is thus summed up by Halliburton: In the plasma a proteid substance exists, called Fibrinogen. From the colorless corpuscles a nucleo-proteid is shed out, called Prothrombin. By the action of calcium salts prothrombin is converted into fibrin ferment, or Thrombin. Thrombin acts on fibrinogen in such a way that two new substances are formed: one of these is unimportant and remains in solution; the other is important, viz., Fibrin, which entangles the corpuscles, and so forms the clot.

Conditions *favoring* coagulation of the blood are: (1) Moderate warmth, (2) contact with foreign matter, (3) agitation, (4) the presence of calcium salts.

Conditions *retarding* coagulation of the blood are: (1) A low temperature, (2) the addition of neutral salts in large quantities, (3) contact with oil, (4) contact with the living vessel walls, (5) when mixed with an oxalate, (6) the injection of peptones or lead extract.

4. The vital capacity of the lungs is about 225 to 250 cubic inches.

5. The *causes* producing the *first* sound of the heart are not definitely ascertained; the following are supposed to be causatory factors: (1) The vibration and closure of the auriculo-ventricular valves, (2) the muscular sound produced by the contraction of the ventricles, and (3) the cardiac impulse against the chest wall.

The *second* sound is caused by the vibration due to the closure of the semilunar valves.

6. The *functions* of the sympathetic nervous system: "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor-nerves), are under its control to such extent that, for instance, in certain mammalians the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or less extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence*."—(*Reference Handbook of the Medical Sciences.*)

7. The special centers located in the medulla oblongata are: (1) Center for mastication, (2) for secretion of saliva, (3) for sucking, (4) for deglutition, (5) for vomiting, (6) for voice, (7) center for expression, (8) cardiac centers, (9) respiratory centers, (10) vasomotor centers.

8. The *function* of the anterior spinal nerve roots is: Motion, to the muscles which they supply.

MATERIA MEDICA.

1. A *disinfectant* is an agent or substance which restrains infectious diseases by destroying or removing their specific poisons.

A *deodorant* is a substance which destroys the odorous products of putrefaction.

A *deodorant* is indicated when there is simply a foul odor to be disposed of.

A *disinfectant* is indicated where disease germs are present.

2. A Seidlitz powder consists of: (1) Potassium and sodium tartrate, gr. cxx, and sodium bicarbonate, gr. xl; these are mixed and put in one paper. (2) Tartaric acid, gr. xxxv, in another paper. The dose is one or two of each of these dissolved separately in water and the solutions poured together.

3. Salines are purgatives composed of the neutral salts of metals of the alkalies, or of the alkaline earths. The salines are: Magnesium sulphate, magnesium citrate, sodium sulphate, sodium phosphate, sodium chloride, sodium and potassium tartrate, potassium tartrate, potassium bitartrate, and potassium sulphate.

4. Sanguinaria is used to cause sneezing, to produce salivation, purging, vomiting; in small doses it is an expectorant.

5. Ergot is the sclerotium of the Claviceps purpurea. It should be moderately dried, preserved in a close vessel, and a few drops of chloroform should be dropped upon it occasionally. It is not fit for use if more than a year old.

Ergot stimulates and causes contraction of involuntary muscle fibers, hence it is a vasoconstrictor, hemostatic, and oxytocic. It is also a cardiac sedative, it raises the blood pressure, it increases peristalsis, and is an emmenagogue.

6. Buchu is the leaves of the *Barosma betulina*. It is employed in chronic inflammatory conditions of the genito-urinary tract as cystitis, urethritis, pyelitis; also in chronic bronchitis, uric acid diathesis, prostatic inflammation, and dyspepsia.

7. Vegetable astringents: Gallotannic acid, nut galls, hamamelis, catechu, kino, krameria, hematoxylon, granatum, quercus alba.

8. Narcotics are agents which induce stupor or sleep, and at the same time are capable of relieving pain.

The most important chemical constituents of opium are: Morphine, narcotine, codeine, thebaine, papaverine, and meconic acid.

9. Lime water is a solution of unslaked lime in water. It is an antacid, a mild astringent, and assists in the formation of bone.

It is used in nausea and vomiting due to gastric acidity; to aid in the digestion of milk; in diabetes; in uric acid diathesis. It has been applied to the membrane in diphtheria; and externally, in tinea capitis, and (mixed with olive or linseed oil) in burns.

10. Electricity for medicinal purposes is obtained from the following sources: Current from electric light mains, dynamo and driving plant, accumulators, primary batteries.

CHEMISTRY AND TOXICOLOGY.

1. The halogens are: Fluorine, chlorine, bromine, and iodine.

Chlorine exists only in combination, chiefly in sodium chloride. It is a greenish yellow gas, very irritant, and with a penetrating odor. It tends to combine with other elements, and such combination may be attended with the giving off of heat and light, or an explosion. With hydrogen it combines in the light to form hydrochloric acid. In the presence of water it is an active bleaching and disinfecting agent. Its atomic weight is 35.5, and its valence one.

2. (*a*) *Water of crystallization* is the water necessary, in many crystals, to the maintenance of the form, and sometimes the color, of the crystal. Example: $FeSO_4+7Aq.$ denotes ferrous sulphate with seven molecules of water of crystallization.

(*b*) A *binary compound* is a compound composed of two elements only. Example: NaCl, sodium chloride.

(*c*) A *double salt* is a salt formed by the substitution of different elements or radicals for two or more atoms of the replaceable hydrogen of an acid. Example: $NaKC_4H_4O_6$, sodium potassium tartrate.

(*d*) *Double decomposition* is a reaction in which both of the reacting compounds are decomposed to form two new compounds. Example: $CuSO_4+H_2S=H_2SO_4+CuS$.

3. (*a*) $BaO_2+H_2SO_4=BaSO_4+H_2O_2$.

(*b*) $CaH_2O_2+2NH_4Cl=CaCl_2+2NH_3+2H_2O$.

(*c*) $Pb(C_2H_3O_2)_2+H_2S=PbS+2C_2H_4O_2$.

4. There are three or four chemical tests for free HCl in gastric contents; the best is probably the Dimethylamido-azobenzol test. The reagent is used in 0.5 per cent. alcoholic solution, of which one or two drops are added to a like amount of the filtered gastric juice. If free HCl is present, the yellow solution turns red.

5. For the diazo reaction two solutions are required: (1) A saturated solution of sulphanilic acid in a mixture of 50 c.c. of hydrochloric acid and 950 c.c. of water; and (2) a 0.5 per cent. solution of sodium nitrite.

To make the test, 1 c.c. of (2) is added to 40 c.c. of (1), and the mixture thoroughly shaken. Equal quantities of this mixture and the urine to be tested are shaken together in a test tube, and 1 c.c. of ammonia is then floated upon the surface, when, in an affirmative result, a red band is formed at the junction of the fluids.

Its diagnostic value is uncertain. Von Jaksch "disclaims for this test any clinical importance whatever." Others have claimed that the reaction is pathognomonic of typhoid; but it has been found in other diseases besides typhoid—namely, phthisis, pneumonia, measles, scarlet fever, smallpox, and malaria.

6. Five vegetable poisons: Aconite, belladonna, strychnine, opium, and digitalis; tannic acid is said to be the chemical antidote for digitalis.

7. Chemically speaking, carbolic acid is phenol, or phenyl hydroxid, C_6H_5OH.

The antidote for it is sodium sulphate, or alcohol.

8. *Test for arsenic*: Reinsch's test is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

Treatment consists in giving zinc sulphate to induce vomiting, syphoning out the stomach, and administering freshly prepared solution of ferric hydroxide.

9. The antidote is white of egg, but too much must not be given at one time; this should be followed by an emetic.

10. In opium poisoning there may be three stages: (1) A period of excitement, in which the patient is active, talkative, and has hallucinations; (2) a period of drowsiness, in which the patient is sleepy, but may be aroused; his face is pale, lips livid, pupils contracted; this passes into (3) the stage of coma, from which the patient cannot be aroused, the reflexes are abolished, the pupils are very contracted, the pulse is slow and irregular, and the respirations are infrequent and shallow.

HISTOLOGY.

4. I. Simple glands.—Duct undivided.

(*a*) *Simple tubular.*—Undilated at end—*e.g.* Lieberkühn's follicles, sweat, and many gastric glands.

(*b*) *Simple acinous* (*alveolar or saccular.*)—Dilated at end—*e.g.* some sebaceous glands (rare).

II. Compound glands.—Duct divided.

(*a*) *Compound tubular.*—Branched elongated tubes, no acini—*e.g.* most gastric glands.

(*b*) *Compound acinous or alveolar* (*racemose glands*), branched duct with saccular acini on terminal branches—*e.g.* salivary, sebaceous, and Meibomian glands; the mucous glands of the mouth, tongue, palate, pharynx, nose, esophagus, and respiratory tube.

(*c*) *Acino-tubular.*—Branched duct, with elongated narrow acini on terminal branches—*e.g.* Brunner's glands.

(From Cunningham's *Anatomy.*)

PATHOLOGY.

1. (a) *Necrosis* is the complete and permanent arrest of nutrition in a part; or local death of tissues.

(b) *Hyperemia* is excess of blood in a part of the body.

(c) *Edema* is excess of liquid in the connective tissues of the body.

2. A *tumor* is an atypical new formation, not the result of inflammation, and which has no physiological function. A tumor differs from hypertrophic tissue in that the latter retains its original structure, shape, and function.

3. In diabetes: The *liver* is enlarged, and may undergo fatty degeneration or become sclerotic. The *pancreas* may not be affected at all, or there may be an interstitial pancreatitis, or there may be degenerative changes in the islands of Langerhans, or the pancreas may be atrophied. It is probable that the diabetes is due to disease of the pancreas, and not *vice versa*.

4. *Inflammation* has been defined: (1) As the succession of changes which take place in a living tissue as the result of some kind of injury, provided that this injury be insufficient immediately to destroy its vitality.

(2) As the reaction of tissues to an injury.

5. A *sarcoma* is a malignant tumor of the connective tissue type, in which there is abundant cell formation with very scanty intercellular substance.

Sarcomata are classified:

I. According to the *form of the cell* which predominates, as Round-cell, Spindle-cell, and Mixed-cell sarcomata.

II. According to the *stroma*, as Myxo-sarcoma, Chondro-sarcoma, Fibro-sarcoma, and Osteo-sarcoma.

III. According to the *secondary changes* which they may undergo, as Lipo-sarcoma, Chloroma, Melano-sarcoma, and Calcifying sarcoma.

OBSTETRICS.

1. The *subjective* signs of pregnancy, in the order of their appearance, are: Cessation of menstruation, morning sickness, increased frequency of urination, active fetal movements.

The *objective* signs of pregnancy, in the order of their appearance, are: Softening of the cervix, changes in the mammary glands, discoloration of the vulva and vagina, pulsation in the vaginal vault, Hegar's sign, active fetal movements, ballottement, palpation of the fetus, intermittent uterine contractions, hearing the fetal heart-beat, rate of growth of the uterine tumor.

DISEASES OF WOMEN AND CHILDREN.

2. The following symptoms may follow displacements of the uterus: Backache, bearing-down pains, a feeling of pressure in the pelvis, constipation, hemorrhoids, frequent or painful urination, leucorrhea, menstrual disturbances, as dysmenorrhea or menorrhagia, sterility; there may also be *general symptoms*, as headache, indigestion, nausea, anorexia, neurasthenia, and general malaise.

3. Inflammation of the tubes is diagnosed by: A dragging sensation in the neighborhood of the affected tube; colicky pain, which is increased on exertion or even on standing; abdominal tenderness; menstrual disorders, as amenorrhea, metrorrhagia, dysmenorrhea, menorrhagia; dyspareunia; there may be septic symptoms and peritonitis; sterility generally ensues. On examination there will be found a fullness in Douglas' pouch and one or both lateral fornices; in these latter will be felt either the tubes, distorted and possibly adherent, or a sausage-shaped tumor, which is very painful; the uterus is retroverted or retroflexed, and may be bound down by adhesions; there may be an intermittent expulsion of pus accompanied and preceded by a burning pelvic pain.

The most common cause is infection, either gonorrheal or puerperal.

4. Acute gonorrhea in the female requires: Rest, if possible in bed; freedom from alcoholic or sexual excitement; a mild and unirritating diet; salines and diuretics; plenty of water to drink; a warm sitz bath; douching of vagina with about a gallon of a 1:5,000 bichloride solution, or of borax (1 dram to the quart); the douche is to be taken in the recumbent position.

5. The causes of suppressed menstruation are: Pregnancy; lactation; severe physical or mental shock; obesity; taking cold near the time of a menstrual period; certain diseases, such as typhoid, tuberculosis, pneumonia, diabetes, nephritis, anemia, chlorosis, syphilis, sepsis; change of climate; absence, lack of development, malformation, atresia, disease, or removal of some part of the genital tract; hysteria, and various mental disorders.

6. For a child three months old:

℞. Cream ℥ss (one tablespoonful)
Milk ℥iss (three tablespoonfuls)
Water ℥iss (three tablespoonfuls)
Milk sugar ℥j (one teaspoonful)
Salt gr. v. (a pinch).

Feed every two and a half hours.

8. Causes of infantile convulsions are: "Overeating, especially of indigestible food; rachitis, debility from exhausting diarrheal diseases; high fever, especially at the onset of the acute specific infections; very seldom dentition, phimosis, and acute middle-ear inflammation; injuries to the brain at birth, infantile hemiplegia, meningitis, and tumor of the brain; rarely of spinal cord disease."—(From Butler's *Diagnostics of Internal Medicine.*)

9. *Treatment of tapeworm*: Give a dose of castor oil at night, and the following morning give half a dram of freshly prepared extract of male fern, and a few hours later give another dose of castor oil.

Treatment of roundworm: A dose of santonin and calomel should be given at bedtime for a few nights, and a dose of castor oil the morning after the last powder.

Treatment of seatworm or pinworm: A large enema of a cold infusion of quassia. Care must be taken to prevent reinfection

10.

TONSILLITIS.	DIPHTHERIA.
1. Sudden onset.	1. More gradual onset.
2. Chill.	2. Chill is rare.
3. Temperature 103° to 105° F.	3. Temperature 101° to 103° F.
4. Vomiting is occasional.	4. Vomiting is common.
5. Albuminous urine rare.	5. Albuminous urine common.
6. Tonsils considerably enlarged.	6. Tonsils not much enlarged unless chronic hypertrophy of the tonsils previously existed.
7. Exudation in spots or a pseudomembrane.	7. Exudation, a thick membrane.
8. Pseudomembrane margins are the same color as the rest of the mucous membrane of the tonsil.	8. Diphtheritic membrane margins are dark red or purplish in color for a distance of a quarter of an inch.
9. Pseudomembrane not adherent; easily wiped away with cotton.	9. Membrane very adherent; removed with difficulty, and only with forceps.
10. Leaves no bleeding surface.	10. Denuded surface bleeds.
11. Pseudomembrane does not re-form.	11. Membrane re-forms in a few hours.
12. Pseudomembrane limited to the tonsil.	12. Membrane also found on the pillars of the fauces, the soft palate, and posterior pharyngeal wall.
13. Intense active hyperemla of the soft palate.	13. Soft palate almost normal in appearance.
14. Bacteriological examination shows staphylococci, streptococci, and pseudodiphtheria bacilli.	14. Bacteriological examination shows Klebs-Loeffler bacilli.

(From Coakley's *Diseases of the Nose and Throat.*)

SURGERY.

3. (b) Draw a straight line on the abdominal wall from the anterior superior spine of the ilium to the umbilicus; on this line, and about one and a half or two inches internal to the anterior superior spine, the cecal end of the appendix should be found.

4. (a) The *palliative* treatment of hemorrhoids consists in: The use of unirritating laxatives, to prevent constipation; cleansing the parts; rest; application of heat or cold or applications of opium or gall.

(b) The *operative* treatment consists in: Crushing with a clamp and then removing with a cautery; or complete resection of the mucous membrane; or they may be cut off after ligation or crushing.

5. (a) *Aseptic* means sterile, entire absence of germs or their products.

(b) An *antiseptic* is an agent that destroys microorganisms. The object of antisepsis is to produce asepsis.

(c) The best method of rendering surgical instruments aseptic is by boiling them for about fifteen minutes in water, each quart of which contains a tablespoonful of sodium carbonate.

(d) As a lotion, bichloride of mercury can be used in strengths varying from 1:10,000 to 1:500.

(e) Carbolic acid in strength varying from 1:60 to 1:40.

(f) To render ordinary water sterile, first filter it, then boil for half an hour, and place it in sterilized glass containers, the mouths of which are to be covered with several thicknesses of sterile gauze.

8. The different forms of sutures are: The interrupted, continuous, buried, chain-stitch, mattress or quilt, subcuticular, twisted or hare-lip, quilled, shotted, button or plate, Lembert's, Czerny, Halsted's, purse-string, relaxation and coaptation.

Glover's suture is the same as the continuous suture; it is made by passing the threaded needle through the skin about an eighth to a quarter of an inch from the edge of the wound. The needle is then passed from within outwards through the tissues of the opposite flap, at the same distance from the edge of the wound. This is done repeatedly, as often as the size of the wound requires; the

thread is not cut till after the last stitch is passed, and knotted.

PREVENTIVE MEDICINE.

3. *Military ophthalmia* is purulent conjunctivitis, due to contagion from gonorrheal virus. It is caused by the gonococci.

"Treatment.—Prophylactic: Great precautions must be observed to prevent infection of the eyes of the physician, nurse, and attendants through spurting of the discharge during examination or treatment; protecting glasses should be worn whenever exposed to this risk. Contaminated fingers must be carefully disinfected. Materials which have been used for cleansing the eye must be burned.

"The non-affected eye should be protected from infection by the application of Buller's shield. This consists of a watch glass, securely held in place by adhesive plaster applied to the side of the nose, the cheek, and forehead. The junction of skin and plaster is sealed by a layer of collodion. The center of the glass is left uncovered by plaster to permit inspection of the eye, and a small part of the outer margin of the watch glass is usually left free in order to allow air to enter and contribute to the comfort of the shielded eye.

"Treatment of the first stage: Iced compresses are used continuously, day and night. The eye must be carefully cleansed and the secretion removed as rapidly as it forms. When very abundant, this will be necessary every quarter or half an hour. For this purpose a saturated solution of boric acid is most frequently employed, being allowed to trickle in between the lids from a piece of absorbent cotton dripping with the solution; then the secretion which has been washed out is gently wiped off the margins of the lids.

"The iced compresses may be used continuously at first. But when the tense, reddened, and swollen condition of the lids becomes less marked the application of cold must be reduced to every other hour, or every third hour; too much refrigeration interferes with the nutrition of the cornea. When the cornea is involved, we must carefully gauge the amount of cold so as not to use an excess. In the later stages, when there is little swelling, and corneal infiltration or ulceration exists, hot applications may be indicated. . .

"In the initial stage, if the disease be very severe, from three to six leeches, applied to the corresponding temple, may be of service. Occasionally there is so much tension that the eye cannot be cleansed on account of the difficulty in separating the lids, and in addition harmful pressure is exerted upon the eyeball; in such cases it may become necessary to widen the palpebral fissure by a division of the external canthus.

"Treatment of the Later Stages: When the lids have lost their swollen and angry appearance and the discharge begins to diminish, a one or two per cent. solution of nitrate of silver is brushed upon the everted conjunctiva once a day. This may be done even though the cornea is implicated. It is continued until the patient is well, or until the papillary swelling has persisted for some time. Then, if silver no longer exerts a favorable influence, we may apply glycerole of tannin (five to ten per cent.), the alum stick, or sulphate of copper pencil once a day."

"Prognosis depends upon the severity of the case, and upon the behavior of the cornea. It is always grave." (May, *Diseases of the Eye.*)

NERVOUS DISEASES.

2. According to Taylor, the term *insanity* is applied to "those states of disordered mind in which a person loses the power of regulating his actions and conduct according to the ordinary rules of society. In all cases of real insanity the intellect is more or less affected."

A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion*. If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion*. If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination*.

5. In *cerebral hemorrhage*:—There is generally paralysis of the head and upper limbs; and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

In *uremic coma*:—The coma is deep; the pulse slow; the respirations frequent and irregular; the urine shows the presence of albumin and casts, with a diminished output of urea; there may be a urinous odor to the breath.

In *alcoholic coma*:—The patient can generally be aroused; the coma is not, as a rule, complete; the face may be flushed; the pupils are normal or dilated; the respirations are normal in frequency, but deep; the skin is cool and moist, and the body temperature may be below normal.

EYE AND EAR.

1. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the new-born.

It is due to the gonococcus or some other pyogenic germ; and is produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

The treatment is:—(1) Prophylactic—whenever there is the possibility of infection, or in every case, wash the eyelids of the new-born child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth. (2) *Remedial*:—Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

2.

CONJUNCTIVITIS.	IRITIS.
1. No change in iris.	1. Discolored and altered iris.
2. Pupil normal.	2. Pupil small, gray, sluggish, irregular after use of atropine.
3. Anterior chamber normal.	3. Exudation in anterior chamber.
4. Conjunctival injection, coarse meshes, most pronounced in fornix and fading toward the cornea.	4. Ciliary (circumcorneal) injection; pink zone of fine vessels surrounding cornea and fading toward fornix.
5. Mucous or muco-purulent secretion.	5. Lacrymation, but no secretion.
6. Discomfort, but no real pain.	6. Pain, worse at night.
7. Conjunctiva reddened and opaque.	7. Conjunctiva usually transparent.
8. No interference with vision.	8. Vision diminished in acuteness.

(May's *Diseases of the Eye.*)

4. "The presence of adenoid tissue in the vault of the pharynx affects the ear in two ways. If the mass is large by direct pressure upon the Eustachian orifice the supply of air in the tympanic cavity may be disturbed. . . . Any slight increase in the volume of the mass will close the lumen of the tube, after which the intratympanic air is gradually absorbed by the blood which circulates through vessels in the walls of the cavity. With each act of swallowing, at which time the tube opens momentarily, the air is aspirated into the nasopharynx, the tube closing so quickly that the passage of air into the tympanum does not take place. In this manner a passive congestion of the mucous membrane of the middle ear is produced, a condition which constitutes practically the first stage of an inflammation, and, if long continued, results in permanent tissue changes. . . . The more important manner in which adenoid growths affect the organ of hearing is by the obstruction to the venous return current from the tympanum and labyrinth. The pharyngeal tonsil, in virtue of its presence, may exert sufficient pressure to partially obstruct the venous flow from the tympanic cavity. Any condition which affects, for a considerable period, the circulation within the middle ear will also cause a disturbance of the labyrinthine circulation from an alteration in the tension of the fluid contained. Such changes in the labyrinth render it particularly susceptible to inflammation, either as the result of infection or of mechanical irritation, the most fruitful source of the latter being the crowding inward of the ossicular chain by atmospheric pressure, when the tension of air within the tympanum is reduced. . . There may also be a diminution of bone conduction and a hyperesthetic condition of the auditory nerve." (From Dench's *Diseases of the Ear.*)

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*.....	W. H. Sanders, Montgomery..	Montgomery..	October 1
Arizona*.....	Ancil Martin, Phoenix.....	Phoenix.....	October 7
Arkansas*.....	F. T. Murphy, Brinkley.....	Little Rock...	October 8
California*....	Chas. L. Tisdale, 1879 Sutter Street, San Francisco...	Los Angeles...	Dec. 3
Colorado.....	S. D. Van Meter, 1723 Tremont Street, Denver.....	Denver.....	October 1
Connecticut*...	Chas. A. Tuttle, New Haven..	New Haven...	Nov'ber 12
Delaware.....	J. H. Wilson, Dover.....	Dover.....	Dec'ber 10
Dis. of Col'bia..	W. C. Woodward, Washington	Washington...	October 10
Florida*.....	J. D. Fernandez, Jacksonville.	Jacksonville..	Nov'ber 20
Georgia.....	E. R. Anthony, Griffin.....	Atlanta.....	October 8
Idaho.....	J. L. Conant, Jr., Genesee....	Boise.....	October 1
Illinois.....	J. A. Egan, Springfield.....	Chicago.....	October 23
Indiana.....	W. T. Gott, 120 State House, Indianapolis.....	Indianapolis.	October 22
Iowa	Louis A. Thomas, Des Moines.	Des Moines...	Dec'ber —
Kansas.....	T. E. Raines, Concordia....	Topeka.....	October 8
Kentucky*	J. N. McCormack, Bowling Green.....	Louisville....	October 22
Louisiana.....	F. A. La Rue, 211 Camp Street, New Orleans.....	New Orleans..	October 15
Maine.....	Wm. J. Maybury, Saco.....	Portland.....	Nov'ber 12
Maryland.....	J. McP. Scott, Hagerstown...	Baltimore....	Dec'ber 3
Massachusetts*.	B. B. Harvey, State House, Boston.....	Boston.....	Nov'ber 12
Michigan.....	B. D. Harison, 205 Whitney Building, Detroit.....	Lansing.....	October 8
Minnesota.....	W. S. Fullerton, St. Paul....	St. Paul.....	October 1
Mississippi.....	J. F. Hunter, Jackson.....	Jackson.....	October 8
Missouri.....	J. A. B. Adcock, Warrensb'g..	St. Louis....	Nov. 19
Montana*.....	Wm. C. Riddell, Helena.....	Helena.....	October 1
Nebraska.....	Geo. H. Brash, Beatrice.....	Lincoln.....	
Nevada	S. L. Lee, Carson City.....	Carson City...	Nov 4
N. Hampshire*.	Henry C. Morrison, State Library, Concord.....	Concord.....	January 14
New Jersey.....	J. W. Bennett, Long Branch..	Trenton.....	October 22
New Mexico....	B. D. Black, Las Vegas.....	Santa Fe.....	Dec'ber 2
New York.....	C. F. Wheelock, Univ. of State of New York, Albany....	Albany..... / Syracuse.... / Buffalo.....	October 1
N. Carolina*....	G. T. Sikes, Grissom.....	Winston, Salem	May 1908
N. Dakota.....	H. M. Wheeler, Grand Forks..	Grand Forks..	October 1
Ohio	Geo. H. Matson, Columbus...	Columbus.....	Dec'ber 10
Oklahoma*.....	J. W. Baker, Enid.....		
Oregon.....	B. E. Miller, Portland.....	Portland.....	January 8
Pennsylvania...	N. C. Schaeffer, Harrisburg.	Philadelphia / Pittsburg...	Dec'ber —
Rhode Island...	G. T. Swarts, Providence....	Providence....	October 3
S. Carolina.....	W. M. Lester, Columbia.....	Columbia.....	June 9, '08
S. Dakota.....	H. E. McNutt, Aberdeen.....	Mitchell.....	January 8
Tennessee*.....	T. J. Happel, Trenton.....	Memphis... / Nashville... / Knoxville...	May, 1908
Texas.....	G. B. Foscue, Waco.....	Fort Worth ..	October 21
Utah*.....	R. W. Fisher, Salt Lake City..	Salt Lake City	October 7
Vermont.....	W. Scott Nay, Underhill.....	Montpelier....	January 14
Virginia.....	R. S. Martin, Stuart.....	Staunton.....	Dec'ber 10
Washington*...	G. W. Sharples, Seattle.....	Spokane.....	January 7
W. Virginia....	H. A. Barbee, Point Pleasant.	Clarksburg	Nov'ber 12
Wisconsin.....	J. V. Stevens, Jefferson.....	Milwaukee.....	January 14
Wyoming.....	S. B. Miller, Laramie.....	Laramie.....	Oct. 9

* No Reciprocity recognized by these States.

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Alabama.—On the 1st day of September a new law regulating the practice of medicine in Alabama went into operation. The principal changes made in the old law are: The privilege of examining applicants has been withdrawn from County Boards, therefore all examinations will hereafter be held by the State Board. At least two examinations shall be held annually. The branches upon which applicants will be examined are: Anatomy; chemistry; physiology; the etiology, pathology, and symptomatology of diseases; surgery; obstetrics and obstetrical operations; gynecology; physical diagnosis; hygiene and medical jurisprudence; diseases of the eye, ear, nose, and throat. A diploma will not be required as a prerequisite for examination. All persons who desire to practise medicine in this State must be examined, irrespective of any certificates of qualification, obtained elsewhere, they may hold. At least three days will be required to complete the examination. The first examination under the new law will begin on Tuesday, October 1, at 9 o'clock A.M., in the Capitol at Montgomery. Persons contemplating presenting themselves for examination at that time should give notice of such intention. The fee for examination will be $10.00, payable in advance. All applicants, of whatsoever school of practice, will undergo the same examination. Materia medica and the administration of drugs in disease are omitted from the examination.

South Carolina.—This State reciprocates with Illinois, Kansas, Maine, Maryland, Michigan, Minnesota, Missouri, Nevada, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. No application for license to practise in South Carolina based upon a license to practise in a sister State, will be considered unless the applicant has resided at least one year in the State granting the original license.

Minnesota.—This State reciprocates, under certain conditions, with the District of Columbia, Indiana, Iowa, Kansas, Maine, Maryland, Michigan, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, Ohio, South Carolina, Tennessee, Texas, Utah, Virginia, Wisconsin and Wyoming.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagions diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending September 21, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	345	143
Diphtheria	212	25
Measles	114	5
Scarlet Fever	108	9
Smallpox	..	..
Varicella	13	..
Typhoid Fever	181	27
Whooping Cough	18	4
Cerebrospinal Meningitis	23	11
Malarial Fever	.	..
Totals	1014	224

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, during the week ended September 20, 1907:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, San Francisco	Aug. 25–31	2	..
Colorado, 12 Counties	July 1–31	65	..
Indiana, 12 Counties	July 1–31	74	..
Kansas, 21 Counties	July 1–31	76	..
Minnesota, St. Paul	July 1–31	19	..
New York, Homer	Aug. 5–Sept. 6	1	..
Syracuse	Aug. 7–Sept. 6	1	..
North Carolina, Greensboro	Sept. 1–7	1	..
Pennsylvania, Spring City	Aug. 19–Sept. 6	1	..
Vermont, Marshfield	July 15–Sept. 4	6	
Wisconsin, 30 Counties	Apr. 1–June 30	420	2
Milwaukee	Sept. 1–7	2	..
SMALLPOX—FOREIGN.			
Austria, Vienna	Aug. 18–24	28	2
Brazil, Para	Aug. 18 31	25	10
Fernambuco	July 1–31	..	225
Sao Paulo	Aug 28 Aug. 4	..	1
China, Shanghai	Aug. 1 8	1	..
	(Case U. S. S. *Pennsylvania*, from Cheefoo.)		
Columbia, Cartagena	To Aug. 27	..	Present
Canada, Halifax	Sept. 1 7	1	..
Ecuador, Guayaquil	Aug. 18–24	..	1
Formosa, General	Sept. 2–Aug. 3	14	13
Greece, Piræus	Aug. 18 24	1	..
Java, Batavia	Sept. 28–Aug 10	8	..
India, Bombay	Aug 13	..	1
Calcutta	July 27 Aug. 3	..	9
Madras	Aug. 3 9	..	1
Italy, General	Aug. 12 20	24	..
Madeira, Funshal	Aug. 26–Sept. 1	5	1
Mexico, Aguas Calientes	Aug. 24–31	..	4
Mexico City	Aug. 4–10	..	4
Monterey	Aug. 26–Sept. 1	..	1
Russia, Moscow	Aug. 11–17	1	2
Reval	July 1–31	4	..
St. Petersburg	Aug 11–17	1	1
Portugal, Lisbon	Aug. 18–24	1	..
Venezuela, La Guira	Aug. 25–31	..	Present
CHOLERA.			
India, Bombay	Aug. 7–13	..	38
Calcutta	July 21–Aug. 3	..	401
Cochin	July 21 26	..	8
Madras	Aug. 3–9	..	0
Rangoon	July 28 Aug. 3	..	1
Japan, Moji	Aug. 15–21	..	Epidemic
Nagasaki	Aug. 4–10	3	..
Shimonoseki	Aug. 1–10	1	..
	(From S. S. *Hakau Maru*. Aug. 10–21 Epidemic.)		
Yokohama	Aug. 1 17	1	..
Philippine Islands, Manila	July 26 Aug. 1	1	..
Russia, Archiereiski Passelok	Aug. 10	..	Present
Astrachan	Aug. 14	..	"
Ataman-Stanitza	Aug. 10	..	"
Samara	July 22–Aug. 5	23	6
Saratov	July 16–Aug. 5	..	Present
Singapore, Straits Settlement	July 14–Aug. 1	..	21
YELLOW FEVER.			
Brazil, Manoas	Aug 3–17	..	7
Para	Aug. 18 31	8	8
Cuba, Cienfuegos	Sept. 11–17	11	3
Total since recent outbreak to Sept. 17, 50 cases and 13 deaths.			
Habana	Sept 10 14	2	1
			From Palos.
Matansas Province, Bermeja	Sept. 10	1	1
Santiago Province, Gibara	Sept 12	1	..
	(From S. S. *Galveston* from Guanto, Venezuela.)		
Ecuador, Guayquil	Aug 11 17	..	1
British West Indies, Trinidad Port of Spain	Aug 12 18	2	2
PLAGUE—UNITED STATES.			
California, San Francisco	Sept. 11–17	8	8
Total number of cases from Aug. 12 Sept. 17.		20	17
PLAGUE FOREIGN.			
Africa, King Williams Town	July 30 Aug. 1	1	1
	(From Dubois Location)		
Izeli	June 23 Aug. 2	6	6
Chile, Africa	July 31 Aug. 6	7	..
Brazil, Pernambuco	July 1 15	..	2
China, Amoy—Kulangsu	To Aug 10 25 deaths daily.		
French Indo China, Saigon	July 26 Aug. 1	3	3
India, General	July 7–13	5,557	4,809
	July 14–27	3,995	3,335

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Original Articles.

URIC ACID SYMPTOMS (RHEUMATISM) AND THEIR RELIEF BY COLCHICUM AND THE SALICYLATES.

By A. H. P. LEUF, M.D.,

PHILADELPHIA.

It is safe to preface this paper with the statement that the cause of excessive uric acid formation is not known, and the symptomatology of the condition is not understood except along certain lines.

Uric acid in the urine is usually associated with the term "rheumatism," one of the designations behind which masquerade a number of clinical entities probably due to a variety of causes, but which have not yet been differentiated. Uric acid conditions or diatheses have thus come to be considered synonymous with rheumatism, at least with its more chronic manifestations. In this paper I may use the terms interchangeably because of the mental habit of their association, but by the term "rheumatism" I wish to be understood as meaning the condition of an excess of uric acid in the body, usually indicated by uric acid crystals or detritus or amorphous urates in the urine, generally in abundance, though sometimes totally absent, for a time at least, or nearly so.

The future will probably resolve many different "rheumatisms" into their separate clinical entities. However, they may prove to be changing signs of the same general cause, difference in manifestations being merely incident to varying parts of the organism responding most adversely to influences of the pathological state. That this is feasible is demonstrated, for instance, by syphilis, in which the same cause produces a host of varying symptoms, many even in the same individual.

The uric acid state may affect perceptibly almost any tissue or part of the body, most prominent among which may be mentioned joints, ligaments, muscles, skin, throat, teeth, eyes, ears, urethra, intestines, the serous membranes generally, the excretory mucosæ, and the nervous system.

We are too apt to limit evidence of "rheumatism" to uric acid conditions in joints or fibrous structures and voluntary muscles and the cardiac membranes. In view, however, of the well-known effect upon joints, ligaments, tendons, and the faucial mucosa, why should any tissue be exempt? Whatever may be the local cause of pain, it probably acts upon the most susceptible part of the organism, and that this may exceptionally be a tissue usually exempt is not at all improbable. This supposition has the advantage, at all events, of being a good working hypothesis, there being no known facts to contradict it.

Uric Acid "Rheumatism" Defined.—Let us, then, assume that "rheumatism" is that clinical condition of local pain, generally shifting, though not always, otherwise unaccountable, and accompanied by the presence of uric acid crystals or detritus or amorphous urates in the urine, and which is marked by susceptibility to cold and damp and weather changes, or which, despite the absence of the characteristic urinary deposit, nevertheless yields promptly to colchicum and the salicylates. As a rule, uric acid may readily be found in afflictions of this kind yielding to these two remedies, and when not in evidence in the urine does, however, exist in the blood, where its detection is not so easy for the general practitioner. Prompt yielding of such symptoms to colchicum, the salicylates, alkalies, and salines, seems to me to be good therapeutic evidence of rheumatism, certainly as much so as is yielding to mercury and potassium iodide of syphilis, and to quinine of malaria.

Articular, ligamentous, and muscular involvement is so commonly appreciated that these forms require no attention in this paper.

Cutaneous Rheumatism.—This is fairly well known by its urticarious symptoms of pruritus and hyperemia patches. It is stubborn to all local and internal medicinal treatment, except that which is efficient in rheumatic conditions, and that will hasten the elimination, and prevent excessive formation, of uric acid. The best local easement often follows the use of sodium bicarbonate, in the form of a wash as well as internally administered. Diet is also a help in removing the trouble. Sometimes the urticaria is the only symptom complained of, or, on the other hand, it may not be present in other rheumatic states, and only appear as the result of salicylic medication. This should be remembered lest the attempt is made to cure a drug trouble by the very remedy that is its cause.

Rheumatic Sore Throat.—Just as we have irritative urticaria of the external integument, so may we have a corresponding hyperemia of the inner skin, the mucous membrane. Probably the commonest occurrence of this kind is rheumatic sore throat. There is no exudate and no pus formation, but the membrane is a decided red, often rather dark, and is markedly aggravated by weather conditions that increase rheumatic symptoms. Local treatments, and even the usually successful internal medicines for ordinary sore throat, are inefficient except that the former somewhat allay pain if they contain anodynes. But the salicylates and colchicum cause a prompt and marked improvement. I have met with these so often that it seems unnecessary to cite illustrative cases for they must be quite common in the practice of all physicians who are even moderately busy.

I will, however, cite a single instructive instance, that of J. B., aged 15 years, U. S., almost six feet in height, and well built, whose father I was attending for a rheumatic synovitis of the right knee in April, 1900. The boy complained of sore throat, which I examined by request, finding it a dusky, angry red and painful; there was general hyperpyrexia, and the local trouble was unrelieved by home remedies that usually proved satisfactory. I ordered wine of

colchicum (gtt. x every 5 hours), and requested a sample of his urine. This contained enormously large crystals of uric acid in great abundance. Next day his throat felt better. He stopped his medicine, and there was a recrudescence of throat symptoms, but he neglected to take any more colchicum, though I warned him and his parents that he was on the verge of a volcano and in imminent danger of a severe acute rheumatic attack. He neglected the advice, and three days later awoke with a most severe acute inflammatory rheumatism. Even slight movement of any part of his body caused him to cry out loudly in evident excruciating pain. When he was moved to attend to calls of nature he cried loudly and uncontrollably with pain. It required large doses of morphine hypodermically to relieve him. The urine showed the same uric acid content. He took gtt. xii. of the wine of colchicum root every three hours, together with a lithia tablet (gr. v.) four or five times a day, and remained in bed ten days, when he felt quite well. But the colchicum was continued several days longer (gtt. v., t.i.d.) as a precautionary measure, and he kept his bowels freely open with magnesium sulphate.

Irritable bladder, from the presence of uric acid crystals, comes under my notice at frequent intervals. In such the diagnosis is assured by the absence of any other cause, the presence of uric acid in the urine, and the prompt relief of vesical irritability upon the disappearance of uric acid from the urine following the use of colchicum, or of it and the salicylate of sodium.

Acute urethritis, due to uric acid or oxalate of lime crystals, or both, in the urine, exists much oftener than one would suppose, judging from the literature. In fact, we are generally given to understand that a simple urethritis is rare, so that every one thus afflicted is at once more than under the ban of suspicion. The presumption in most instances is tantamount to a moral certainty of venereal infection. That this is decidedly wrong is one of the conclusions justified by my experience. I have cured "clapp" many times within a few days by diet and injection when it really was a simple irritative urethritis. And yet (such is the perversity of human nature) most such patients insisted that they must have the venereal disease, wish probably being father to the thought, for there are many who are inclined to pride themselves upon so undesirable a possession, or prefer to think that they have had it. However, there can be no doubt of the innocence of a urethritis when it is accompanied by uric acid and oxalate of lime crystals in the urine, and that is cured promptly by the use of colchicum and sodium salicylate, coincident with the diminution and disappearance of the crystals from the urine. The following is one such case to serve in illustration:

L. C., married, U. S., mill hand, had been subject to a slight urethral discharge from February, 1897, with occasional intermissions, for nearly a year. At times there would be merely agglutination of the meatus in the morning, followed by a drop of pus. At other times the discharge was more decided. Micturition was painful and burning, and at times accompanied by a sensation of passing something. This he interpreted as a coming small stone, and several times held his hand to receive it, but it never came. He had no chordee, and coitus was not always painful. He had noticed brick dust sediment in his urine. His wife was under treatment by me at the time thrice weekly, receiving intravaginal bipolar electrization for intrapelvic trouble. Her vaginal mucosa and cervix and os uteri were typically normal all the time. I had her under observation for a period of many weeks before and after I treated her husband, and can say, therefore, that she showed no sign of infection, though subject to regular coitus with him. His urine contained uric acid and oxalate of lime crystals in abundance. He took the wine of colchicum root (gtt. v. every five hours) and sodium salicylate (gr. v. every six hours). Nitrogenous foods were used sparingly, and beer and ale eschewed altogether. Seven days of this medication and regimen cleared up his urethral discharge and pain without injections.

He had two subsequent attacks in November, 1900, and May, 1902, both yielding to the same simple treatment. I may add that he had been receiving the usual injection and internal treatment before coming to me the first time.

Ocular Rheumatism.—This may be well known to the specialist, but it is quite a stranger to the general practitioner. I recall several instances in my experience within the past few years. One was that of a young man of 25, a chronic rheumatic, who had his glasses changed several times within one year by a specialist in whom he had unbounded confidence. He was astigmatic and wore compound cylinders. But none of his glasses were satisfactory. His vision remained defective, though not much, while his eye and brow pains were severe. Finally I prevailed upon him to submit to active medication with sodium salicylate and wine of colchicum, for his urine contained a considerable quantity of uric acid crystals. After a single week of this treatment he could see as well as ever with his old glasses, and his pain left him entirely. This experience was repeated with him on three subsequent occasions, except that he applied to me promptly without first seeing a specialist. His favorable response to moderate doses of these two agents was prompt every time, and was accompanied by lessening of the amount of uric acid in the urine.

Another instructive case, which I will cite more in detail, is that of M. F. B., U. S., 2½ years of age, who came to me July 10, 1905, with marked photophobia and slight conjunctival catarrh. She was malnourished. The belly was very prominent, soft, and contained much gas. She was nervous, fidgety, and capricious, whining a great deal. Her urine was said to be loaded with material that stained her clothes reddish and that left a crust on the sides and bottom of the chamber. She was very costive and her stools were dry. She ate little, and was under the care of an aunt, a very intelligent and experienced woman, who had taken her to several other physicians without benefit, one being an eye specialist. The patient kept her lids tightly closed, with her hands before them and her head bent down, even in a poor light. I ordered calomel for her bowels and a diet yielding a liberal residue for bowel stimulation. A nitrate of silver collyrium (gr. i. to the ounce) was to be used morning and evening, and I also ordered wine of colchicum root (one drop three times a day).

She lived out of town and could not see me again till August 21. Meanwhile I had examined her urine sent by mail, and found it loaded with enormous uric acid crystals. The aunt had been advised by mail to push the colchicum, which she did. An aphthous sore mouth developed and prevented much eating. At the time of her second visit her eyes were normal except for a small opacity over the center of the left pupil. She had daily stools, and her nervous system was in a normal condition. She was, however, ordered a continuance of the colchicum in single-drop doses thrice daily, together with the same amount of the oil of gaultheria.

July 27, 1906, she returned with her old eye

trouble worse than ever, having had it since the preceding April. Meanwhile she had been to two local physicians, had seen two specialists in Washington, D. C., while on a visit there, and was finally taken to the Wills Eye Hospital in this city, but without any improvement whatever. The aunt told all who saw her of the former successful treatment and the condition of her urine, all of which was ignored. At this pass she again came to me. Her photophobia was so intense that I could not get a glimpse of her pupil, as she kept her eye so well rolled up when the lid was raised that only the lower edge of the iris was visible. The ocular conjunctiva was normal on the right side, or even a little pale, and a very little reddened on the left, the latter being the more sensitive to light and the more guarded by her. I could find no typical uric acid crystals, but found some of characteristic hue, globular in form, many with a stem attached, like a dumb-bell with one bell off. She had grown noticeably thinner, but the belly was still large. Her stools were inadequate, and she had a marked antipathy to oranges. I again ordered the same collyrium, together with the syrup of hydriodic acid (15 minims t.i.d.) and the syrup of the iodide of iron (gtt. xx. t.i.d.).

On August 4 I saw her again. She had been costive up to the day before, when she had loose stools, and passed many pin worms and "objects looking like small tadpoles." Eyes remain the same. Urine is now loaded with uric acid. Her right ear begins to discharge. A year ago, the aunt reminds me, as her eyes began to improve her mouth became very sore, and she supposed the otorrhea was a good augury. Belly very large. Treatment was continued and I added 2 grains of potassium bromide t.i.d. Her irritability was much less. She had not taken the iron. Eats better, and has a penchant for crackers sprinkled with salt.

On Aug. 11 I saw her again. She had had diarrhea all the week, six to eight stools per day; passed a lot of undigested blackberries, but no more worms despite the use of "worm medicine." I now put her upon one-drop doses of the wine of colchicum root t.i.d. On August 21 she was improved in every way, and nine days later she was perfectly well again. A slight photophobia that still existed was promptly relieved by several two-grain doses of potassium bromide, given to reduce retinal irritability.

In this patient there was no substantial improvement from July 27 to August 11, despite local treatment and attempts at constitutional upbuilding, but in the following ten days, during which she took colchicum, improvement was marked. I consider her diarrhea for a week preceding the use of the colchicum to have been a natural effort to rid herself of the enormous excess of uric acid. I have seen such diarrheas so often that my conviction is positive. It is a misfortune that I cannot prove it by microscopic examination of the feces. Such examinations are not as simple as those of urine, they are unusual, and specimens are not as readily tendered.

Aural rheumatism exists, but to what extent I do not venture to say. I have seen but few cases, and, so far as I can recall, they were all in middle life or beyond. Deficient hearing was probably due to stiffening of the ossicular joints, and perhaps also of the tympanic membrane from thickening. But I do recall that they showed an abundance of uric acid in the urine, and were only benefited after the use of colchicum. Local warmth was also of great benefit.

These are the people who sometimes hear better on a moving train or in a machine shop, presumably because of the effect of the atmospheric vibration in causing greater mobility of the ossicles, as in vibratory treatment, which, by the way, is beneficial in these cases. Some may call these cases gouty. So let it be. Good results from the colchicum treatment, or it with the salicylates, are the same, and that is the crux of the matter clinically. In other words, if in such cases of partial deafness there is also much uric acid in the urine, the probabilities favor a prompt remission of symptoms upon the use of colchicum and the salicylates, both aided by hot air and vibratory massage. It must not be forgotten that a rheumatic sore throat may also obtund hearing by extension to, and closure of, the Eustachian tube.

Rheumatic toothache may strike many readers as a novelty, and perhaps existent only in the imagination of the enthusiast. But I shall cite the first instance that called my attention to this condition. The patient happened to be myself.

It was several years ago, while having bridge work done on my left lower jaw, that I developed a constant ache in the socket of the left upper central incisor. It behaved as all such pains do, being obstinately persistent, with a perverse tendency to get worse at night, and more unbearable each succeeding day. The dentist's attention was called to my initial discomfort and final suffering. The usual remedies proved useless. No cavity could be found. Resort was had to the drill finally with a view to getting at or near the pulp to destroy the nerve if necessary or do whatever else might seem expedient. There was, however, neither pulp chamber nor nerve. The entire tooth was one solid piece. Yet the ache continued. Thinking finally that it might be rheumatic because of my uric-acid tendency and proneness to patellar pains that always readily yielded to colchicum, I took the wine of colchicum in five-drop doses four times a day. The pain was much relieved after taking the second dose, and left me toward evening of the next day. Occasionally that tooth has ached since then, but not long, for I promptly hie myself to the colchicum bottle, and the pain vanishes after several doses.

I recall, also some ten or twelve years earlier, taking a trip for two or three weeks to some of the larger cities, combining business with pleasure, together with very little physical exertion but much over-eating. A terrible toothache took hold of me on the fifth day and held me captive in agony till my return. I had a tooth extracted to relieve the pain, but to no purpose. A presumptuous but well meaning old man "pow-wowed" it away for a whole afternoon in the face of my incredulous smiling countenance. This might have been a coincidence, but I looked him up hopefully the next day only to find that he had left the city. My pain remained. Fair sized doses of morphine and opium had not appreciably relieved me by day or night, nor did they afterwards. Upon my arrival home, and resorting to daily active outdoor exercise and a less liberal diet, the pain soon disappeared. I now feel quite satisfied that colchicum would soon have relieved me then as it has so often done since.

Again, let me eat well and work little, and it requires but a lunch at bedtime with a single bottle of beer to bring on a toothache even before the lunch is ended. If these moderate dietetic indiscretions are continued, the pain extends to other teeth, the patellæ, and to the joints of the lower extremities. They are not very severe, but enough to take precedence over all other matters, even if of considerable importance. I have had sufficient scientific spirit to experiment often enough with myself in this matter positively to establish the fact that my toothaches were rheumatic, and they always promptly yielded to colchicum.

Since then I have looked for and found similar cases in others. I may add that my urine almost always contains uric acid detritus, seldom crystals or amorphous urates, during attacks of pain, and becomes free of it after the use of colchicum and the easement of pain.

Enteric rheumatism is no myth. Vague abdominal pain has yielded to colchicum and the salicylates in my hands, and so have many diarrheas. The latter I have viewed, and still do, as nature's effort to rid herself, through the enteric mucosa, of poisonous material in the blood. And why may not the peritoneum, which is really the synovial membrane of the belly joint, be subject to the same influences that so often adversely dominate the synovial lining of the knee, ankle, shoulder, or other joints? I have had patients with such diarrhea and freedom from pain, develop characteristic rheumatic pain after checking the enteric flow, and, contrariwise, have observed disappearance of the diarrhea upon the use of colchicum, or this and the salicylates, sometimes even when it was uncheckable by the usual means. It was in this way that my attention was first directed to rheumatic diarrheas. Finding practically uncheckable diarrhea without adequate evident cause, and noting the urine loaded with uric acid, the usual treatment was given with the gratifying result upon the bowel.

I think it safe to lay down the general proposition that all serous membranes and fibrous structures are prone to irritation in rheumatic conditions, giving rise to appropriate symptoms. These may be direct and unmistakable, or reflex, or referred. Thus irritation of the sciatic at its origin is felt along its distribution (referred sensation of pain). Throat inflammation or active congestion may cause cough (reflex symptom). Again, involvement of the dura would cause characteristic headache.

I do not personally know of pleuritic troubles due to rheumatism, and if I have seen any they were not recognized by me as such. The mere fact, however, that such cases have not been observed is no surety that they do not occur. It seems to me very reasonable to assume that a morbid influence that so generally affects fibrous and serous structures is likely to have a predilection for them all, though in varying degree. Selective affinity for certain tissues or organs, or even choice sites, by special influences, are common. Some authors do recognize a rheumatic pleurisy (Strümpell).

In addition to this generalization, I would add the other, that all the eliminative channels are liable to be affected by the rheumatic influence, *i.e.* the urinary and enteric tracts, the skin, and the respiratory mucosa. And these effects are most often noticeable the nearer the mucosa approaches the skin. We even see well marked cases of pneumonia that yield readily to the salicylates rather than to other medication. Is this not significant?

Cardiac rheumatism is well known. Pneumonias that yield to rheumatic treatment have been written about and reported in large number. Surely the materies morbi of this affection may find other parts of the body susceptible to its influence besides those commonly known to be so. Given the rheumatic condition, and it seems to me that its manifestations may be looked for in any tissue of the body, its site of manifestation depending upon local peculiarities or susceptibilities as yet inexplicable.

Uterine Rheumatism.—I have had cases of intrapelvic pain with ovarian and uterine tenderness, both external and internal, that yielded somewhat to anodynes, a little to cimicifuga and pulsatilla, but entirely and promptly to colchicum and sodium salicylate. Could anything be clearer, especially when there is the usual urinary accompaniment, and repeated attacks with the same response to treatment in the same individual?

Relation of Uric Acid Production and Elimination.—Those tissues in which elimination of waste is apt to run behind the production of waste are the most subject to rheumatic influences: for instance, fibrous tissues and joints. Though elimination is active from muscle, the production of waste material is very great. The soreness and stiffness after unusual active exercise are so akin to those of rheumatism that they may very well pass for being substantially one and the same. When "muscular rheumatism" is chronic there is, in all probability, involvement of the connective tissue framework, and when there is greater wasting of the muscle than is accountable for from non use, then the afferent nerves are involved. In chronic rheumatism of the shoulder joint there is often deltoid soreness and atrophy with some paresis, all most likely due to involvement of the circumflex nerves.

The failure of active exercise to produce pain, after it has been regularly indulged in for a sufficient length of time to insure what is athletically known as "condition," is most probably due to elimination having been so developed as to promptly carry off all waste.

Treatment.—In all of these cases it is requisite to maintain free stools, preferably with magnesium sulphate. The wine of colchicum root should be given in sufficient amount to be effective, and what this is depends upon the peculiarity of the individual and the disease. It is well to begin with five drops every four or five hours, to be increased as appears needful. Sodium salicylate or salicylic acid may be added, beginning with five grains every two hours till effective, or the dose should be increased as necessary. The oil of gaultheria may be used instead of the salicylates, or be combined with them. It may initially be given four times a day in ten-drop doses on sugar. Medication should always be pushed till effective. Book dosage is only a guide for initial amounts, after which one should individualize the patient, and be governed by the effect, the medicine being given in increasing doses or diminishing intervals, either till effective or until physiological symptoms are manifest without satisfactory effect upon the disease, for instance tinnitus with the salicylates or diarrhea with the colchicum.

An important factor in the treatment of rheumatic conditions is heat. This is consistent with the views expressed as to the nature of local rheumatism, as heat increases circulation, and this oxidation and elimination. So also do those electric currents do the most good which have a like effect. Likewise are those medicines the most efficient which promote cellular elimination, by which I mean chemical changes in the tissues that break up and get rid of the rheumatic materies morbi in contradistinction to those which merely empty the bowels of accumulated refuse.

Bathing has a like effect in proportion as it increases circulation and quickens elimination, and a reverse effect as it does otherwise. Hence the efficacy of warm baths and the harmfulness of cold water. The same is true of sun heat, which is always grateful to the rheumatic, especially when applied to an affected part.

Medicinally, those agents are the most effective which hasten and increase elimination from the tissues, for instance the alkalies and the iodides, or improve oxidation, as iron and manganese. Others may be said to be specific in their action, as colchicum and the salicylates. In this connection I may add that I distinctly note such action by those drugs, and

can see no logic in attributing all the good effects of the salicylates to their pain-benumbing qualities, as has been claimed.

This hastily written paper is presented in the hope that it may emphasize the importance of some well-established facts of frequent occurrence that are, however, habitually overlooked. Long dissertation and argument, citation of authorities, and the detailed recital of many cases seem to me inexpedient and unnecessary, and, therefore, inadvisable, on which account they have generally been omitted. After all, plain facts may be simply stated, and are easily capable of verification or disproval, especially those which I have presented, by any practitioner of even moderate experience.

I should recapitulate the salient points of this article as follows:

1.—The etiology of excessive uric-acid formation is unknown.

2.—The symptomatology of uric-acid excess is not fully known.

3.—The name "rheumatism" may generally be used synonymously with uric-acid excess.

4.—The absence of uric-acid evidence from the urine is no guarantee that it does not exist in abundance elsewhere in the body, and require elimination.

5.—Uric acid disturbs all the tissues of the body though some much more than others, and is unusually selective of exceptional tissues in some cases, the reason for which is not understood.

6.—Only a single symptom may exist to call attention to even very large quantities of uric acid signifying the eve of a severe affliction if not promptly eliminated.

7.—Many uric-acid conditions are not recognized as such, and are therefore unsuccessfully treated until the real condition is recognized.

8.—Symptoms that are benefited by colchicum or the salicylates are most probably due to uric acid.

9.—Uric acid causes irritative catarrh of the excretory mucosa, and probably most so as it nears the outer skin, thus affecting the bladder and urethra, as well as the enteric tract.

10.—Toothache of uric acid origin should not be overlooked, and is capable of prompt relief without the use of anodynes.

11.—There exists a visceral rheumatism, or pain and abnormal functioning of the viscera from uric-acid disturbances, promptly relievable by colchicum or the salicylates and proper diet, and probably not by any other means.

12.—Uric-acid symptomatology seems to be due to accumulation of uric acid in the tissues because of its formation in excess of the ability of elimination; on this account structures poor in circulation are subject to its influence, as ligaments, bones, or serous membranes; or those in which, though their eliminative power is far greater than that of those just mentioned, the formation of waste products may be too rapid and bountiful to admit of prompt enough removal to prevent accumulation, as muscle.

13.—Wine of colchicum root is a remedy of remarkable efficiency for the relief of uric-acid conditions, acting promptly in most instances.

14.—The salicylates are valuable adjuncts to colchicum in uric-acid conditions.

15.—The bowels should be kept freely open (not diarrheal) with magnesium sulphate, preferably small doses on arising, the amount depending upon the effect, one or two stools per day being desirable.

16.—Medicines should be pushed until effective, or until physiological evidences of their action ensue.

17.—All influences increasing circulation in or about the affected area are beneficial, such as heat, negative galvanism, the static breeze or spark, or warm bathing.

18.—As a rule all those medicinal agents are helpful in uric-acid conditions which hasten elimination or increase oxidation, as the iodides, alkalies, iron, and manganese.

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EARLY DIAGNOSIS OF GASTRIC CANCER, WITH REPORT OF A CASE.*

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Formerly when the medical attendant made the diagnosis cancer of the stomach, it was like pronouncing the death sentence of the patient, as this diagnosis could not be arrived at until the disease was well advanced, and the treatment then was only palliative—endeavoring to prolong the one-sided battle in which death was sure to be the victor.

I hope that I will not be considered too optimistic when I say that owing to the progress in chemistry, bacteriology, and physiology, the diagnosis of cancer of the stomach can many times be made early enough to enable us, through surgical intervention, to prolong, and in some cases to save, the lives of at least a few suffering from this dreaded disease.

It is not the purpose of this paper to discuss the etiology or pathogenesis of cancer, but to present a résumé of some of the work that has been done by such men as Cohnheim, Boas, Ewald, and others, which enables us to make a comparatively early diagnosis long before the appearance of a tumor or characteristic symptoms.

The subjective and objective symptoms, the chemical examination of the gastric secretions, and the microscopical examination of the contents of the fasting stomach, must be taken into consideration in the early diagnosis.

The subjective or objective symptoms in the early stage of this disease are not always clearly diagnostic, and vary in accordance with the location of the carcinoma, which may be situated at the pylorus, the cardia, or the fundus. They may consist of vague dyspeptic disturbances, such as loss of appetite, pressure and fullness after eating, distention, thirst, nausea or vomiting (depending upon the location of the neoplasm), constipation or diarrhea, sometimes pain and at times a total absence of it, leaving no one characteristic symptom.

Vomiting of blood, the so-called "coffee ground" vomit, has been given much importance as a diagnostic sign, but as this occurs late in the disease, and is often present in ulcer, it seems to the writer that it cannot be regarded as of great diagnostic value without corroborative evidence from the chemical and microscopical examination of the stomach contents.

The well-known cachectic appearance of the patient and the accompanying emaciation are important diagnostic signs, but as they generally appear when the disease is so far advanced that even the medical student—yes, and oftentimes the laity—can make the diagnosis, these conditions cannot be regarded as of any great value in the early recognition of carcinoma.

The presence of a tumor, along with the classical symptoms of cancer, is, of course, pathognomonic, but when they appear the disease is extremely far advanced.

*Read by invitation before the Central Valley Medical Association, Middletown, Conn.

Unless taken in conjunction with the chemical and microscopical examination, we have, then, nothing pathognomonic in all these symptoms which enables us to make an early diagnosis.

Before discussing the examination of the stomach contents, the writer wishes to say that formerly the *modus operandi* of stomach examinations was to him about as familiar as the mysteries of the *x*-ray, and for this reason the exact procedure will be given in detail for the benefit of those who have not given special attention to this line of work.

Patients are instructed to present themselves in the morning with an absolutely empty stomach, no food or drink having been taken since the night before, and, in order to test the stomach secretions, a so-called "test breakfast" is given. Several have been proposed, but the simplest and the one generally adopted is the Boas-Ewald test-breakfast, which consists of a piece of bread or roll weighing about 2 ounces and from 8 to 10 ounces of water. This is allowed to remain in the stomach for from three-quarters to one hour, when it is withdrawn by the use of the stomach tube, the gastric contents being siphoned out, the so-called "expression method." The writer has never found it necessary to use an aspirating bulb, although it has many advocates.

Before the introduction of the tube, artificial teeth should be removed.

The technique of introducing the stomach tube is simple. The patient is seated on an ordinary chair, the physician standing behind with his left arm around the patient's neck, to control the head, leaning forward to introduce the tube. After the tube has been dipped into warm water, the patient is instructed to sit in an erect, comfortable position, and the tube is introduced into the mouth and gently pushed to the base of the tongue. As soon as it reaches this point the patient is asked to swallow, and while this is being done the tube is pushed slowly and gently downward and soon enters the stomach, which we know by a feeling of resistance and the marking on the tube. The portion of the tube outside of the mouth is then lowered and the patient is told to exert pressure on the abdominal muscles, the same as is produced in vomiting or defecation, and by this means a sufficient amount of the gastric contents is expelled through the tube into a suitable receptacle held in the physician's hand, and then the tube is quickly withdrawn.

It is very seldom necessary to introduce the fingers into the mouth, as this is disagreeable to the patient and oftentimes interferes with the introduction of the tube.

The fluid withdrawn is then tested with Congo paper, and if free hydrochloric acid is present, the Congo paper is turned blue. It is then examined for a quantitative amount of free and total hydrochloric acid, but I will not weary you with a detailed account of the various chemical tests, which can be found in all the text-books on gastric diseases.

The absence of free hydrochloric acid in the stomach contents has long been considered as an important diagnostic sign and strongly suggestive of carcinoma. Some writers have even regarded it as pathognomonic. However, free hydrochloric acid is absent in gastritis anacida, and in other diseases not related to the stomach and is present in cases of carcinoma growing on a previously existing ulcer the so called ulcus carcinomatosum.

Ewald says that "in the large majority of cases of carcinoma there is no free hydrochloric acid. This is, however, not caused by the mystic influence of the carcinoma on the production of hydrochloric acid, but simply by the accompanying catarrhal inflammation or atrophic condition of the mucous membrane. Should these conditions be absent there will be a copious secretion of hydrochloric acid."

There is, however, in all cases of carcinoma, with the exception above noted, an atrophy of the glands, so that no hydrochloric acid is secreted and the production of the gastric ferments, rennet and pepsin, diminishes with that of the hydrochloric acid.

The frequent chemical examination of the stomach contents is urged, as hydrochloric acid may be absent at one time and present at another; therefore, a single analysis should not be relied upon, as it proves nothing at all.

While it is true that the absence of free hydrochloric acid is noted in atrophic gastritis and sometimes in certain forms of kidney disease, neurasthenia and anemia, still, if taken in conjunction with other symptoms indicative of carcinoma, it is of extreme value as an aid to the diagnosis. If we rely solely on the subjective symptoms without the chemical examination, the diagnosis must certainly be delayed.

We will now consider the microscopical examination of the fasting stomach contents, and I believe that this examination is of more importance than the subjective symptoms, physical examination, or chemical tests. It not only aids us in arriving at an early diagnosis, but enables us, many times, to tell the exact situation of the neoplasm.

As before stated, the growth may be situated at the pylorus, cardia, or fundus, and the microscopical findings differ in accordance with the location of the cancer.

If the cardiac end of the stomach is affected there is difficulty in swallowing, vomiting immediately after eating, and the patient is conscious of a stoppage in the lower part of the esophagus. The obstruction may be determined by the passage of the gastric bougie, a resistance being met at about 40 cm. from the incisor teeth. So in these cases, the diagnosis is usually not difficult.

When the cancer is situated on the smaller curvature and does not affect either the pyloric or cardiac end, the subjective symptoms and the chemical analysis of the stomach contents are the same as in gastritis anacida, there being no stagnation of food and the test breakfast showing an absence or marked decrease of the gastric ferments.

Therefore, a positive and early diagnosis of this condition—carcinoma of the smaller curvature—can be made only by the repeated microscopical finding of pus and blood, providing their origin can be excluded as coming from an acute phlegmonous gastritis or purulent inflammation from other parts, such as the mouth, tonsils, bronchi, etc.

If the cancer is situated at the pyloric end of the stomach, the orifice naturally becomes narrowed and retention of food takes place. Stenosis of the pylorus may, however, be caused by other conditions, thickening of the pyloric muscle due to the cicatrix of an old ulcer, congenital hypertrophy (which is rare), pressure from without, and benign or malignant growths. However, we will discuss only the conditions found in obstruction caused by a malignant growth. If the cancer has its origin on the site of an ulcer, the chemical examination may at first show an increase of hydrochloric acid and microscopically we get sarcinæ. As the growth of the carcinoma continues, the hydrochloric acid and sarcinæ disappear, and there then takes place the formation of lactic acid. Thus the importance of repeated microscopical and chemical examinations is self-evident, as showing the transition from a benign to a malignant growth.

If the cancer is *not* the outcome of a previously

existing ulcer, chemically, there is usually an absence of free hydrochloric acid, and Uffelman's test shows the presence of lactic acid.

Microscopically, we find food remnants such as muscle fibers, starch granules, etc., and there is present the characteristic lactic acid or Oppler-Boas bacilli. These bacilli are unusually long and non-motile bacteria, with end-to-end arrangement, so that they resemble small angles. These bacilli are present only when lactic acid can be discovered chemically, and Cohnheim asserts that with stagnation and their presence we are warranted in making the diagnosis of pyloric carcinoma in 99 per cent. of the cases, the remaining 1 per cent. being gastritis gravis, or a cancer in the neighborhood of the pylorus; but as surgical interference is indicated in either case, these last two conditions need hardly be considered in the differential diagnosis.

Therefore, when the lactic acid bacilli and stagnation are found in the fasting stomach, and free hydrochloric acid is absent after a test breakfast, no time should be lost in referring the patient to the surgeon for operative treatment. The following case illustrates this:

June 27, 1905, Mr. C. H., age forty-four years, consulted me for stomach trouble which had existed for about one year. He complained of pain, especially after hard food, coming in one-half to one hour after eating; loss of appetite, frequent eructations, which he described as sour in character, appetite poor. Vomiting was not present. The bowels were constipated, alternating with diarrhea. The physical examination showed a fairly well nourished man, tongue slightly coated, heart and lungs normal. No painful pressure points, and in fact nothing abnormal could be discovered at this examination. Weight 126 pounds, which was a loss of about ten pounds in the past year. A diagnosis of gastritis acida was made, the diet was arranged, and medicinal treatment was given. I did not see the patient again for three weeks. There had been no improvement in his condition. A test meal, such as recommended by Riegel, was given in the evening, and the patient was told to present himself in the morning on a fasting stomach. The tube was passed and about 10 c.c. of fluid extracted. Its odor was offensive. Chemically, lactic acid was present, and microscopically Oppler-Boas bacilli and food remnants (meat fibers, starch granules, etc.) were found.

The stomach was then washed out and a Boas-Ewald test breakfast given. Free hydrochloric acid was absent. Total acidity, 4; rennet coagulation, 1/20; pepsin, a little less than 10 per cent.

Diagnosis: Carcinoma of the pylorus.

Immediate operation was advised. This was performed on August 3, 1905, by Dr. L. C. Sanford, at the New Haven Hospital, who reported as follows:

"An incision five inches long was made between the ensiform cartilage and the umbilicus, in the median line. The stomach was readily palpated and a pyloric tumor, about the size of an egg, detected. This was loosely covered by adherent mesentery. There was no general enlargement of the mesenteric glands, although a few glands in the immediate vicinity of the growth seemed affected. These were removed. The tumor of the stomach was isolated and drawn forward into the wound. Clamps were applied on the duodenal end of the tumor and also on the stomach, beyond the tumor. The growth was then excised. The incised end of the stomach was then sutured; the mucous membrane with continuous catgut, the submucosa and peritoneal surface with interrupted silk Lembert sutures. The end of the duodenum was then closed completely in a similar manner. The posterior surface of the stomach and the adjacent surface of the duodenum were incised to admit a Murphy button and the anastomosis was completed. A small omental flap was sutured over the parts anastomosed. The wound was closed completely.

"The patient made an uninterrupted recovery. The temperature was at no time above 99°, the pulse at no time above 90. Small quantities of water were administered by mouth twelve hours after the operation. The patient received saline injections. Soft food in small quantities was allowed on the seventh day. The button passed on the eighteenth day. The patient walked out of the hospital on the twenty-sixth day. Weight, 110 pounds."

The growth was examined by Prof. C. J. Bartlett of the Yale Medical School, who pronounced the tumor to be a Colloid Cancer.

At the present time—over two years after the operation—the patient is well and not suffering from any digestive disturbances. Weight, 146; a gain of 36 pounds.

Twelve hours after a full meal the stomach was empty, showing a regained normal motility. Lactic acid was absent; free hydrochloric acid was also absent. Total acidity, 6; rennet coagulation, 1/20; pepsin, 10 per cent.

The fact that there is no free hydrochloric acid and a decrease of rennet and pepsin shows an atrophy of the gastric glands which took place before the operation. When degeneration of these glands occur they never return.

Examination of the feces after the Schmidt test diet, disclosed nothing abnormal, although repeated microscopical examinations were made. Therefore, the small intestine is apparently performing the digestive function of the stomach.

I wish to emphasize the fact that the diagnosis of this disease can often be made early enough to at least prolong, if not to save, many lives. When there is an absence of free hydrochloric acid, with diminished gastric secretions, after a test breakfast, and the presence of stagnation and the lactic acid bacilli can be determined microscopically, we are justified in instituting operative procedures. While the absence of these bacilli may not exclude the diagnosis of pyloric cancer, their presence constitutes one of the most valuable confirmatory signs, and their detection enables us to make an early diagnosis, while if we wait for pronounced subjective symptoms the case is hopeless.

1195 Chapel Street.

WHAT IS THE FUNCTION OF THE GALL-BLADDER? AND WHY THE FOLDS OF HEISTER IN THE CYSTIC DUCT?

By M. R. BARKER, M.S., M.D.,

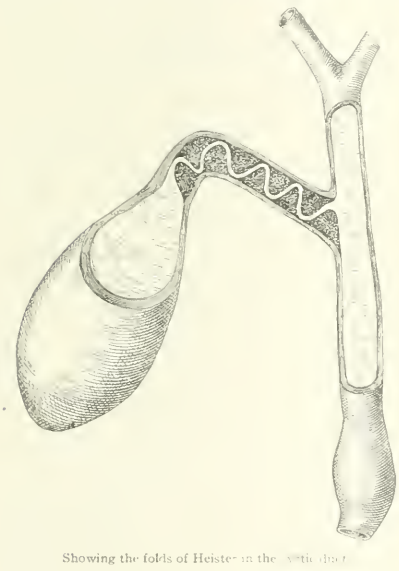
CHICAGO.

That I may answer these queries, and elucidate the subject according to my theories, I must ask the indulgence of the reader while, as briefly as possible, the case is stated and the facts and phenomena upon which it is based related.

I have repeatedly been impressed with what seemed to me to be erroneous teaching in the old and accepted theories concerning this subject, and present my views after careful deliberation, fully realizing that what may seem to me at least approximating truth may to others seem far removed

from it. I shall discuss this subject, then, not with the hope that our theories may prevail, if untrue, but that truth may prevail, as a result of more extended thought and discussion of these questions.

The human system as a complex organism is formed by the uniting together in one structure (the human body) of many systems, each of which works in harmony and for the well-being of all. Each of these different systems, forming this complex organism, is made up of different organs, each of which in turn is especially adapted to the work of the system to which it belongs. Nature has not placed in any of these various systems a useless organ. If by any change in the general system, to meet the ever-changing conditions and environments in which it exists, some organ in any given system becomes useless, it is gradually cast off as a worthless appendage. Every organ, then, in our physical system must be regarded as in some degree useful to the system, and working in harmony with it, until proved to the contrary by the evident decline manifest in it and the gradual elimination of it from the system.



Showing the folds of Heister in the cystic duct.

The gall-bladder has existed as long as humankind have lived, no evidences of decline are conspicuous in it, neither are there evidences that it is being cast off as a useless appendage; hence it must be accorded a useful function in the system to which it belongs. The gall-bladder has been considered as a reservoir for bile, and this theory is widely accepted as true, even at the present time. But is it true? If true, would the gall-bladder be a useful organ in our economy? The gall-bladder holds an ounce, from thirty to sixty ounces of bile are secreted by the human liver daily. How long would this reservoir of an ounce supply a system, the demands of which are from thirty to sixty ounces daily? This old theory makes of the gall-bladder a menace to the system, of which it is a part, and to the general system, by providing a place in which bile may become stagnant, one of the essential factors in the formation of gallstones. Such a function of the gall-bladder is not in harmony with the system of which it is a part, nor of the general system, hence is not true.

The folds of Heister were described by the man whose name they bear, but no function was ever ascribed to them until in a paper, written by the present author two years ago. These folds have ever existed; there are no marks of failure or decline in them; they are a living, active part of our anatomy, to which it is far more reasonable to ascribe a function than to regard them as functionless. No other duct or organ in the human body is provided with such a mechanism. Do they have a function, or are they of that mysterious array of things that just happened, and because they happened once they have been happening ever since, every time a human being is born?

As is well known, the mucous membrane of the cystic duct is arranged in folds along its entire course. There are from eight to ten of these folds. Their arrangement is such that a ridge of mucous membrane on one side of the duct fits a valley on the opposite side, and these alternate throughout the length of the duct. (See the illustration.) If these folds were applied closely it would be impossible for anything to pass through the cystic duct. These folds, or valves, are known as the folds of Heister. No function has ever been ascribed to them except as above stated.

My theories regarding the function of these folds and the gall-bladder are as follows: The gall-bladder secretes a substance essential to the highest physical development and perfect working of the system, but not a substance essential to the life of the system, nor without which the system may not sustain a high degree of perfection and well-being. This secretion is mixed with bile in the gall-bladder periodically, and forced from the gall-bladder into the common duct at intervals.

The folds of Heister are controlled by the sympathetic nervous system, and are always closed tightly, thus preventing anything passing through the cystic duct, except as these folds are relaxed and the duct opened by the nervous mechanism controlling it. The action of this mechanism may be suspended temporarily by anesthesia or surgical procedures, and suspended or completely destroyed by diseased conditions. Or it may act in a sluggish and imperfect manner, in certain temperaments and under unfavorable conditions.

The needs of the system for the gall-bladder secretion act as a stimulus upon the nerve centers controlling the folds of Heister, causing them to relax, thus allowing bile to flow through the cystic duct into the gall-bladder, and there mix with its secretion, diluting it, and rendering its passage through the cystic duct into the common duct comparatively easy, this being necessary because of the feeble contractile power of the gall-bladder and the viscid nature of its secretion. When this cycle is completed the folds of Heister close and remain closed until the system again demands the secretion of the gall-bladder, when the cycle is repeated. Thus this mechanism functionates during the life of the individual, or until disturbed or destroyed by some abnormality.

Having thus briefly stated my theories, what is there to substantiate them? I do not ascribe to the sympathetic nervous system a new kind of function by thus placing it in control of the cystic duct and gall-bladder. Its control of the circulation, the peristaltic action of the intestines, the contraction and relaxation of sphincters, etc., is of the same nature, and is too well understood to admit of discussion. My theory places the biliary passages, including the gall-bladder, in the control of the same nervous system that controls the action of all the viscera of

the abdominal and pelvic cavities. Neither do I utter a new thought in proclaiming the action of the sympathetic upon the folds of Heister to be inaugurated by a nerve stimulus, which stimulus is a need of the system, for every action of the sympathetic is thus inaugurated.

It is a well-known fact, so well known that even the laity are familiar with it, that a certain class of individuals are far more liable to biliary calculi than others are. This class are of the phlegmatic temperament, which is characterized by (to quote from Appleton's Medical Dictionary) flabby muscles, want of energy in the involuntary muscles, turgescence of the tissues, small or slow reaction to psychic excitation, slightly developed passions, and little sensibility to bodily suffering. Another well-established fact is that biliary calculi never form except in stagnant bile. The above facts tend to prove the theory in this way. The folds of Heister and the gall-bladder in this class of cases are controlled by a nervous mechanism that is inadequate, feeble, and only partially responsive; hence these folds are for long periods of time only partially closed in many of these cases, allowing free access of bile through the cystic duct to the gall-bladder, thus rendering the gall-bladder a receptacle for stagnant bile, the most potent factor in the formation of gallstones. Hence we have in this class of individuals the conditions most favorable for the formation of biliary calculi, according to our theory, and the class in which gallstones are preeminently most frequent.

Courvoisier propounded a law, or first called attention to a law that holds good in 75 per cent. of cases. Surgeons who have had much experience with gall-bladder cases are familiar with this law and have verified its truth many times. The law in substance is as follows: When the common duct is obstructed by a gallstone, no diseased condition of the duct being present, the gall-bladder is empty and cannot be palpated. But when the common duct is obstructed by a tumor outside the duct, as for instance carcinoma of the head of the pancreas, the gall-bladder is full and tense, and can be palpated as a swelling beneath the liver. According to the old and widely prevailing theory that the gall-bladder is a reservoir for bile, we should, when the common duct is occluded from any cause, find the gall-bladder full of bile.

If we accept the theory that the gall-bladder is a mechanism for relieving tension in the biliary passages, we must discard the law of Courvoisier; for, according to his law, when the biliary passages are subjected to the greatest tension by reason of obstruction of the common duct by a gallstone, the gall-bladder is empty. We must also discard the folds of Heister as useless appendages, if this theory is true, because of the fact that there are eight or ten of these valves that guard the cystic duct, while the outlet of the common duct is guarded by a single valve in the papilla. Surely the folds of Heister must be useless if ten of them yield to tension before the single one in the papilla yields. But does this occur? Is it not a reasonable conclusion that the single valve in the papilla will yield to tension long before sufficient force could be accumulated to open the eight or ten valves in the cystic duct? And is it not a reasonable conclusion that nature has thus strongly protected the inlet to the gall-bladder and only slightly obstructed the outlet to the biliary passages for the purpose of preventing so far as possible the entrance of bile into the gall-bladder, except as controlled by some efficient mechanism? Courvoisier did not give a reason for the law he propounded; so far as we know, he only announced the law. With the theory as to the action of the folds of Heister, the reason for Courvoisier's law is apparent. When there is an obstruction of the common duct by a biliary calculus uncomplicated by a diseased condition in the duct, the normal action of the folds of Heister is not disturbed, and the cystic duct remains closed, excepting as it is opened at intervals for bile to mix with the viscid secretion of the gall-bladder; after this the diluted secretion is ejected into the common duct and the cystic duct is closed, the gall-bladder never becoming distended. But when the common duct is obstructed by a tumor outside the duct, for instance, carcinoma of the head of the pancreas, the diseased condition has involved either the folds of Heister or the nervous mechanism that controls them, or both, and their normal action is suspended or destroyed; then the cystic duct is open all the time and the gall-bladder becomes distended with bile and its own secretion, and is palpable as a swelling beneath the liver. I submit the above as a logical reason for Courvoisier's law.

When we do a drainage operation upon the gall-bladder and drag its fundus into the abdominal wound, and fasten it there, and then open its fundus and insert a drainage tube, through which to drain the biliary passages, what happens? The cystic duct is dragged upon and abnormally placed, and by reason of this the already enfeebled nervous mechanism controlling the folds of Heister is still further interfered with, and for a time these folds do not functionate at all, and the cystic duct is open, and bile flows through it and out through the drainage tube. The cystic duct is the channel of least resistance to the flow of bile, the common duct always being obstructed by the valve in the papilla; but, as just stated, in these cases the folds of Heister are still more disturbed by the operation and the displacement of the cystic duct. Only temporarily so, however. The stimulation of these folds and of the gall-bladder produced by the operation, clearing them of their débris, and the stimulating effect of fresh bile running through them, restore their action in from two to four weeks, when they resume their normal function, and the flow of bile ceases through the cystic duct and the opening in the gall-bladder closes.

We may put this in another way. It is a well-known fact that the opening made in the gall-bladder for the purpose of drainage will not close as long as bile is flowing constantly through it. If the common duct is closed at the papilla by a valve, and the cystic duct is not guarded by valves or any other mechanism, as has always been supposed, but is simply an open tube, why should the bile ever stop flowing through the cystic duct and through the opening of the gall-bladder when a drainage operation has been done? The conclusion is irresistible that it never would. But the facts are, in the great majority of cases the bile does stop flowing through the cystic duct and through the opening in the gall-bladder in a few days. Why? Because the duct is not a plain tube unprovided a tube provided by an efficient ner needs of the syste resumes its function as quickl these organs overcome the effects of the operation and have time to respond to its beneficial efforts.

If the above is not true, how can we account for the almost universal permanent cures in these cases following operation? If the gall-bladder becomes a receptacle for stagnant bile after the operation, as it was before, would we not have a return of the condition in a great majority of operated cases?

The microscopical examination of gallstones has in quite a large percentage of stones examined resulted in finding the bacillus of typhoid, the nucleus of the stone. So often has this occurred that it is believed that persons who have had typhoid fever are quite liable to the formation of gallstones, and that typhoid fever is one of the etiological factors in gallstone formation. According to my theory, this is a reasonable conclusion. There is no other disease that would be more likely to paralyze the nervous mechanism controlling the folds of Heister, and cause the suspension of their action temporarily, than typhoid fever. Its long debilitating course, its toxic and paralyzing effects upon the sympathetic nervous system, characterized by sluggish action of all the abdominal viscera, would leave little doubt of the suspended action of the folds of Heister during a part of the duration of this disease. Peyer's patches are swarming with the bacillus of typhoid during this disease, and many of them may readily enter the portal circulation, from which they are conveyed to the biliary passages, and, the folds of Heister being open, are carried into the gall-bladder and there become the nucleus of gallstones which may form during the disease or later.

I have stated that the bile flows into the gall-bladder at intervals, and is ejected from it after being mixed with its secretion periodically. Is there any evidence that tends to prove this statement? In forty drainage operations done by me, which I have carefully watched and studied, I have found the following characteristics regarding the flow of bile through the drainage tube more or less prominently marked in every case but two. Immediately after the operation, and for several days, the bile flows constantly through the drainage opening. In about a week the flow begins to assume more of an intermittent character, and usually at the end of the second week, or from ten to fourteen days from the time of the operation, the flow takes place at intervals, sometimes three and four hours apart. The flow now is more in the form of gushes of only a few moments' duration, and only an ounce or two of bile escapes at each gush.

From these facts I have concluded that, as the nervous mechanism controlling the folds of Heister assumes its normal action after being suspended by the diseased condition and operation, the cystic duct is opened by the relaxing of these folds periodically, and the bile flows into the gall-bladder periodically and is ejected from the gall-bladder a short time after, or while the folds of Heister are still relaxed and the cystic duct is open. I believe this is true, because we know the contractile power of the normal gall-bladder is feeble by reason of the limited amount of muscular tissue in its walls; much too feeble to force the folds of Heister when closed.

The relaxing of the folds of Heister; the flowing of bile through the open cystic duct into the gall-bladder; the mixing of the gall-bladder secretion with bile and its expulsion from the gall-bladder into [illegible] duct, and the closing again of the folds [illegible] following each other in [illegible] a in this paper a cycle. [illegible] les are repeated when the general syste[illegible] rmal condition and the biliary apparatus undisturbed by diseased conditions has not been, and possibly cannot be determined, though it is a reasonable conclusion that, if these cycles are repeated once in three or four hours, when the object of the cycle is not attained, the secretion of the gall-bladder escaping through the drainage opening instead of entering the system, they will be repeated much less frequently when their mission is accomplished, and the needs of the system are supplied. I believe the above to be true, though as yet I have discovered no evidence that tends to prove it.

I have stated that in all but two of the forty cases operated upon the flow of bile from the drainage opening has become periodical in nature from two to three weeks after the operation. In these two cases biliary fistula resulted. The discharge in these cases never became periodical, but was continuous all the time, and, after waiting two months for these fistulæ to close, without results, cholecystectomy was done, with the removal of as much as possible of the cystic duct, after which the bile was discharged through the common duct into the duodenum normally and the case terminated.

So far as I know the secretion of the gall-bladder is mucus, and, so far as I am able to judge, about two ounces are secreted by the normal gall-bladder daily. I do not know how this mucus is essential to the best wellbeing of the system, but the fact that it is only mucus does not make it less essential, for if it did not serve a useful purpose Nature would not continue to maintain it.

4625 Greenwood Avenue.

THE DIAGNOSIS OF GLANDERS IN THE HUMAN SUBJECT FROM THE VIEW-POINT OF A VETERINARIAN.*

By A. SILKMAN, D. V. S.,

NEW YORK.

The writer of these observations has been for a term of years, and is at present employed in the capacity of veterinarian by the Department of Health of the City of New York, and is attached to its Division of Contagious Diseases in the Borough of Manhattan, the scope of his duties embracing the diagnosis of suspected cases of glanders reported by veterinarians in private practice, the confirmation by diagnosis of cases positively reported, and the supervision of measures taken to prevent its spread, viz., disinfection and destruction. He has, therefore, had ample opportunity to become familiarized with glanders in the equine, and, in some instances, in the human subject, and in presenting this, a brief summary of certain of his experiences, for your consideration he is actuated by a sincere desire to promote discussion of this heretofore but little understood subject.

Glanders in the human subject is not by any means the rare disease it is generally supposed to be. I am fully persuaded that many deaths have occurred from glanders which have been incorrectly attributed to other causes, through similarity of symptoms, which have led to erroneous diagnoses.

Glanders may be divided into three forms: acute, subacute, and chronic. In this paper I shall treat of but two, acute and subacute, leaving the chronic form for future discussion in another paper.

In the acute form glanders runs a very rapid course, terminating fatally generally in from twelve to eighteen days after infection. In the subacute form the period of incubation appears longer, and the patient may remain in a condition resembling typhoid for from four to five weeks. In this form the patient may live for six or eight weeks after infection.

It is extremely difficult to diagnose glanders in its first stage. It greatly resembles typhoid fever, and when any suspicion exists the agglutination test

*Read at a meeting of the Veterinary Medicine Association of New York, February 6, 1907.

for glanders should be made, as well as the Widal test, especially in all cases of suspected typhoid where complications are present and where the Widal test has failed of reaction. After a few days lung complications almost invariably occur, which are frequently mistaken for acute lobar pneumonia. A few days later one may get articular pains on motion which resemble rheumatism. Suppurative periarthritis is a not uncommon complication. About this time may be found one or more intermuscular abscesses forming in some part of the body. These abscesses, when opened, will be found to have no true wall or enveloping membrane.

Three or four days before death pustules appear on the face, neck, and shoulders, and frequently all over the body and extremities of the patient, who generally dies before the pustules rupture. These pustules are characterized by rough, uneven ulcerations around the edge of each, and rupture will disclose the contents to be a small amount of yellowish matter. Removal of the tissue covering will discover the true farcy ulceration, a peculiar characteristic of which is that immediately prior or subsequent to death an enemic, whitish areola surrounds it: this, I believe, is a pathognomonic lesion of glanders.

Frequently the lymphatic glands are found to be involved, and often ulcerations occur in the Schneiderian membrane, accompanied by a profuse discharge a day or two prior to death. Orchitis may or may not be present. In the farcy form the glands are rarely affected.

The temperature is of value in the diagnosis of glanders in the human subject. As a rule the temperature is persistently fluctuating, uncertain, and uncontrollable.

Instances exist in which a patient has applied to a physician for treatment a week or ten days after infection. The patient presents a dejected and worn appearance; has an anemic look and a peculiar color. He states he does not feel well, and complains of lassitude, but has no definite idea of what his symptoms are. He gives no hint as to his employment in the vicinity of horses, and the practitioner on examination discovers symptoms of pneumonia and commences treatment accordingly. Or, perhaps, the physician finds an abscess forming and inaugurates treatment for sepsis, recommending the removal of the abscess. An operation discovers a peculiar abscess. This is scraped, washed with a bichloride solution, and dressed with bichloride gauze. Contrary to all expectations, the patient fails rapidly after the operation, and soon dies, the death being variously attributed to typhoid fever, typhoid pneumonia, lobar pneumonia, erysipelas, multiple abscess, or septicemia, etc.

It can be readily understood that the patient, although affected with glanders, has been treated according to the symptoms evidenced when he first presented himself for observation to the practitioner, who makes the return of death in accordance with his original diagnosis.

I have secured permission from Dr. Van Ingen, formerly House Physician of the Presbyterian Hospital, to read his exceptionally well written paper on a case, one of the first in which I was called on for observation. This will serve to illustrate a case of glanders in a human subject from the initial to final stages, exclusive of the autopsy.

Case I.—James C., aged twenty-eight, who gave his occupation as a cook, was admitted to the medical wards of the Presbyterian Hospital June 25, 1903. His family history was negative. He lived in Westchester County, New York, a district where malaria is rife, but which is otherwise healthful. His drinking water was obtained from a deep well. There had been no cases of "fever" in the vicinity. His habits were fairly good. Ten years ago he had his first attack of malaria, since which time there had been a return of "chills and fever" nearly every year of only slight severity. His last attack he thought was about four weeks ago. It lasted only a few days after beginning treatment with quinine.

Two weeks before admission to the hospital he began to suffer from malaise and apathy, which gradually increased in intensity. One week before admission he felt so miserable that he called in a physician, who found his temperature 104.5° F. During the week before he came under our observation his temperature is said to have continued between 102° and 103° F. He complained of a general feeling of soreness, and coughed a good deal, the sputa being mucopurulent, never rusty or blood-streaked. There had been no chills, no epistaxis, no vomiting. The bowels were regular. As there were abundant subcrepitant and sibilant rales over both lungs, with high fever and great prostration, he was thought to have bronchopneumonia. During the last three or four nights before admission he was delirious.

When admitted to the wards with a temperature of 105 F., pulse 112, respiration 30, he appeared to be a fairly well nourished man, prostrated, and apathetic. He looked very ill. The tongue was moist and coated with whitish fur, especially over the back part. Along its margin were four or five yellowish areas from one-fourth to one-half inch in diameter, covered with a yellowish membrane which was quite firmly adherent. At the left angle of the mouth was a similar yellowish area. These patches were slightly elevated, and there seemed to be no loss of substance. There was a good deal of congestion of the pharynx and tonsils, but no exudate was visible. The superficial lymph nodes were not enlarged. The apex impulse of the heart was in the fifth intercostal space, three and one-half inches to the left of the medium line. The heart was acting irregularly, occasionally intermitting, and a soft systolic murmur could be heard at the apex which was not transmitted. Of the two basal sounds the aortic was the louder. The pulse was rapid, irregular, full and soft, not dicrotic, and the vessel wall was moderately and diffusely thickened. Over both lungs a moderate number of subcrepitant and sibilant râles were heard. There was no appreciable dullness or change in breath sounds. The rounded edge of the spleen could just be felt at the costal arch. Over the right deltoid region was a slightly reddened area apparently due to irritation from a hypodermic injection, which soon disappeared. The right knee was considerably swollen and was held in a position of extension. It was hot, but not reddened, exquisitely tender, and measured at midpatella one-half inch more than the left. There was also considerable tenderness on deep pressure over the lower half of the right femur, but no thickening of the bone could be made out. There was no appreciable tenderness over any other bone, nor was any other joint involved. Scattered over the entire trunk was a diffuse eruption composed of small macules about the size of a pin head, lying deep in the substance of the skin. They disappeared almost completely on pressure, and there was no tendency to form large patches. Subsultus was marked. The physical examination was otherwise negative. The extremities were free from eruption. There was no stiffness or tenderness of the muscles of the neck, nor was there any coryza.

The urine was of a specific gravity of 1020, contained a heavy trace of albumin, a considerable number of hyaline and granular casts, and gave a faint indican reaction. No glucose was present. Examination of the blood on the morning after admission showed 7,900 leucocytes. No malarial plasmodia were found, and the Widal reaction was negative. The leucocytes from this time on never rose above 10,500.

During the three days after admission the temperature ran between 103.5° and 105° F., once falling to 102.7° F. The pulse was less rapid, never being above 100, and varying between 76 and 100. The patient presented more and more of the typhoidal condition. There was low, muttering delirium at night, and by day he was slightly irrational and hard to arouse. The tongue became dry, cracked, and tremulous; the abdomen was a little distended. There was a good deal of paroxysmal cough with slight mucopurulent expectoration, which did not contain tubercle bacilli. The swelling of the right knee became slowly more marked. The joint was now held in a position of semi-flexion; tenderness and heat also increased. The tenderness over the lower half of the right femur continued.

On June 29 (fifth day in hospital) the knee had considerably increased in size, and for the first time there was noticed a good deal of induration of the soft parts, with redness, about the outer and posterior aspect of the joint. An exploring needle was introduced into the joint with aseptic precautions, and about two and one-half ounces of thick, sticky, yellowish pus containing small fibrinous masses was obtained. The yellowish areas on the tongue and at the angle of the mouth had enlarged. The deep macular eruption noticed on admission had steadily faded, and appeared now only as a faint dull discoloration of the skin, over which was a very scanty fine desquamation. The temperature this afternoon reached 106° F.

Operation was advised, but owing to delay in the friends reaching the hospital it was not performed until the following evening. On the morning of the day of operation, June 30, the left wrist was swollen, red, hot, and tender; active and passive motion were intensely painful. There were no signs of lymphangitis. The patient was now transferred to the service of Dr. Hawkes, with whose permission the subsequent history is given. Incision of the knee-joint and wrist was performed by Dr. Hawkes on the evening of June 30, and a considerable amount of sticky, yellowish, thin pus, without odor, and containing large fibrin masses, was evacuated from both joints. The patient did badly after the operation. The temperature remained high for the most part, between 104° and 106° F., once reaching 106.4°, and registering 107.2° just before death. Alcohol sponging had no effect upon the temperature or pulse, which later ranged between 110 and 176.

Two days after operation the patient became semi-comatose. At times he was very delirious, but for the most part he lay in a state of semi-coma, from which he could with difficulty be aroused. The discharge from the wounds was at first thin, yellow, odorless, and rather scanty, but in forty-eight hours it had become more profuse, thick, and foul.

July 4 a deep, boggy swelling was discovered just above the right ankle. It was incised, and a small amount of thin yellowish pus was evacuated. It was not well walled off, but extended for some distance between the muscles of the anterior tibial group. A second abscess, which had appeared over the right malar region, was incised and a small amount of thin yellow pus evacuated. During the afternoon a number of reddened areas, varying in size from one-fourth to three-fourths of an inch in diameter, not well circumscribed, were noticed over the trunk, shoulders, and thighs. They were not elevated, but gave a distinct sensation of deep induration. The original deep macular eruption had entirely disappeared. The patient was now in an intensely septic condition, and comatose. Breathing was labored, rapid, and entirely through the mouth, which had become dry and covered with thick adherent mucus. Crusts had formed at the angles of the mouth and in the nostrils. No ulcers could be seen in the anterior nares.

On July 6 another deep-seated, boggy swelling appeared on the dorsum of the right forearm just above the wrist. This was incised, and a small amount of thin, reddish-yellow pus was found lying diffusely between the deeper muscles. None of these abscesses could be traced to bone. The irregular, reddened, indurated areas had now increased in number. They were slightly elevated. The next morning they presented for the first time the following characteristic appearance: Scattered over the whole body, but most numerous on the face and shoulders, were papules and pustules, from one-eighth to one-quarter of an inch in diameter, and with reddened and inflamed bases. Many of them were surrounded by whitish, firm areolæ from one-half to one inch in diameter. The pustules were of a yellowish color, and some of them were umbilicated.

With the appearance of this eruption the question of infection from glanders was inquired into, and it was found that the patient was not a cook, as he had stated on admission, but a fish dealer. He owned a horse, which he cared for himself, and which was shot by the order of the Health Department one week before the patient was admitted, because it was suffering with glanders. The patient steadily became worse, and died the following day, a picture of the most intense sepsis.

Three cultures were made from the blood during life. Those of June 27 and June 30 were both sterile. The third, taken July 5, gave a characteristic growth on potato and in milk, and morphologically proved to be a pure growth of *Bacillus mallei*.

Three cultures were made from the pus from the joints. The first, from that obtained by aspiration of the joint, is reported as showing a growth of a bacillus of unknown variety; it does not give characteristic appearance of glanders bacillus on potato and does not coagulate milk; probably a contamination. The second, from the pus obtained on incision of the joint, showed a growth of pure white colonies and some yellow colonies, the former proving to be *Staphylococcus pyogenes albus*, the latter sarcinæ. The third was made from the discharge from the joints, on July 6, and showed a very abundant and mixed growth, but no *Bacillus mallei* could be isolated.

Immediately after death a culture was made from the pus of an unbroken pustule which gave a characteristic brownish growth on potato, and rapidly coagulated milk, with formation of a yellowish growth on the surface. Morphologically the bacterium was the characteristic glanders bacillus. A pustule was also excised and sections were made which showed the presence of the *Bacillus mallei* in the substance of the pustule.

Unfortunately, an autopsy was not permitted.

Case II.—Another case of interest also treated at the Presbyterian Hospital is that of James M., an Italian, forty-three years old, who applied on No-

vember 12 for treatment, and who died on November 30, 1906. A few facts only will be stated. This man owned two horses. About six weeks before he was admitted to the hospital one of these horses died and the other became sick. Two or three weeks before he was admitted to the hospital the other horse died. He said that the doctor who had treated his horses said that they died of pneumonia. The writer examined the horses stabled where he had kept his and found two of them suffering from glanders. They were destroyed, with another which was condemned on the mallein test. When this man was admitted to the hospital he said that he had been sick for about six weeks.

The point to bring out in this case is that the Widal test was made at three different times, and each time it was negative. About twenty-four hours before death a specimen of blood was taken for the agglutination test for glanders, which Dr. Collins informed me agglutinated 1-1,000 complete. An autopsy was held by Dr. George A. Tuttle.

An intermuscular abscess was opened in the leg, from which was obtained some matter. Two guinea pigs were injected. One died in about twenty-four hours, showing a slight Strauss reaction, death probably being due to septicemia. The second pig died in about forty-eight hours, giving a good Strauss reaction.

Case III.—This is the case of Mr. W— which came under my personal observation. This man was the owner of two horses, employed to haul an ice wagon. Glanders developed in a stable where these horses were kept. I examined all the horses stabled there, quarantined a number, and held them for mallein test. The owner strenuously objected to his horses being held, claiming that they were unaffected, and that they ate as well as ever. Arguments were advanced in favor of the writer's reasons for testing his animals without convincing the owner. In my absence he signified his intention to a stableman of giving one of his horses a bolus, which he subsequently did. While removing his hand from the horse's mouth he discovered that he had been cut on the back of his thumb. The stableman advised him to bathe the wound with a disinfectant, but Mr. W— declined to do so, stating his disbelief in precautionary measures. Three days later he complained of feeling unwell. The fourth day found him no better. On the fifth day one could see he was very ill; he had a drawn, dejected appearance, and was evidently very weak.

Meanwhile, the quarantined horses had been tested, and a number, found to have been glandered, destroyed, among which were two of Mr. W—'s. On the sixth day the writer was informed that Mr. W— was at home, ill, and that his physician had diagnosed his case as one of typhoid fever. On the eighth day he was removed to a hospital, where he was examined and the disease was diagnosed as typhoid pneumonia. I called at the hospital soon afterward, inquired after the patient, and requested to be informed whether the authorities were in possession of a good history of the case. Reply was made by the doctor in charge of the patient that he was fully aware of what Mr. W— was suffering from, that the history was immaterial, and that, were he affected with glanders, he would have so diagnosed it. I differed, and reported the case to the Department of Health as a suspected case of glanders.

Three days later I again saw Mr. W—, by which time it was a pronounced case of glanders, although the doctor still claimed it was not. The next day the patient died, an autopsy was performed by Dr. G. P. Biggs, and the presence of *Bacillus mallei* was demonstrated. The following is from the notes of the autopsy:

The skin presents a large number of suppurating nodules, varying from 1 to 2 cm. in diameter. They are moderately elevated above the surface, and many of them are surrounded by a whitish anemic zone 1 to 3 cm. in width, which is said to have been hyperemic during life. Even the smallest nodules contain a thick yellowish or yellowish-red pus. Those from which the pus has escaped have a depressed center. The largest skin nodule is in the left temporal region, and is ulcerated in its central part. The nodules are mostly in the anterior and lateral aspects of extremities, trunk, neck, and head, being most abundant on trunk and head. In the left nostril a distinct suppurating nodule 3 mm. in diameter is found, while in the right nostril there are found extensive ulcerations. In the subcutaneous tissues, and not involving the overlying skin, there are also several areas of suppuration 2 to 4 cm. in diameter. The largest is found over anterior aspect of left leg and outer aspect of right leg. Soft tissue about the interior two-thirds of left clavicle is much indurated, and skin covering this region has the whitish appearance noted about many of the skin nodules. Incisions into the indurated tissue show many collections of thick yellowish pus 2 to 8 mm. in diameter. No wound of the skin is found to explain source of infection. There is a small amount of fibrinous exudate over the posterior surface of each lower lobe. The pericardium is normal. The heart is normal in size. The cavities contain a moderate amount of dark fluid blood and post mortem clots of fair size. Valves normal. Small petechia in one aortic cusp. Orifices are of normal size. Muscle normal in color, but presents foci of suppuration. Coronary arteries and aorta normal.

Lungs.—The bronchi contain a moderate amount of frothy fluid and are slightly hyperemic. Bronchial lymph nodes not enlarged. Vessels normal. Thin layer of fibrinous exudate covers the posterior surface of both lower lobes. Both lower lobes are very hyperemic and in their posterior parts consolidated to a depth of 1 to 2 cm. This appearance does not differ greatly from that of hypostatic pneumonia. There is an abscess in left lower lobe 1 to 2 cm. in diameter reaching to the surface. Consolidated parts are very hyperemic and not as firm as in lobar pneumonia. A few small foci of suppuration are found in other parts of lower lobes averaging about 2 mm. in diameter. In upper lobes and middle lobe there are scattered foci of suppuration varying from 2 to 5 mm. in diameter, the number being rather greater in upper than in lower lobes. All suppurating foci are surrounded by zones of consolidation 1 to 3 mm. in thickness. Hemorrhages are abundant in pleura over lower lobes.

The spleen is much enlarged. Soft and dark red in color, weight 9 ounces. No foci of suppuration seen. The kidneys weigh 13 ounces, are slightly enlarged. The capsules are not adherent. Surface smooth. Cortices moderately swollen. Markings indistinct. Valves normal. No nodules or foci of suppuration. The intestines were negative throughout, except for a few areas of hyperemia in ileum.

Spine.—In the dorsal region partly behind and to the left side of the aorta and spine is an area of purulent infiltration and induration of tissue extending along the spine a distance of 8 cm. Spine and aorta proper do not appear to be involved.

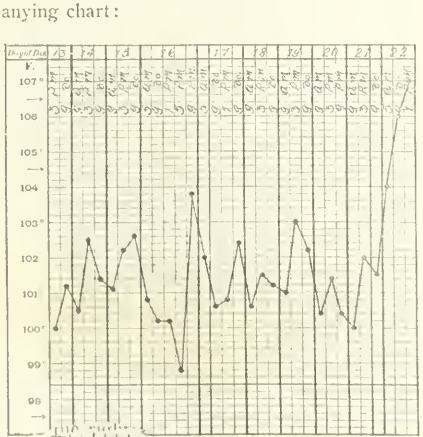
The lymph nodes of body are not found enlarged, and none of them examined contained any pus.

The tonsils and tongue are normal, and the thyroid gland is not distinct. Glanders bacilli obtained.

CASE IV.—On June 13, 1904, Stephen Sanbelia, a Russian, applied at the Gouverneur Hospital for treatment. On examination it was found that he was suffering from cellulitis of the neck. Just above the clavicle on the left side there was some swelling and an area of inflammation. On the arms and legs there were several small abscesses. On June 14 the swelling above the clavicle was examined; it was found that an abscess was forming, and it was thought advisable to perform an operation for the removal of the same. The patient was prepared and removed to the operating room, where gas and ether were administered, and taken well. An incision was made above the clavicle and pus was found. The small abscesses on the arms and legs were opened, and found to contain a pale, yellowish fluid.

After the operation the patient continued to grow worse, and many small abscesses developed upon the arms, legs, and body. There was a little discharge from the nose, which became more and more profuse. This fluid was translucid and adherent, the same characteristic discharge that we see in glanders in the horse. The wound after the operation was dressed with wet dressings of bichloride, but showed no tendency to heal. The symptoms of cellulitis subsided, but those of general sepsis appeared.

The patient was kept on light diet at regular intervals and his appetite seemed to be good; but he failed fast, and on June 22 the Health Department was asked to send some diagnosticians down to see the patient and to determine, if possible, what the man was suffering with. It was my good fortune to visit the patient in company with Dr. S. K. Johnson, who pronounced it a true case of glanders, which was afterwards borne out by the autopsy, and also by the bacteriologist. The patient died at 5:50 P.M. on June 22. It was impossible to get a good previous history of the case. After the patient died it was found that he had worked in a stable where there had been glandered horses. The course of the temperature is shown by the accompanying chart:



The autopsy was held by Dr. Otto Schultz. Skin on the forehead [illegible] one pustule; in the left cheek three pustules, and on the right cheek two pustules, 1 mm. to 1/2 cm. in diameter. The left side of neck is swollen and shows two areas three cm. in diameter, each composed of multiple pustules, and a similar area over the left clavicle of similar diameter. On the right shoulder, arm, and forearm are a number of pustules, some of which are broken through the top, ranging from a few mm. to 1½ cm. On the left forearm there is an intramuscular abscess 5 cm. in diameter. There are a few nodules on belly about 3 mm. in diameter, the same on the thighs and legs. In the right leg is a muscular abscess extending to and involving cutis 4 cm. in diameter. On the neck and over the shoulder blades and dorsal region are numerous pustules, some broken through the top, ranging in size from a few mm. to 1½ cm., the larger ones being prominent about 3 mm. above the surface of the cutis. On the thorax are abscesses as mentioned in the neck. The foci extend through the sternomastoid muscles.

The stomach shows an area of ecchymosis in the most dependant part, near cardia.

The scalp contains a number of pustules, extending down and involving the periosteum, and some 3 cm. in diameter. The inner aspect of the skull shows an intense congestion of the veins, and the same is seen over the dura. There is a flat hemorrhagic membrane over the vertex on the inner aspect of the dura on right side. The vessels of the pia are intensely congested. The velum is also intensely congested. The examination of the brain is negative, outside of intense congestion of all the points. The nasal mucosa is thickened to 3 mm. in the subfossa, and infiltrated with purulent foci. The rest of the mucosa simply shows edema and occasional purulent foci.

In the left lung at the lower margin of upper lobe several foci few mm. in diameter, surrounded by consolidation dark in color.

Bronchi contain a little frothy mucus. The posterior part of the apex of the lung is consolidated, dark in color, not granular; it also contains a cavity measuring about 3½ cm. filled with pus. The lower lobe is congested posteriorly.

The apex of the right lung has a number of slightly yellow-gravish zones, varying in size from a few mm. to 1 cm. in diameter, embracing the surface of the pleura, extending downward into the lung 1½ cm., surrounded by a zone of intense congestion. There are a few nodules in the upper part of the lower lobe.

Heart.—The left auricle contains ordinary postmortem fatty clots. The right is filled with partly clotted, partly fluid dark blood. The heart is normal in size and weight; the valves are normal; the muscle is brown and opaque.

The spleen is enlarged, weight judged to be one pound. The posterior upper part of the spleen embracing a zone 6 cm. in diameter is denser than the rest of tissue, hemorrhagic, flat on section. The liver is increased in size and weight, and judged to weigh about four pounds, intensely congested and opaque on section. The left kidney is slightly enlarged, judged to weigh 6½ oz., cortex swollen, intensely congested, and the lobes gravish white and opaque; the capsule strips readily, the surface is smooth. The right kidney is slightly larger than the left; same condition found.

Larynx.—In the pyriform fossa on the right side is a small yellowish bud 1 mm. in diameter; also one in the left pyriform fossa, and another in the epiglottis, yellowish in color and surrounded by a zone of congestion.

CASE V.—The following case of Mr. S— also came under my observation. This man was a stableman, thirty-nine years of age, employed in a stable

where glanders developed. He complained of feeling ill, and his physician diagnosed the disease as pleurisy. On his removal to the hospital a few days later the diagnosis was changed to pneumonia. About three days prior to his decease a number of pustules appeared on his face, which caused the question of erysipelas to arise. A few moments before the patient's death I managed to procure a small amount of blood with which to try the agglutination test for glanders, which up to this time had not been tried in the human subject. Dr. Collins of the Research Laboratory subsequently informed me that it agglutinated 1-2000 complete. An autopsy was held, and lesions of glanders were found. The duration of illness in this case was eighteen days.

In all cases of glanders in the human subject which have come under my observation connection has in every instance been established between the patient and some horse or horses proven to have been glandered; the only exception was one chronic case. Glanders will not localize at the point of infection. Wounds through which the subject was known to have been infected have healed, before any marked symptoms of glanders have developed, and have subsequently shown no sign of inflammation or infection.

From observations of subacute cases in the human subject, and from experiments with mallein in horses, I am led to believe that with small and repeated injections of specially prepared mallein at the initial stages of subacute cases in the human subject the disease would yield and change into a chronic form, with the possibility of ultimate recovery.

THE INCISION AND TREATMENT OF THE STUMP IN APPENDICECTOMY.*

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So many different incisions for the operation of appendicectomy have been exploited by surgeons that one would almost be ready to conclude that all are more or less unsatisfactory. A proper opening in the abdominal wall through which to remove the diseased appendix is essential to a good result, and it can be safely asserted that we have such a method of approach. Most surgeons have their favorite incision or choose one at the time of operation, its site, length, and course depending upon the exigencies of the special case in question. A surgeon may make use of a particular form or place of opening in nearly every case, and the profession dignifies it quite properly with his name. Probably every English-speaking practitioner knows exactly what is meant by the McBurney or the Morris operations.

There are numbers of other operative procedures, named after the surgeons who first described or advocated them. A review of the literature of the subject suggests to one the time when every eminent obstetrician had a special forceps called after him. There are usually good surgical reasons why the advocate of each variety prefers his own method over all others, and, accepting these reasons in good faith, a short review of the technique of some of the best known operations would tend to the determination of some route into the peritoneal cavity, combining as nearly as may be all their advantages.

Such a conclusion, if it could be reached, would lead to a much to be desired simplicity in technique, and conserve the best interest of the patient. An ideal form of incision would be one which united all the advantages and avoided all the faults of the best of the various methods in use.

The incision in appendicectomy should be so carried out, while of sufficient size to accomplish its purpose, as to injure as little as possible the structure of the belly wall, the nerves, vessels, fascia, and muscles, and to avoid any tendency to hernia. Many of these operations leave the abdominal wall weakened and give the patient a predisposition to rupture. In certain cases this cannot be prevented, but in no interval operation need it occur. Painful scar and spreading belly wall, necessitating the wearing of a permanent belt, if they follow an interval operation, are also evidences of bad abdominal surgery.

In this case as in every other operation, we should work rapidly. Tait's golden rule was to get into, and out of, the abdominal cavity quickly; a rule which he never broke except to his discomfiture. His phenomenal success before the days of antiseptic surgery was due more to this one factor than to all others, brilliant as his results were. Recovery itself may depend upon speed. Rapid convalescence and clean healing are the sequences of quick operative work. The longer the operation and the more the hemorrhage, the greater the shock, the more profound the depression, and the less the resisting power; hence the increased possibilities of infection.

From a working standpoint the following rules should guide us:

The incision should be so made that (1) the offending organ can be safely, easily, completely, and expeditiously removed; (2) the belly wall itself will receive the least possible damage; (3) the shock may be as slight as a capital operation will permit.

An incision which has the necessary advantages ought also to be one which allows for the possibility of disappointment in our expectations. The finding of pus instead of a simple subsiding or quiescent catarrhal inflammation may make drainage for a longer or shorter time obligatory.

The appendix can be reached anywhere in the right lower quadrant with a liberal incision. It is a safe conclusion that in most cases the long and extensive incisions formerly suggested are not desirable or necessary.

The choice of incision depends upon whether the appendicectomy is one of election or one of necessity, always bearing in mind that in this operation the unexpected not infrequently happens, and that it is well to choose a method, if possible, which will allow for drainage in case suppuration or gangrene is found, even when not anticipated.

Three classes of cases then will influence our decision:

1. The interval operation, so-called, the interval being hypothetical of course, as there can be no interval between two attacks if the second attack cannot take place, the appendix having been in the meantime removed.

2. The late operation; one performed after the formation of an abscess, or when there is present a spreading peritonitis.

3. The immediate operation; when in an acute inflammatory condition the question of operation is most complicated, but is apparently imperative.

In the second case there is no choice. An abscess with well defined adhesions, without regard to other considerations, must be opened widely at the lowest point in the quadrant, where it is most prominent and where drainage is easiest. The operation over the site of the abscess does not make any effort to preserve anatomical structures or to avoid injury to tissues. It is the operation of necessity.

*Read before the Practitioners' Society of East Monmouth County, N. J., June 20, 1907.

If a spreading peritonitis is made out or strongly suspected the median opening offers the best chances. The median operation only is to be used in these cases. It is too far from the appendix to reach and remove it easily, without a longer cut than is advisable. It is used otherwise when the removal of the appendix is incidental to some other operation, as in that for ovarian or other pelvic disease. In the male the abdominal walls are too rigid and thick to permit easy access to the appendix by this route. Its advantages are that no nerves or large vessels are cut, and that by it the abdomen can be rapidly and easily opened and closed.

The Fowler incision is obliquely parallel to Poupart's ligament, the middle of which intersects at right angles a line from the right anterior superior spine to the umbilicus. It divides all the structures to and through the peritoneum; it is 2½ to 3½ inches long; it gives easy access to the appendix but is very liable to be followed by hernia. It is probably the best known and most popular incision.

The French method, introduced by Roux in 1897, is similar with no particular advantage, excepting that the peritoneum is opened in the upper part of the wound at first for diagnosis, the opening being thereafter enlarged if necessary. Sonnenburg's incision is made along Poupart's ligament through all the belly wall structures. It opens close down upon the ileum, often cuts the epigastric artery, and always cuts a large branch of the circumflex and a large vein. It is said to afford the best drainage.

Morris's incision is the shortest (1 to 1½ inches long over the site of the appendix); it is oblique, terminating internally at the edge of the rectus muscle. The muscles and fascia are bluntly dissected; the transversalis fascia and peritoneum are hooked up together and divided by the scissors, which is the only cutting instrument used in the operation after the skin is incised. One catgut suture usually closes the peritoneum, transversalis fascia, and internal oblique aponeurosis. The external oblique with its own aponeurosis is united by means of one or two interrupted sutures. The fat is kept out of the way of the skin sutures, only one or at most three of which are used. This procedure means rapid union, a quick convalescence and a very slight scar, or no scar at all. This incision encounters no vessels of importance and does little or no damage to nerves. It does not provide for unexpected conditions.

McBurney's well-known method needs no description here. It leaves the abdominal wall nearly as strong as before operation, leaves no painful scar, and there is little trouble from cut vessels. It takes a considerable amount of time, and is very unsatisfactory if the conditions necessitate drainage.

Mayo modifies the operation, when drainage is called for, by adding a posterior opening for the drain and closing the wound in the abdomen tightly. This increases the time required, and in most of the cases it is found that the anterior wound becomes infected as well, so that nothing is gained but through-and-through drainage.

The Deaver incision directly through the rectus has the advantage of rapidity. Besides the trauma to the muscle this incision would appear to leave a possible weak point in the belly wall.

Howard Kelly, to whose book on the appendix I am under obligations, prefers to make two incisions when the diagnosis is uncertain. One in the semilunar line to locate the tumor, with the hand in the belly for guidance, then a second incision over the mass or laterally to it, closing the first incision before making the second. Kelly, however, uses the McBurney incision when no pus is present, *i.e.* for most interval cases, and the semilunar incision, to be described next, when an abscess is to be evacuated, and when there is necessity for extensive packing with gauze.

There are numerous other methods of more or less value. Not taking into account any operation which is done primarily with another object, the appendicectomy being merely incidental, as for instance that of Edebohls, who extends the lumbar cut made for a suspension of the kidney, around into relation with the peritoneum in front and opens the cavity to the outer side of the colon.

The semilunar incision has been advocated and adopted with some modifications by several surgeons of ability, and is known also by their names. Originally Krogius of Berlin described, in 1889, a vertical incision, which he called the Schüller incision. This was employed by Sands and Morton and other American surgeons twenty years ago. A modification of this incision was described by Battle in 1895, but had been practised by an American surgeon, Kammerer, before that time, and was advocated by him in the *Annals of Surgery* in 1897. It is a vertical incision about 2½ to 3 inches long, over the right semilunaris. The middle of it is over the appendix, the incision is first through the skin and fat down to the aponeurosis covering the rectus, which is opened the length of the skin incision, but a finger's breadth nearer to the median line. The rectus muscle is retracted toward the left and the posterior sheath and peritoneum are cut through together, avoiding the deep epigrastric vessels which are always seen. The wound when closed is in three layers of sutures not in line with one another. The rectus muscle lies between the posterior lines of sutures and thus secures a firm belly wall. If the adipose tissue of the belly wall is well developed buried sutures bring it comfortably taut. A subcuticular suture closes the wound. All ligatures and sutures are of absorbable material. The drain, if indicated, is placed at the bottom of the wound. Firm union results after its removal.

This incision has the following advantages: Through the wound the appendix is easily accessible. The other pelvic organs can be readily and quickly examined. The incision injures no nerves or vessels. It is of adequate, but not undue length. It admits of proper drainage without interfering with the ultimate result. The danger of hernia is avoided. The operation does not take a perceptibly longer time than any other short operation, hence, there is a minimum amount of shock. Convalescence is short. There is a small linear scar or none at all. It fulfills better than any other operation the rules laid down by Moynihan for abdominal incisions, viz., "To obtain clean and perfect healing and permanent strength in the wound it is necessary to have (*a*) clean, neat incisions; (*b*) an absence of teasing or fraying of the muscle edges; (*c*) protection of the lips of the wound from damage by instruments, hands, or discharges; (*d*) perfect asepsis throughout; (*e*) accurate suturing in layers, sutures of apposition and sutures of support both being used; (*f*) an absence of tension in the wound." All of these requisites are present in this operation. In over 150 cases of the writer, operated upon in the above described manner, some of them dating back to 1898, there had been no hernia.

The treatment of the stump is a most important detail. The proper removal of the appendix is essential to the rapid recovery of the patient. Freedom from pain and from other resulting intraabdominal complications as well as from infective peritonitis depend upon the care with which this is performed.

The procedure has developed a great variety of methods. It would take much less time to name those surgeons of well-known skill who have not developed a particular method of treatment of the appendical stump than to name those who have.

The indications are so simple and the results following the careful carrying out of these indications so certain and satisfactory that it seems a pity that there should be more than one method instead of the thirty or forty in general use. I am speaking, of course, of the typical interval case where there are no, or few, and easily relieved adhesions and where the appendix is not abnormal in shape, size, condition, or position to any very marked extent. Variations can be made in the method about to be described to meet almost any of these contingencies.

The first indication is speed. The second is to do little damage to the tissues about the appendix. The third is to remove or destroy all infectious material. The fourth is to leave behind no foreign body, or material acting as such.

The first is a general rule and is to be applied to the operation as a whole as well as to the detail under consideration. A rapid and certain method of treatment will shorten the time required and thus favorably influence the fate of the patient. Inversion of the stump or the whole of the appendix takes time, and often a good deal of time; it violates the second indication by increasing the necessary trauma to the neighboring tissues.

As has been ably demonstrated repeatedly, the stump is often inverted only into the wall of the cecum, not into its cavity. In this situation it acts like a foreign body and interferes with the local blood and nerve supply, causing symptoms which long afterward may be troublesome and misleading. Persistent pain is one of the results often following this method of treatment. The bad position of the stump constricts and presses upon the anatomical structures so that they easily become a good culture medium for whatever bacteria may be present. I have no doubt that this condition is a most frequent cause of localized infection and fecal fistula. No time should be lost in intricate and tedious sewing of flaps or collars over the amputated stump, neither should an extra series of sutures or ligatures or scarifications be employed. They are unnecessary and take up time. Temporary followed by permanent ligatures have the same objection.

The third indication is certainly not fulfilled if any part of the infected mucous coat is left behind undestroyed. Pure carbolic acid is efficient only to the depth in those tissues to which it readily reaches. In certain cases this may be sufficient. Thorough destruction of all the mucous membrane left behind is the only certain security, and this can be accomplished readily and quickly by the actual cautery.

All non-absorbable suture materials left behind are foreign bodies and act very offensively as such at times. Absorbable sutures act in a like manner until absorption occurs, therefore those sutures and ligatures which remain only just long enough to accomplish the purpose of their insertion are better than those which remain for a longer time than is absolutely necessary. Twenty-four to forty-eight hours is the time usually given for peritoneal adhesions to form fairly firmly. A properly prepared three-day No. 1 catgut is sufficient for ligatures to the stump and the appendix as a rule.

The following method fulfills all the indications as called for above and avoids as nearly as may be, the usual faults in the technique:

The mesoappendix is tied off by one thread of a double ligature passed close to the base by means of an aneurysm needle, and the other thread of this ligature is tied around the appendix close to the cecal wall; a narrow artery forceps grasps the appendix a quarter of an inch away from this last ligature. After surrounding the cecum and protecting the peritoneum in the usual manner with gauze tapes wrung out dry with saline solution, the appendix is burned through rapidly with a red-hot cautery tip, burning out thoroughly the mucous membrane of the stump. The free ends of the ligatures, of which there are two, one for the stump and one for the mesoappendix, are cut off close, unless it is intended to drain. If the wound needs drainage the tips from the ligature around the stump are left long to tie the drain down to later.

The nearest piece of mesentery available is laid across the stump and pedicle. It is not necessary to secure it in place by sutures. If the neighboring serous membrane, mesentery, omentum, or small gut is allowed to fall into place by its own weight, in a few hours, almost before the patient has recovered from the anesthetic, adhesions form and the site of operation is sealed over by nature in the most secure manner. If drainage is to be instituted, a cigarette drain made of a narrow strip of gauze inside a split rubber tube is attached to the base of the appendix by means of the ligature ends which have been left long for this purpose; one of them is threaded into a needle and by this the catgut is carried through one end of the drain, which is tied down to the appendix stump and the free end brought out of the lower part of the wound. The ligature tie is cut off close to the stump and the wound closed in the way described above. At the end of from 48 to 72 hours a little jerk of the drain pulls it off from the disintegrated catgut. The drainage by this time has done its work and the sinus is treated in the usual manner until it fills up. During the operation no washing is done to, nor are solutions used in, the wound or in the abdominal cavity. A very little gentle wiping away of any purulent foci or surfaces is allowed. As little violence as possible is to be done to the peritoneal surfaces. A colleague and myself at St. Vincent's and Bellevue hospitals have treated our appendical stumps after this method for the last seven years, to the complete satisfaction of both patient and surgeon.

46 West Fifty-fifth Street

A NOTE ON THE SENSIBILITY OF THE HUMAN VISCERAL PERITONEUM.

By EDWIN BEER, M.D.,

NEW YORK

VISITING SURGEON TO SYDENHAM HOSPITAL; ASSISTANT TO BELLEVUE HOSPITAL AND THE MONTEFIORE HOME

A few months ago Drs. Meltzer and Kast presented to the Academy of Medicine of New York City the results of experimental work on the peritoneal sensibility of animals. Their work pointed to the conclusion that the visceral peritoneum was sensitive, and that the observations made under local anesthesia by many surgeons and published by Lennander and others would probably have to be revised.

I am writing this short note at the request of one of the above gentlemen, and shall confine myself to furnishing further evidence of the insensibility of the human visceral peritoneum covering the intestines to touch and to pressure, or to pain as the result of these. I shall not analyze the above-mentioned report, as I have no copy of it at hand, nor is it necessary to call detailed attention to what may have

been sources of error in the experimental work and the deductions drawn therefrom—*e.g.*, the relatively large dose of cocaine used (out of all proportion to the relative amount of nerve tissue), and the fact that what might apply to animals does not necessarily apply to man, and so on.

The observations made in the operating-room under the local cocaine anesthesia are open to the criticism that Drs. Meltzer and Kast have made. The possibility that the visceral peritoneum has been anesthetized could not be denied, though the small doses of cocaine used would make such a general action on the whole visceral peritoneum seem improbable. The proper method of elucidating this point and at the same time meeting this objection, at first blush, seems very remote. Laparotomies under salt-water infiltration would surely be of marked assistance,* though not absolutely conclusive, as simple exposure of the visceral peritoneum might produce anesthesia. Another and more practicable method is one that I have employed. This method avoids the various pitfalls and objections above referred to.

If one makes use of patients with large reducible herniæ containing intestines, herniæ naturally of long duration, one can readily study the sensibility of these parts to touch, pressure, and pain. The herniæ must be large, so that one has a goodly piece of intestine to work with; they must be reducible, so that the visceral peritoneum is in its normal condition and not changed by adhesions. Moreover, they should be reducible so that other loops may be substituted for those usually found in the sac. They must contain intestines, as these are to be experimented on. They must be of long duration, not only to permit of their large size, but to guarantee the secondary changes in the sac (parietal peritoneum), which render this membrane almost free from sensation, as surgeons have so regularly observed at operation.

I have examined nine such large reducible intestinal herniæ of 34 years, 30 years, 25 years, 20 years, 30 years, 8 years, 20 years, etc., duration, and the results of these experiments are in perfect accord with the observations I have made in the operating-room under local anesthesia. Severe pressure on the hernial contents causes practically no pain, either at the time of squeezing or at any time within the next twenty-four hours. Locally the patient may feel a slight sense of pressure, which he regularly refers to the pinching of the skin. There is never any sensation in remoter parts of the abdominal cavity. All my observations up to date bear out the contention of Lennander and others—that the peritoneum covering the intestine is insensible to touch or pressure, or to pain as the result of these. That this pressure is an adequate stimulus is proven very readily by gently introducing the examining finger within the inner ring and squeezing the intra-abdominal parietal peritoneum above and to the outer side of the neck of the sac. Such pressure regularly causes pain of varying intensity, and the pain is referred to the deeper parts. This again is in perfect accord with operating-room experiences, which so regularly demonstrate marked sensitiveness of the neck of the sac as well as the adjacent parietal peritoneum.

*Not long after these lines were written (May, 1907) J. F. Mitchell published reports of two laparotomies under saline anesthesia, and his observations correspond with those made in the operating room under cocaine, *i.e.* the visceral peritoneum is insensitive

116 West Fifty-eighth Street

CHRONIC PHARYNGITIS.

By R. M. NILES, M.D.,

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Simple chronic pharyngitis generally yields kindly to mild measures, once the nasal chambers are restored to a normal condition. The excessive use of tobacco, particularly cigarettes, the pernicious habit of inhaling the smoke, as well as undue indulgence in distilled liquors, tend to aggravate the condition, and may act as direct etiological factors.

Atrophic pharyngitis, as its name implies, is accompanied by loss of tissue from atrophy with thinning of the mucosa, hyponutrition, and defective secretion.

Simple pharyngitis may be, and often is, accompanied by swelling and hyperplasia. In both there is a disturbance in the normal blood supply, and consequently in the nourishment of the tissues involved. Perverted function is the result.

The treatment should aim to correct errors in hygiene and to prescribe constitutional remedies for existing dyscrasias. The red and yellow iodides of mercury seem, at times, to be beneficial, even in cases presenting no specific history.

Local treatment is of the greatest importance. One must eliminate the etiological factors if possible, or at least mitigate their deleterious effects, and treat the nasal disease which so often coexists with assiduity.

For cleansing purposes I have found nothing superior to my tonsillitis formula:[1]

℞ Pot. bicarb. .....ʒiv
Spt. menth. pip.
Spt. camphoræ.....aaʒss
Aq. ferv. .....q.s. ad ℥iv

This solution readily removes secretion, even when dry and crusted, exerts a mild alkaline and antiseptic action, induces a cool, cleanly sensation, and is unpleasant neither to taste nor smell. All solutions used in the nose should be warm, those in the throat are frequently more beneficial if hot. The strength of the formula given may be diminished, if desired, by the addition of water. The specific gravity of watery solutions, used in the nose, should approximate 1,020. Aqueous solutions may be lowered in Sp. gr. by adding water, or raised by the addition of glycerin or sodium chloride.

After cleansing the nares and pharynx, applications of iodine and glycerin (gr. v-xxx to ℥i), tannic acid and glycerin, resorcin, etc., may be employed. In general I believe the medicaments used are too weak, although in certain cases even very mild applications aggravate the condition. It is wise, therefore, in most cases to begin with the milder applications, gradually increasing their strength as the exigencies of the case demand.

In follicular pharyngitis I am rather fond of strong solutions of silver nitrate applied after cocainizing the pharyngeal mucosa. Strong nitrate solutions cause coagulation of albumin and a superficial destruction of diseased tissue, which is replaced by healthy membrane. The result of its action on the pharynx is similar to that obtained in the uterine cavity by curettage.

As there is an abnormal blood supply with resultant disturbance in nutritive equilibrium, measures which tend to overcome relaxed vascular walls and promote normal tissue metabolism should, and do, prove most advantageous.

[1]Tonsillitis. Medical Record, December, 1905.

Local applications of capsicum[2] act with great celerity in atonic and in ulcerated pharyngitis. In atrophic conditions improvement is naturally slower; however, results are more rapidly and satisfactorily attained, in the majority of cases, than with any other treatment the author has employed. Capsicum acts fully as well upon the pharyngeal mucosa as it does upon the mucous membrane of the nasal cavities.

Vinegar of capsicum (10 per cent. to 20 per cent.) is applied to relaxed conditions. The oleoresin (1 per cent. to 5 per cent.) in cod-liver oil[3] is preferable in atrophic and follicular cases.

Preceding the application of any strong preparation I always cocainize the surface to be treated. One should never use capsicum in a spray, but apply it with a swab, and apply no more than will adhere to the site of application.

Under the capsicum treatment nodules disappear, atrophic mucosæ become better nourished, passive congestion is relieved, and normal secretion is re-established.

427 Spruce Street.

FIBROMA MOLLUSCUM AND PENDENT TUMOR OF THE BREAST.

By C. WINFIELD PERKINS, M.D.,
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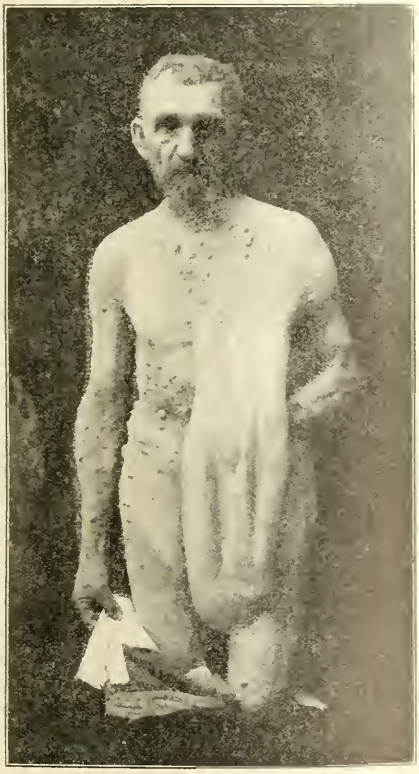
Mr. Y., 65 years old, is well nourished and in apparent good health, being capable of a hard day's manual labor. He has a complete indirect inguinal hernia on the left side, but suffers no special inconvenience from it.



The surface of his body anteriorly and posteriorly is covered with fibroid growths varying from the size of a pea to that of a hen's egg. From the left breast hangs an enormous growth, fibroid in character, weighing, as nearly as can be estimated, from 25 to 30 pounds. It is rough and nodular, and at its extremity is bluish in color; no pulsation can be detected in any part of the tumor. The man carries the growth in a bag hanging from the shoulder, and, in spite of its weight and the inconvenience it causes, he absolutely refuses to have it removed by operation.

The growth began about forty years ago, and has been increasing slowly but progressively ever since. The man attributes it to irritation from the strap of his knapsack when he was in the army during the Civil War, as it was first noticed about that time.

Anal Fissure.—The following ointment is strongly recommended and has produced many cures without other treatment: Calomel 4 grains, opium in powder 2 grains, belladonna extract 2 grains, elder flower ointment 1 dram. To be applied frequently. Another ointment for the same purpose is: Lead acetate 10 grains, zinc oxide 10 grains, prepared calamine 20 grains, benzoated lard half an ounce.—*Allingham.*

Abortive Treatment of Suppuration.—A very active means of preventing suppuration has been described by Professor Tillaux, in the *Medical Press.* After the parts are well rubbed with soap and the nail brush, a compress of several folds of gauze, moistened with ether, is placed over the seat of the inflammation, and covered with oil silk, to prevent too rapid evaporation, and fixed by a bandage. The patient is recommended to raise a corner of the dressing every hour to pour in a sufficient quantity of ether to moisten the compress. The treatment should be continued several days. The results are constant, the suppuration retrogrades, and a cure is certain to occur in less than a week.—*Medical Times and Hospital Gazette.*

Uric Acid and Diet.—F. C. Eve calls attention to the work of various prominent investigators in the line of dietetics. He considers that the apparent lack of accord in the relative injuriousness of the varieties of flesh, between analytical anticipations and clinical experience is a serious difficulty, and leads one to suspect that the real nitrogenous culprits, or all of them, have not yet been caught. He thinks that in an ordinary person, on an ordinary mixed diet, only about half of the uric acid and other purins which appear in the urine are due to the necessary wear and tear of the body, the other half being due to purins needlessly taken in in the food. It seems desirable in dieting the large class of patients who appear to have inadequate livers or kidneys to know the amount of purins in the various nitrogenous foods. There is a considerable amount of clinical and experimental evidence tending to prove that purin bodies act as tissue poisons, especially in susceptible individuals, and where the cleavage of the proteid molecule proceeds abnormally. He refers to Haig, who allows only purin-free diet, which is unattractive and mainly vegetable, and to Fletcher and Someren, who insist on a prohibitive duration of mastication, and to Chittenden, who simply limits the quantity of nitrogenous food to its lowest possible limit in healthy individuals. All three of these men have achieved wonderful results, both in health and disease. The writer thinks that a chief result of all these systems is that the quantity of nitrogenous food is diminished by an oblique method which is most useful in dealing with many patients. Another common factor of unknown potency is the subconscious effect of enthusiasm on metabolism.—*The Practitioner.*

[2] Capsicum in Rhinology. *Medical Council,* November, 1905.

[3] Local Applications of Ol. Morrhuæ in Chronic Nasal Catarrh. *Medical Council,* January, 1904.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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THE DIAGNOSTIC VALUE OF LOCAL TUBERCULIN REACTIONS.

In our Berlin letter dated June 25, 1907, mention was made of the discovery by von Pirquet, physician-in-chief to the Children's Hospital in Vienna, of the diagnostic value of tuberculin vaccinations, and since that time many experimenters in France, Italy, and Germany have tested the method with more or less confirmatory results. The test is simple in its technique and almost entirely without the unpleasant results to the subject which follow an injection of tuberculin. The skin of the thigh or of the arm is scarified as for cowpox vaccination, and on the abraded surface is placed, under antiseptic precautions, a drop of Koch's tuberculin. If the individual is free from tuberculosis, no reaction follows, but if he harbors the germs of the disease in any part a little erythematous patch will appear in from ten to fifteen hours, at the point of inoculation. This is succeeded, at the end of from twenty to thirty hours, by an edematous elevation of a pale pink color, resembling closely an urticarial wheal, and surrounded by an areola of darker hue. Often, about the end of the second day, there appear on this edematous swelling several vesicles the size of a pinhead, filled with a seropurulent fluid containing a great number of multinuclear leucocytes. In some cases there are no vesicles, but merely a pale, lemon-yellow area about the point of inoculation, itself surrounded by a red ring. The inflammatory phenomena gradually fade away, and by the sixth or eighth day there remains only a slight induration, the return to the normal color of the skin being accompanied by a slight desquamation. Von Pirquet regards the test as infallible, at least in young children, but others have not obtained the reaction in all cases of undoubted tuberculosis. Olmer and Terras, for example, obtained a positive reaction in only 20 out of 31 adult cases presenting symptoms of tuberculosis (*La Presse Médicale*, September 18, 1907); they also obtained a reaction in 3 out of 17 cases in which clinical evidences of the disease were lacking.

A modification of this cuti-reaction was suggested by Wolff-Eisner, during a discussion of v. Pirquet's method in the Berlin Medical Society (*Berliner klinische Wochenschrift*, No. 22, 1907); this was the instillation of a 1:100 solution of tuberculin into the conjunctival sac. About the same time Vallée and Calmette adopted a similar procedure—Vallée for cattle and Calmette for man. In order to avoid the irritating action of glycerin on the conjunctiva, Calmette (*La Presse Médicale*, No. 49, 1907) precipitates the tuberculin with 95 per cent. alcohol, and then dissolves it in sterile water. One drop of this solution is instilled into one eye of the person to be tested. Within from three to five hours the individual, if tuberculous, will have a marked congestion of the palpebral conjunctiva, which becomes red and edematous. The lacrymal caruncle is also swollen, red, and covered with a slight fibrinous exudate. The inflammatory reaction continues, and at the end of about six hours the fibrinous secretion has increased so as to form a number of threads in the conjunctival cul-de-sac and at the internal canthus of the eye. The reaction reaches its maximum in from six to ten hours. There is no pain, but the patients complain of a slight burning and of a blurring of vision due to the abundant exudate. All signs of the reaction have disappeared by the end of eighteen to twenty-four hours. In the nontuberculous there is no reaction whatever, or at most a slight redness, which rapidly disappears, and is unaccompanied by lacrymation or a fibrinous exudate. Calmette's first observations (25 in number) were soon followed by those of Latulle, Breton, Painblan, Petit, Comby, Dufour and Bruslé, and others in France, all of which were confirmatory of the value of the method. In Italy, Calzolari (*La Riforma Medica*, July 26, 1907) used the method in thirty-one cases, twelve of undoubted tuberculosis. The ophthalmo-reaction was positive in but three out of the twelve tuberculous persons, but was negative in all of the nineteen nontuberculous. He concluded that the absence of an ophthalmo-reaction did not negative tuberculosis, but its presence afforded positive evidence of the disease. Meille of Turin (*Rassegna di Terapia*, August, 1907) tested for the ophthalmo-reaction in eighteen cases taken at random from among the inmates of the Ospedale Evangelico of Turin. Of ten, who were evidently tuberculous or presented suspicious lesions, all gave a positive ophthalmo-reaction, with the exception of two who had long been under treatment by subcutaneous injections of tuberculin, and had reached a tolerance for large doses (from 3 to 5 milligrams). In all cases in which tuberculosis could be excluded the reaction was negative.

The results of the large number of reported experiences with this ophthalmo-diagnosis of tuberculosis would appear to demonstrate its positive value. It is certainly simple in technique, and it is difficult to see how it can be in any way dangerous if proper antiseptic precautions are observed. It has certain manifest advantages, in that it can be used in dispensary practice as well as in hospital, that the reaction is uninfluenced by the presence or absence of fever, and that it cannot possibly aggravate the general or local phenomena of tuberculosis. It is asserted to be of especial value in the early stages, when our present diagnostic methods are apt to be insufficient, but when it is of the utmost import, as regards treatment, that a positive diagnosis should be made. The method of v. Pirquet is apparently less reliable, as it is often negative in adults who are manifestly tuberculous, while, on the other hand, a positive reaction may, though rarely, occur in those who present no clinical signs of tuberculosis. It is possible that he may have found some method of improving his technique so as to make the cuti-reaction more decisive, for the cable reports that he

declared at the recent Tuberculosis Conference in Vienna that he regarded the method as an infallible means of diagnosis.

BIER'S HYPEREMIA IN ACUTE ARTICULAR RHEUMATISM.

Before Maclagan in 1874 introduced the salicylates in the treatment of acute articular rheumatism, numerous methods were in use, and the fact that they were so many vouched for their uncertainty of cure. No matter what the treatment, mild cases got well in one to two weeks, the majority in three to six weeks, and the severe cases in two to three months. We entered a new era with the use of salicylates, severe attacks and chronic stiffness were no longer so frequent, and yet this drug had its objections. When Bier, therefore, introduced his hyperemia method as a possible cure, it was certainly deserving of trial. In the *Zeitschrift für klinische Medizin*, Volume 64, 1907, E. Steinitz compares the results of one year's hyperemia treatment with one year's salicylate treatment carried out in hospital wards. He used a bandage to produce hyperemia and applied it twice a day for two to three hours, being careful not to apply it so tight as to cause edema, but sufficiently tight to cause redness and increased warmth of the part to be treated. The hyperemia mainly influenced the pain, the latter becoming less marked during the application of the bandage and for a short time after it was removed, this latter period gradually becoming longer. The power of motion was also favorably influenced early, while swelling and temperature were not influenced as early as by salicylates; in other words, the worst symptoms were influenced first. Of 75 patients treated with salicylates, 94.7 per cent. were discharged cured, 39 per cent. before the tenth day, and 65 per cent. before the twentieth day. Of 64 patients treated with hyperemia, 98.5 per cent. were discharged cured, 48 per cent. within ten days, and 80 per cent. within twenty days, but in 16 out of the 64 cases salicylates were also given because the improvement was not rapid enough by the sixth day.

When hyperemia did no good, salicylates usually cured the patient within twenty days, while the opposite was a rare occurrence. With few exceptions the Bier treatment cures pain and in the greater majority of cases as quickly as the salicylates; if relief is not obtained, no harm is done, as the case would probably also have been obstinate to salicylates if they had been used from the beginning, as shown by the fact that patients who did not respond to hyperemia usually took twenty days to be cured with salicylates. Steinitz believes that hyperemia should always be tried first, unless the patient has marked varicosities of the affected limb or objects strenuously to the mode of treatment, or unless the spine, shoulder, or hip joint, where hyperemia is produced with difficulty, is involved. When hyperemia has had little or no effect after five days' treatment, salicylates should be used, either alone or in conjunction with hyperemia; when the latter procedure is adopted, smaller doses of the drug will suffice. High temperature he holds to be no contraindication to the Bier treatment, while a severe kidney or endocardial lesion affords a contraindication to the use of the salicylates.

The Chloroform Habit.

Although the habitual misuse of chloroform for purposes of self-medication must be very rare, instances are not lacking in which this form of drug habit has been resorted to, usually with more or less serious consequences. In most cases the patients have been led to begin the inhalation of small quantities of the anesthetic in consequence of its recommendation for external use by a physician. The results in these cases have involved primarily the nervous system, and a tendency to depression and melancholia, together with other nervous disorders, have been described by several authors. In this, chloroform behaves somewhat similarly to other narcotics, such as morphine and cocaine, and some writers have accordingly recognized a distinct condition induced by the abuse of the drug, and termed by them chloroformism. An instance in which, in addition to the more purely psychical changes, an organic lesion was apparently also induced in this way, is reported by Friedländer (*Deutsche medizinische Wochenschrift*, September 12, 1907). The patient was a middle-aged woman, who for fourteen years had been in the habit of inhaling every night from a handkerchief twenty drops of a mixture of equal parts of chloroform and ether. She had been led to begin this through the fact that this mixture had been prescribed for her by a physician as an external application for rheumatic muscular pain, and had continued to use it regularly by inhalation for its hypnotic and sedative effect. While under the author's care she suffered from several apoplectic seizures, one of which ended fatally, and the discovery of the long-continued chloroform habit was made through the fact that during the stages of excitement attending her last illness even large doses of morphine and other sedatives were without effect, and on the resultant investigation the long-concealed chloroform addiction was brought to light. Inasmuch as none of the usual causes or accompaniments of cerebral hemorrhage existed in this case, and from various theoretical considerations, the author is inclined to regard the persistent and regularly repeated intoxication with the chloroform as the fundamental factor in the production of the localized cerebral endarteritis that was followed by the hemorrhage. It must be admitted, however, that the amount of chloroform taken at each inhalation seems rather small to have given rise to such far-reaching effects.

A New Diagnostic Sign in Typhoid Fever.

Elsewhere we have spoken of the value of a local reaction in the skin and conjunctiva against tuberculin as a diagnostic sign of tuberculosis, but it appears that the principle involved in this process has been found applicable in the diagnosis of typhoid fever, and it may be also in that of other infectious diseases. Chantemesse, in a note in the *Gazette Médicale de Paris* of September 15, 1907, states that he has found the method of service in the case of typhoid fever. He prepared his vaccine material by precipitating the typhoid toxin from a strong solution by means of absolute alcohol. One milligram of the powder so obtained was dissolved in fifty drops of sterile water, and in making the test one drop of this solution was instilled into the inferior conjunctival cul-de-sac of one eye. In healthy persons, or those suffering from some other disease than typhoid fever, a little redness of the conjunctiva with some lacrymation appeared in two or three hours, but disappeared at the end of four

or five hours, and the following day there was no difference to be seen in the conjunctivæ of the two eyes. In typhoid patients, or those convalescent from the disease, the reaction was much more marked. It attained its maximum in from six to twelve hours, and was still apparent the following day. The reaction was characterized by redness of the conjunctiva, lacrymation, and the production of a serofibrinous exudate. The difference in the two eyes was apparent the following day, and could usually still be detected at the end of two, or even three days. Basing his belief upon the results observed in a large number of experiments, Chantemesse ventures the opinion that this method of ophthalmo-diagnosis is devoid of danger and is of definite diagnostic import. Whether it will enable a diagnosis to be made in the very early stages of the disease he is unable to state from observation in the human subject; he obtained, however, a positive reaction in the eye of a rabbit which had received a subcutaneous injection of a typhoid culture only forty-eight hours before, while a similar instillation in the eye of a healthy rabbit was negative. If, as is probable, an ophthalmo-reaction can be elicited in other infectious diseases, and especially if it is positive in the early stages of these affections, we shall be in possession of a method of diagnosis far superior to the diazo-reaction or even to the Widal test—superior by reason both of its certainty and of its simplicity and readiness of application.

The Appendices Epiploicæ.

Riedel was among the first to call attention to the fact that these appendages of the large intestine might play a more important part in surgical pathology than was usually supposed. Even now the number of cases appearing in the literature in which disorders relative to these structures gave rise to conditions requiring operative intervention is comparatively small, but the subject is one that will no doubt gain in importance as the condition becomes better known. An instance in which a fatty appendage of this description with a twisted pedicle was found at operation on an incarcerated hernia is described by Kruger (*Münchener medizinische Wochenschrift,* September 10, 1907), who then discusses the condition in general at some length. Disease of the appendices epiploicæ has so far been observed only in middle or advanced age, and especially in persons suffering from obesity. Through twisting about the longitudinal axis, probably induced through eccentric growth, a pedicle is gradually formed, and degeneration of the distal portion takes place. As the stalk of the appendage grows thinner, and the torsion becomes more pronounced, circulatory disorders result and inflammatory adhesions of the distal portion to the parietal peritoneum, the mesentery, or intestinal loops, may form. The adherent band may give rise to intestinal strangulation, or, if no adhesions form, the distal portion of the appendage may be separated from its stalk and become a free fatty body that may give rise to attacks of pain or peritonitis. These changes may take place in one or more appendices, and the possibility of their occasional presence in femoral or inguinal hernias, especially on the left side, is easy to understand. The appendages are particularly likely to become adherent when they form a portion or the whole of the contents of a hernial sac, and in this way interfere with reduction of the hernia. The pain occasioned by the incarceration of such an appendage in the hernia is usually severe, but general abdominal symptoms are nearly always absent. Hernial complications of this sort are of good prognosis if operated on early, but several deaths have been reported as due to peritonitis originating in strangulation of the appendages.

The Roentgen-rays in Pelvimetry.

At the recent meeting of the British Medical Association some interesting observations were made in the Section on Electro-Therapeutics by J. R. Riddell on the measurement of the pelvic diameters by the *x*-ray. Several difficulties arise in the procedure from the fact that the picture is made by the shadow of the object and because the plane of the pelvic brim and the surface of the plate on which the shadow is cast are not parallel, but lie at a certain angle to each other. Finally, the plate cannot be placed close to the brim nor always at the same distance from it. Various plans of technique were presented. The most accurate is undoubtedly that devised by Contremoulins, consisting in the application of stereoradiography to the pelvic brim. The method is thus described in the *British Medical Journal* of September 14, 1907: "A radiograph is made, the tube being a little to one side of the center of the inlet. A second radiograph is made, the second plate being placed exactly in the same position as the first was, and the tube moved a little to the other side of the center of the inlet. These two radiograms are placed exactly on each other. As each picture is taken by rays emanating from different points, their outlines will not coincide. That taken with the tube to the left will lie to the right of its fellow, and *vice versa.* Round the edge of the shadow of each brim are attached a number of threads; these threads being drawn up, are made to converge and meet at the point from which the rays producing the picture emanated. It is obvious that they will exactly represent the cones of light which produced the pictures, and at the points where the cones intersect an exact reproduction of the object casting the shadows will be made by the threads. The author of the method states that in his hands the whole operation requires less than two hours. Inasmuch as it is impossible to secure that the normal ray falls perpendicularly to the plane of the inlet, this method cannot be said to be absolutely accurate."

Mikulicz's Disease and Syphilis.

The peculiar symptom complex to which this name is given consists in a symmetrical swelling of the lacrymal and salivary glands. Mikulicz himself stipulated that the lesion should be restricted to the substance of the glands themselves without any extension to the surrounding tissues, and also that there should be no coexisting lymphatic enlargements. Other authors, however, have considerably widened these limits and included cases of general lymphomatosis and pseudoleukemia. The pathogeny of the condition is still very obscure, though in some cases tuberculosis has been alleged as the underlying factor. Gutman (*Berliner klinische Wochenschrift,* September 9, 1907) augments the meager statistics of the disease by reporting a case which is particularly interesting through the close connection it appears to exhibit with syphilis. The patient, who presented the typical enlargement of the tear glands and ducts, the submaxillary and parotid glands, had been under treatment four years previously for syphilis, and two months of antiluetic treatment caused the entire subsidence of the various swellings. A year later there were no evidences of recurrence. As syphilis so seldom

affects either of the glands here involved, the rarity of a complex in which both are concerned is easy to understand if this is to be regarded as the etiological agent. In the author's case the relation between cause and effect seems pretty clearly established, and he is probably correct in his contention that this is the first reported instance in which the relationship of syphilis to the disease has been demonstrated.

Picrotoxin as a Preventive of Post-Chloroform Sickness.

In the *Lancet* for September 14, 1907, P. Paterson refers to the use of picrotoxin as a preventive of the vomiting which often follows chloroform or chloroform-ether anesthesia. The author notes the difficulty of determining the true value of any remedy under these circumstances because some patients never vomit at all, but he claims that a comparison of a series of cases in which picrotoxin has been given with a series in which it has not, shows a marked difference. This difference has been especially emphasized in those cases in which, an anesthetic having been given several times, violent vomiting was absent only when the drug named had been administered. It must be given as soon as the anesthetic is withdrawn. The author employs a 0.2 per cent. solution in sterile water and injects 20 minims (adult dose) of this solution into the subcutaneous tissues. For a child of four years 5 minims suffice. If, as rarely happens, sickness appears and lasts ten minutes, a second injection half as large as the first is given. The author is so convinced of the efficacy of picrotoxin under the conditions named that he employs it as a routine measure in all of his chloroform cases.

News of the Week.

Federal Inspection of Dairy Products.—Secretary Wilson is about to ask Congress to authorize the Department of Agriculture to inquire into and supervise the interstate commerce in dairy products, more particularly with a view to preventing the dissemination of tuberculosis and typhoid fever. A private investigation of the conditions existing in the dairy farms in the vicinity of Washington showed a condition of affairs that demanded Federal regulation, and in consequence the new project of the Department was planned.

Beef Eating in Great Britain.—The statistical returns of the British Board of Agriculture show that the amount of meat consumed per capita has practically doubled within a few years, and the proportion of meat to bread in the national dietary has greatly increased.

Yellow Fever in Cuba.—The yellow fever record in Cuba since January 1 is now the worst for several years, seventy-eight cases having been reported up to September 9, with nineteen deaths. All but two of the cases occurred since the middle of May, and during September the number of new cases has increased rapidly. The disease is now present in at least five places.

Advance of the Plague.—More than thirty deaths from bubonic plague have occurred in San Francisco, and the number of verified cases exceeds fifty. The State Board of Health has decided to appropriate $1,500 to be expended in fighting the disease, and steps have been taken to establish a quarantine barge in the bay for the purpose of inspecting and fumigating bay and river craft. Two cases are reported in Marseilles, the patients being passengers on an Italian steamer bringing a number of Syrians from Beirut.

Cholera.—The cholera epidemic in Russia is still spreading, and twelve provinces are now affected. The Volga districts are the most seriously involved, but the disease has also appeared in several places in Siberia.

Roof Garden for St. Luke's Hospital.—Plans have been filed with the Superintendent of Buildings for the addition of a new story to the mansard of the Muhlenberg pavilion of St. Luke's Hospital. The new story is to be used as a roof garden, and its cost is estimated at $20,000.

Expense of Illinois State Institutions.—According to a quarterly statement recently issued, the average per capita cost of inmates of the institutions of Illinois for the quarter ending June 30 was $42.68. The highest per capita was at the St. Charles Boys' School, which amounted to $73.45. The lowest was at the State Hospital for the Incurable Insane, Bartonville, with a per capita of $25.

Mary Putnam Jacobi Fellowship.—The committee in charge of the Mary Putnam Jacobi Fellowship Fund announces that the sum of $8,000 has already been contributed by persons interested in the success of the project. The object of the fund is to furnish aid to post-graduate women students of medicine in commemoration of Dr. Putnam-Jacobi's noble work for women. The Fellowship Fund must amount to at least $25,000, and the Women's Medical Association of New York City invites the hearty and generous cooperation of all who desire to further the higher education of medical women of the United States. The treasurer of the association is Dr. Eleanor Tomes, 136 East Thirtieth street.

Street Car Accidents.—The first report issued by the secretary of the Public Service Commission shows that during the period from August 5 to August 31 the number of street car accidents in Greater New York reached the enormous total of 5,509. The number of persons killed was 42, there were 10 cases of fracture of the skull, 10 amputations of limbs, 44 fractures of limbs, and 83 other cases of injury classified as serious. The Commission requires the traction companies to report all accidents within three days, and if they are at all serious the circumstances are investigated at once.

Medical Training and Character.—The *Lancet* says that as a school of character, it is doubtful if any better could be devised than the routine career of a medical student. It is not claimed that every medical student at the end of his five years' curriculum will be found to have become a saint. But if he has not developed manly qualities of self-restraint, courage, gentleness, and forbearance, it is not for want of opportunity of practising these virtues.

An Epitome of Life.—A physician, writing in a Parisian medical journal, gives the following summary which he offers as a definition of human life: First year, infantile complaints and vaccination; second year, teething, croup, infantile cholera, and convulsions; third year, diphtheria, whooping-cough, and bronchitis; fourth year, scarlatina and meningitis; fifth year, measles. By now half the children are dead. The others live on as follows: Seventh year, mumps; tenth year, typhoid; sixteenth year, chlorosis and spinal irritation; eighteenth year, neurasthenia; twentieth year, cephalalgia, alcoholism, and vertigo; twenty-fifth year, mar-

riage (considered, presumably, as a disease). In the twenty-sixth year, insomnia; thirtieth year, dyspepsia and nervous asthenia; thirty-fifth year, pneumonia; forty-fifth year, lumbago and failing sight; fifty-fifth year, rheumatism and baldness; sixtieth year, amnesia, loss of teeth, hardening of arteries; sixty-fifth year, apoplexy; seventieth year, amblyopia, deafness, general debility, loss of tone in the digestive organs, and gouty rheumatism. For the seventy-fifth year is given death, no doubt a consummation devoutly to be wished by anyone who has passed through this list of vicissitudes.

Small Class at McGill University.—A considerable dropping off is reported in the number of students registering in the first-year class at McGill University. It is supposed that the adoption of the five-years' course and the exaggerated reports in regard to the damage done by the disastrous fire of last spring are responsible for the diminished attendance.

Night School Training Not Sufficient.—The Missouri State Board of Health has decided that medicine cannot be adequately taught in a night school, and has announced that it will refuse to examine for a license to practise graduates of a night school recently established in St. Louis. The college has a charter from the State, and contends that its graduates should stand on the same footing as those receiving their training in schools of the ordinary variety, and will take the matter into the courts.

Bequests to Charities.—Among the bequests under the will of the late General Chas. E. Furlong, the sum of $5,000 is to be left to each of the following: Five Points House of Industry, New York City; Nursery and Child's Hospital, 571 Lexington avenue, New York City; Children's Aid Society; New York Infirmary for Women and Children; Society for the Relief of Destitute and Blind, 219 West Fourteenth street; Asylum for the Relief of Respectable Aged and Indigent Females, 226 East Twentieth street; Babies' Shelter, Day Nursery of Sisters of the Holy Communion, Protestant Episcopal Church, 243 West Twenty-second street. Day Nursery, Sisters of the Good Shepherd, 304 Mulberry street; the New York Foundling Hospital, Sixty-eighth street and Third avenue; New York Infant Asylum, Sixty-first street and Tenth avenue; St. Luke's Home for Indigent Christian Females, East Eighty-ninth street.

International Congress of Hygiene and Demography.—This congress was opened in Berlin on September 23 in the presence of the German Crown Prince and other dignitaries. Prince von Schönaich-Carolath presided, and the Minister of the Interior, Dr. von Bethmann-Hollweg, made a speech, in which he referred to the importance to humanity of the work of the Congress. Dr. Ludwig Holle, Minister of Public Intruction and Medical Affairs, also addressed the congress. Prof. Harrington of Harvard, in behalf of this country, invited the congress to meet next year in Washington. Twenty-three countries were represented by delegates, and the sessions were held for six days. Among the papers read by the American delegates were the following: Dr. Mazyck of Philadelphia on "The Etiology of Tuberculosis;" Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry at Washington, on "Legislation Concerning Foodstuffs;" Dr. Stephen E. Baruch of New York upon "Public and Factory Baths;" Dr. Hermann M. Biggs of New York on "Conquering Tuberculosis and the Care of Consumptives;" Dr. Richard Pearson Strong, Director of the Government Biological Laboratory at Manila, Philippine Islands, on "Preventive Inoculation Against Plague and Cholera;" Col. William C. Gorgas, Chief of the Sanitary Department of the Panama Canal Zone, on his "Campaign Against Yellow Fever," and Dr. Freeman of New York on "Milk Control."

New York and New England Association of Railway Surgeons.—The seventeenth annual meeting of this association will be held at the Academy of Medicine on November 14-15, 1907, under the presidency of Dr. T. H. Dana of Cortland, N. Y. Dr. Robert Dawbarn will deliver the address on surgery on November 14, and on the following day will hold a surgical clinic.

Evanston Medical Society.—At the annual meeting of the Evanston branch of the Chicago Medical Society, Dr. Sarah H. Brayton was elected to the presidency for the coming year. Dr. Ernest L. McEwen was made councillor.

National Association for the Study of Epilepsy.—The eighth annual meeting of this organization will be held at the Jefferson Hotel, Richmond, Va., October 24-25, 1907. Addresses will be given at the first session by the Governor of Virginia, the Mayor of Richmond, and the President of the Medical Association of the State of Virginia. Responses to these addresses will be made by Dr. Everett Flood, president of the association, and by Dr. William P. Spratling of the Craig Colony for Epileptics, Sonyea, N. Y. Reports from all States in this country which are now caring for epileptics will be made by the secretary. All persons interested in the study of epilepsy are invited to attend the meetings of the association. The day following the meeting in Richmond, the association will hold a session at the "Innside Inn" at Jamestown. Persons desiring to join the association should write Dr. James F. Munson, secretary-treasurer, Sonyea, N. Y., or Dr. Wm. F. Drewry, chairman executive committee, State Hospital, Petersburg, Va.

Colorado State Medical Association.—At the meeting of this organization held in Glenwood Springs on September 19, officers as follows were elected: *President*, Dr. H. C. Whitney of Denver; *Vice-Presidents*, Dr. William Marlow of Boulder, Dr. W. H. Swan of Colorado Springs, and Dr. W. W. Cook of Glenwood Springs; *Treasurer*, Dr. E. W. Miel of Denver; *Secretary*, Dr. Melville Black of Denver. Denver was selected as the next meeting place.

North Berkshire (Mass.) Medical Association.—At the annual meeting of this organization held in North Adams on September 17, officers were elected as follows: *President*, Dr. George F. Simpson; *Vice-President*, Dr. H. Bushnell; *Secretary and Treasurer*, Dr. Lyman A. Jones.

Tri-State Medical Society of Illinois, Iowa, and Missouri.—The following were elected officers at the fifteenth annual meeting of this organization held on September 18 in Moberly, Mo.: *President*, Dr. G. O. Cuppidge of Moberly; *Vice-Presidents*, Dr. J. R. Christie, Jr., Quincy, Ill., and Dr. Felix William Garcia, St. Louis; *Secretary*, Dr. J. E. Chambers, St. Louis; *Treasurer*, Dr. Emory Lanphear, St. Louis.

American Society of Sanitary and Moral Prophylaxis.—A regular meeting of this Society will be held at the Academy of Medicine on Thursday, October 10, at 8:30 P.M. The results of the work accomplished by this Society, and the outlook for the future will be the subject of the president's address, and several speakers will consider the various fields of effort of the Society.

The Department of Charities has awarded the

contract for a new ferryboat for the Department, to cost $200,000 and to be completed in two hundred working days. This will be the Department's first new boat in thirty years.

Dr. Harry C. Blankmire of Springfield, Illinois, recently resigned his position as bacteriologist for the State Board of Health.

The Pittsburg Board of Health has been appealed to by the citizens of the Thirteenth Ward of that city in order to secure relief from a plague of large snails which have appeared in great numbers and are causing much annoyance.

Obituary Notes.—Dr. William E. Emery of Surry, Me., died on September 10, at the age of forty-nine years. He was graduated from the Hampden Academy, and received his medical education from Bowdoin Medical College and the Bellevue Hospital Medical School. After practising for a time in Machiasport, he removed to Surry about twenty years ago.

Dr. Gottfried Stamm of St. Paul, Minn., died on September 15 after a long illness. He was born in the canton of Shaffhausen, Switzerland, in 1842, and was educated at the universities of Prague and Berne. He was connected with the University of Zurich for a time, and afterward returned to Shaffhausen, where he practised medicine several years. At the time of his death Dr. Stamm was Swiss consul, having held the position since 1889. His consulate included Minnesota, the Dakotas, and Wyoming. He had been a resident of St. Paul for over thirty-four years.

Dr. Vivian Daniel of Watertown, Mass., died on September 24 in Waltham after an illness of two weeks. He was born in England in 1865, but his family emigrated to Canada and later moved to East Boston. Dr. Daniel was graduated from the Harvard Medical School in 1896, and, after serving as interne in the Boston City Hospital, began practice in Watertown.

Dr. Frederick S. Adams died on September 20 in the J. Hood Wright Hospital of this city, at the age of fifty-five years. His death was the result of a tropical infection contracted during a trip to Guatemala. He was born in Virginia and was graduated from the University of Maryland. He practised for some years, but later devoted himself to chemistry.

Dr. Frederick V. L. Brokaw of St. Louis, Mo., died on September 20, at the age of seventy-three years. He was a native of New Brunswick, N. J., and was educated in Peoria, Ill. He received his medical degree from the St. Louis Medical College, and had practised in that city for over fifty years.

Dr. W. J. Carney of Melrose, Mass., died on September 23 in Hot Springs, Ark., at the age of fifty-four years. He was one of the youngest members of the Grand Army of the Republic, and had practised in Melrose about six years, having formerly resided in Manchester, N. H.

Dr. Panteleon Candidres of Williamsburg died on September 25, at the age of seventy-six years. He was born in Germany, but came to this country while a young man. He was graduated from the College of Physicians and Surgeons in 1872, and, after practising in New York for a time, removed to Brooklyn.

Dr. Rebecca Jane Ayres of Brooklyn died on September 28 after an illness of several months. She was in her fifty-sixth year and had long been a member of the staff of the Memorial Hospital for Women and Children.

Dr. Jas. F. R. Appleby of Washington, D. C., died on September 27, at the age of sixty-seven years. He was a native of Tennessee, had served in the Civil War, and was graduated from Lafayette College in 1864. He received his medical degree from Georgetown University, and had since practised in Washington.

Dr. William Hall Link of Indianapolis died on August 10, at the age of fifty-six years, after a lingering illness. He was graduated from Hanover College, and later became superintendent of Petersburg High School. He received his medical degree from the Medical College of Ohio in 1884, and, after practising in Petersburg for a number of years, he removed to Indianapolis. Dr. Link at one time was a member of the faculty of the Central College of Physicians and Surgeons, and the State College of Physicians and Surgeons, and at the time of his death was clinical professor of obstetrics in the Indiana University School of Medicine. He was a frequent contributor to medical literature, writing mainly on surgical topics.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

COMING SESSION ON EVOLUTION—THEORIES AND HYPOTHESES—AN EDUCATIONAL MEDICAL DEPARTMENT—OFFICIAL RESEARCHES AUTHORIZED—GENIUS AND ALCOHOL—THE LATE TIMOTHY HOLMES.

London, September 13, 1907.

Signs that the long vacation is drawing to a close are multiplying. Prospectuses of the schools have been freely circulated, and the journals have reprinted the pith of these in their so-called "Students'" or "Educational" issues. Many teachers who have been taking a holiday have returned, and those who are to deliver the introductory lectures are preoccupied with preparation for that important duty.

Dr. B. C. Windle, president of Queen's College, Cork, read a paper on Wednesday at the Catholic Truth Congress, at Preston, on "Scientific Facts and Scientific Hypotheses," in which he pointed out that many views, spoken of as theories, never attained a greater dignity than that of working hypotheses, and not a few perished before reaching even that pitch of acceptance. In the biological sciences, he told his audience, hardly any theory could be regarded, even in its measure, as established so firmly as to be comparable to a mathematical proposition. Taking, for example, evolution as a theory. Accepted by most men of science, he said, few of them would assert that it rested on as secure a foundation as a proposition of Euclid, or was a positive fact of science. If so, then this, like others, was only a working hypothesis, though admittedly the most fruitful of results of all hypotheses put forward by scholars belonging to the biological wing of the scientific army. But that was not the view of the compilers of the little manuals which fluttered in swarms from the popular press. It was important to take such manuals at their real value, and not at that set on them by their writers. As a recent writer had said, laymen who wished to follow the trend of modern discovery were limited for the most part to two things—either the pseudo-science of magazines, chiefly arranged for dramatic effect, or specialized technical works, written by the discoverers for their fellow workers—books in which the lay reader became hopelessly lost. Thus the world was divided between men who knew and could not tell, and those who told and could not know.

The real value of a scientific hypothesis was to be estimated by the matured opinion of genuine workers. It was foolish at the first enunciation to accept it as certainly true, or to denounce it. It should be left for a time to the criticism of scientific men, and their criticism could be very corrosive. Of recent years a school had arisen which declared that the slight, almost unnoticeable changes on which the Darwinian theory rested were utterly powerless to bring about any transformation, and that only great mutations could produce a new species. But the hypothesis of natural selection and the efficacy of small variations really lay at the bottom of the whole of the Darwinian edifice. Though supported with all the marvelous skill and all the industry and research of that truly great man, these

views were now controverted, and might possibly find their way to the scrap-heap, where the rusting wrecks of bygone theories have been cast; on which would be found, too, Darwin's beloved "Pangenesis" hypothesis, and perhaps some other of his theories. The matter was well understood by men of science, and the reason why the public had any doubt at all about it was dependence on unreliable manuals and articles, which, for effect, picked up a theory and flaunted in it the face of the public; drawing, moreover, from it deductions which were frequently unwarrantable, and almost always absent from the minds, or at least from the books, of the real originators of the main hypothesis.

This morning it is announced that the Board of Education has decided to establish a Medical Department, to advise and assist in the new duties imposed on it by the recent act in regard to the medical inspection of school children. As a first step, Dr. George Newman has been appointed Chief Medical Officer of the Board. He has been M.O.H. for Finsbury, is lecturer on public health at St. Bartholomew's Hospital, F.R.S.Edin. and D.P.H. Cantab. Dr. A. Eicholz, who has been on the inspectoral staff of the Board doing special work for the deaf, blind, epileptic and defective, will also have an appointment in the new department.

This morning it is also announced that Dr. A. E. Boycott, of the Lister Institute, has been appointed to investigate whether there are any signs of ankylostomiasis in British coal mines.

Another announcement to-day is that the local Government Board has authorized several bacteriological researches on the causes and processes of several diseases. Really, we are getting on!

Sir J. Crichton Browne, who rather likes to have his say on the topics of the day, has been writing in the *Throne* on alcohol. He says that total abstainers, like poets, are born, not made; but constitutionally are composed of very different stuff. He believes they are endowed with a high degree of viability of a low-level type. As a body, they are animated by the highest and most benevolent principles, but are sober-minded and sober-sided, comparatively exempt from the nerve tensions and strains which shorten life, altogether apart from excessive indulgence. By temperament, they probably are less susceptible to various diseases than men of more volatile organization, less likely to expose themselves to excessive wear and tear, and so on, in order to show that the emotional element is unfavorable to longevity. He quotes Madden's tables in support of this, according to which the duration of life of mathematicians is 75 years, of poets 57, moral philosophers 70, dramatists 62. Genius, he concludes, is rarely associated with total abstinence. I expect his critics will want to know how many total abstainers he can count as his intimate friends.

Timothy Holmes is dead. His funeral yesterday was attended by representatives of the profession, and the hospitals, societies, and other institutions with which he had been connected. He had retired for some years, leaving his mark on surgical science and practice, which he taught and practised with success. The five lengthy volumes of the "System of Surgery, Theoretical and Practical, in Treatises by Various Authors," which he edited, look down on me from my library shelves as I write. They are the second edition, which appeared in 1870, and at that date were authoritative as the production of the most eminent surgeons of the time. He himself contributed the articles on burns and scalds, dislocations, aneurysm, excisions, surgical diseases of childhood, surgical diagnosis, and regional surgery. But this great work was by no means all of his contributions to medical literature. He was the author of a "Treatise on Surgery," which was greatly esteemed, and of an elaborate "Treatise on the Surgical Treatment of the Diseases of Infancy and Childhood." He edited an edition of "Gray's Anatomy" and wrote a "Life of Sir Benjamin Brodie," besides papers for journals and societies.

Mr. Holmes graduated at Cambridge, B.A. 1847, M.A. 1850, and was Honorary Fellow of Pembroke College. In 1853 he became F.R.C.S.Eng. Elected on the staff of St. George's Hospital in 1861, he rose through the several offices and retired as Consulting Surgeon in 1887, having long been recognized as one of the most eminent teachers in the school. Later he accepted the office of treasurer to his hospital, and held it for some nine or ten years. He was also Surgeon to the Children's Hospital. At the College of Surgeons he filled the chair of surgery and pathology and the vice-presidency. He had also been president of the Medico Chirurgical Society and vice president of the Pathological Society. Other honors and appointments also fell to his lot.

Mr. Holmes was a medical reformer of the best type, and, by pen and voice, always ready to advocate the cause of justice to his professional brethren. He was a learned surgeon with literary taste, an acute critic and constant contributor to the press. He had somewhat failed in health, but he retained his faculties almost to the last, passing away at the ripe age of 82.

THE INTERNATIONAL CONGRESS OF PSYCHIATRY AND NEUROLOGY.

(From Our Special Correspondent.)

AMSTERDAM, September 7, 1907.

FOLLOWING the opening of the Congress, as described in a former letter, a visit was made by many of the delegates to a museum near by, in one room of which were exhibited a number of instruments of restraint, cages, cribs, and chairs, which were in use in the old-style asylums. This collection was made at the suggestion of Queen Wilhelmina, whose interest in ameliorating the condition of the insane is great.

Delegates to the number of 105 were present from the following countries: The United States of America, Belgium, Brazil, Germany, England, Scotland, Ireland, France, Italy, the Netherlands, Austria, Poland, Japan, Russia, Argentine Confederation, Bulgaria, Chile, Denmark, Spain, Greece, Roumania and Sweden. Several hundred others were listed as auditors, visitors and contributors to the success of the undertaking. As delegates of the Government the United States was represented by Henry G. Beyer of the U. S. Navy, Smith Ely Jelliffe, New York, W. W. Keen, Philadelphia, Carlos F. MacDonald, New York City, William A. White, Washington, and Mary A. Wolfe, Norristown, Pa. Hughes represented the *Alienist and Neurologist*, Jelliffe the American Neurological Association, E. E. Southard the Boston Neurological and Psychiatric Society, Ferris the New York Neurological Society, and Camp the Philadelphia Neurological Society.

At the first general meeting of all the delegates, MacDonald of New York presided, and papers were read by Bechterew of St. Petersburg on "Objective Researches in Psychic Activity," and Gaskell of Cambridge, England, on "The Evolution of the Vertebrate Central Nervous System." At the third of these general meetings, under the presidency of Mott of London, Pick of Prague read a paper on "Senile Brain Atrophy," van Gehuchten of Louvain read a paper on "The Mechanism of Reflex Movements," and MacDonald of New York read a paper on "Development of the Modern Care and Treatment of the Insane as Illustrated by the New York State Hospital System."

At the meetings of the First Section, that of Neurology and Psychiatry, among the papers presented was one by Ramón y Cajal of Madrid, on "Traumatic Degeneration of Axis-Cylinders of the Stag"; by Dupré of Paris on "Differential Diagnosis between General Paresis and other Forms of Acquired Dementia"; by Moreira and Peixoto of Brazil on "The Mental Maladies of Brazil"; by Janet of Paris, Aschaffenburg of Cologne, Jung of Zurich, and Jelgersma of Amsterdam on "New Theories on the Origin of Hysteria"; by Sollier of Brussels on hysteria; by Pick of Prague, Monakow of Zurich, and Liepman of Berlin on "Asymbolia, Apraxia, and Aphasia;" by Oppenheim of Berlin, who demonstrated a brain tumor; Claude of Paris; Ernest Jones of London; Putnam of Buffalo; Mott of London; Sterling of Warsaw, and several others.

Dr. Louise G. Robinovitch of New York illustrated her method and theory of resuscitation of victims supposedly killed by the electric industrial current, she employing a galvanic current for this purpose.

Before the Section on Psychology and Psychophysics, Sollier of Brussels and de Sarlo of Florence discussed the Lange-James theory of the emotions; Marro of Turin read a paper on "The Physiology of Puberty"; Jodd of Vienna discussed the difference between perception and idea, while Bychowsky of Warsaw and van Wayenburg of Amsterdam presented important papers.

The Section on Nursing of the Insane was especially crowded and much valuable material was presented before it also. "The Nursing of the Insane in England" was the topic of the paper of Seymour Tuke of London; "The Reform of Nursing for the Insane in the United States," by Cowles of Boston, was read by Blumer of Providence; and the whole subject of the duties and rights of the nurses was discussed. Morel, Commissioner in Lunacy of Belgium, and van Hamel of Amsterdam debated upon the care of the insane criminal, while Claye Shaw of London read a paper on "The Analysis of the Mental Process in Criminal Acts"; A. Marie of Paris a paper on "Traumatism in Mental Alienation," and an ex-

tended discussion of the theme "Organization of Hospitals for the Insane and State Supervision" was opened by Ruysch of the Hague, and carried forward by Marriera of Barcelona, and others. Methods of boarding out the insane and their open-air employment were discussed by A. Marie of Paris and Meeus of Gheel. A brief but forcible review of the increase of nervous diseases and insanity was presented by William W. Ireland. The education of backward children was discussed by Ferrari of Bologna and Trüper of Jena. A communication was received from Ferrari and Frank, suggesting the inauguration of an international institute for the study of the causes and the prophylaxis of nervous and mental diseases.

The fatigue incidental to the scientific labor of the sections was relieved through the hospitality of the people of the city. On the evening of the opening day of the Congress, a reception was given to the delegates and their ladies at the mansion on the Keizergracht by a committee of eleven ladies of Amsterdam. This mansion is devoted to municipal social functions and has spacious parlors, a ballroom, and an attractive garden. On the following evening there was a reception at the Students' Club, with an entertainment which included clever shadow pictures, pleasantly burlesquing some of the delegates, well-known citizens, royalty, etc. Next came an excursion by steamer to Zaandam, with a visit to the house where Czar Peter the Great resided during his study of Dutch shipbuilding. On one evening the delegates and visitors enjoyed a performance at the Municipal Theater, wherein works of old Dutch masters were presented as living pictures, with a comic operetta representing Dutch rural life, and the rendition of old Holland folk-songs by a large chorus of peasant girls in native costume. Special dinners were spread at the instance of various hostesses and receptions were held by the Burgomaster and Mrs. Van Leeuwen, and by Dr. and Mrs. Tilanus.

To-day the round of gaiety and the strenuous scientific program come to an end. The sections having finished their work yesterday, the time was devoted to an excursion to Leyden, to the Hague, and to Scheveningen, and visits to the hospitals for the insane, Endegeest and Rhijngeest.

JUDICIAL DISPOSAL OF THE INSANE.

To the Editor of the Medical Record:

Sir:—Permit me to say a word regarding a paper read by Dr. R. B. Lamb of Matteawan before the Medical Society of the State of New York (*New York State Journal of Medicine*, August, 1907). The caption of the paper was "The Criminal Lunatic—His Status and Disposition." Members of the medical profession, especially those "who may be qualified examiners in lunacy or lunacy commissions, appointed by the courts" for whose enlightenment he says the information was specially intended, will doubtless feel grateful to Dr. Lamb for furnishing data easily accessible to professional or non-professional men interested in insane statistics. Special attention is directed to the injustice of the system prevailing previous to 1890, before which date the unconvicted insane were associated with the insane criminals in one building. In doing this he uses but thinly veiled the language and arguments employed in the annual report of the State Commissioner in Lunacy of 1889. Though he does not claim originality, so far as this feature of his address is concerned, he appears by implication to stand sponsor for it, as if he had in a certain sense been contributing to the removal of the abuses complained of. This, of course, would be misleading and totally at variance with actual facts.

In the report mentioned (pp. 44, 45, and 46) the commissioner directed special attention to the manifest injustice of associating the unconvicted with insane convicts of our state prisons; that those persons, whom a presumed innocence should protect, were thus associated with convicts in the state asylum at Auburn, especially created for the convict insane. "This association of convicts with the unconvicted seems unfortunate, and in the opinion of the commissioner calls for a remedy. To patients who may recover, it is a source of much mortification to feel that they had been in an institution for the criminal classes, and to the friends of inmates as well it is a humiliation to know that their relatives are detained in an insane asylum for convicts."

"There were present in this asylum for insane criminals at Auburn, September 30, 1888, sixty-seven men and seven women who had never been brought to trial; also eleven men and two women acquitted on the ground of insanity, in all eighty-seven persons." (Report, p. 64.) "The commissioner, therefore, suggests that the law providing for the new asylum for insane criminals at Matteawan be so changed that this asylum shall be called the *Matteawan State Hospital*, and the institution devoted to the care of the dangerous insane, and its management made to conform to that law governing other State institutions for the insane."

Furthermore, the commissioner showed how imperative was the need of a change and recommended a revision of the statute which permitted a commingling of the criminal insane and insane criminals. His proposed reform met with much opposition at first, but it was finally adopted, though not in its entirety. Notwithstanding all that has been accomplished in the removal of abuses, Matteawan still rests under the stigma of receiving all cases of insanity which appear in the county penitentiaries, who are under sentence for petty crimes and misdemeanors, and also those insane under sentence of death, who are committed by the order of the Governor. The institution is still under the management of the prison authorities of the State, instead of being under the same State laws governing other institutions for the insane, as it certainly should be.

In the case Dr. Lamb cites of the man condemned to death and examined by him, with the result that the sentence was commuted to imprisonment for life, the doctor's statement of the incident would lead to the inference that the law regards a person as irresponsible for crimes committed while intoxicated. The reverse of this is the case, for the judicial systems of probably all civilized countries would regard drunkenness (unless in cases of chronic alcoholism) as no palliation of the crime. It would certainly be a singular plea in law as in ethics, which would excuse one offence by the commission of another. Referring to constitutional inferiority the doctor remarks: "The mental responsibility is diminished and always in question. As a class they receive no legal consideration whatever." In rejoinder to this it may be stated that the administration of law and justice would be an impossibility if judges were to assume the functions of psychological moralists, unguided by precedents and unlimited by legal enactments; God alone can determine the degree of moral guilt of any individual charged with a crime. Human society does not punish crime because it is a sin, but for the reason that it is an offence against the social order, and to act as a deterrent in the case of others that may feel criminally disposed. Were the authorities to act upon Dr. Lamb's suggestion, relative to instituting a *de lunatico inquirendo*, in the cases of criminals and misdemeanants, we would acquire as many asylums as prisons; in fact, all or nearly all our prisons might be closed as having survived their usefulness. Adopting his recommendation and accepting his hypothesis as correct, all men guilty of crimes, or of conduct beyond the normal, might be adjudged insane.

Sanity, consistent with legal responsibility, does not imply perfection in any sense, not even in a realization of the distinction between right and wrong. Men who have but an imperfect conception of such a difference may be held equally guilty with those similarly accused, whose moral faculties have been more highly developed. It is sufficient to decide the question of legal responsibility, if the person charged with crime is aware of the character of the act and its consequences.

Relative to laymen deciding upon the sanity or insanity of individuals, Dr. Lamb has this to say: "The present system which permits consideration of lunacy cases by lay jurors proves in actual practice but little short of farcical. . . . Few men of average intelligence would undertake to pass upon a question of internal medicine, such as disease of the heart and lungs. They would show the same hesitancy in passing on mental disease were the privilege allowed them." Doubtless better results would be obtained if men were solely employed in determining such a question, who by profession and training had studied the symptoms of perverted mental and physical functions. But the doctor in attempting to establish a parallelism betwen a lay consideration of physical and mental diseases is illogical. While the physician is fully equipped and trained to detect the evidences of heart or lung trouble, in a majority of cases of mental disease he has but little advantage over the intelligent non-professional man. Mental disease may exist without displaying any symptom whatever of its presence. A postmortem examination of the brain of a lunatic conveys no intimation of the perturbed condition of his mind while living. In cases where professional alienists have been employed to determine the mental condition of persons, their differences of opinion have been often such as to bring them as a class into disrepute, and to destroy to a great extent the confidence of the public in their decisions. That harmonious relationship of man's mental, moral, and physical attributes which would constitute perfect sanity probably does not exist at all. There

are sharps and flats beyond the normal scale, which disturb the harmony of the diapason of consciousness in nearly all lives, and there is a cog loose, something misplaced, in the mental mechanism of the sanest. The line of demarkation differentiating sanity from insanity has never been clearly defined, and it is quite safe to assume never can be so defined. To cite a few famous instances, what could the professional alienist learn of the mental condition of the crazy philosopher, introduced by Dr. Johnson in his delightful story of "Rasselas, Prince of Abyssinia," unless the philosopher was led to speak of his pet delusion? Bishop Butler confessed to being tortured by crazy illusions and fancies, but it is quite certain an inquiry into his sanity would have revealed nothing to the alienist. A critical examination of a religious enthusiast, gone mad, who feels prompted, by what he supposes divine warrant, to commit a crime, would reveal nothing to the most perspicuous student of perverted mental action, if the victim of the insane delusion kept his lips sealed. Many regarded by their fellow men as among the sanest have illusions; it may be of the senses or intellect, or both, but they know them to be merely the results of misdirected function and their illusions do not affect their conduct as well behaved members of the community. The law does not, cannot, scrutinize the secrets of human consciousness, and so long as men's and women's conduct squares itself with the ordinary experience of the race, they are properly regarded as sane and responsible. And even in cases where certain eccentricities and divergencies from the normal are marked, the law does not interfere and should not interfere while those peculiarities do not endanger human life or interfere with the regulated course of human society.

With reference to sane persons charged with crime, attempting to escape the consequences of their acts by pleading insanity, Dr. Lamb has this to say: "I say to you that ten insane persons pass through the courts and are made convicts, where one sane rascal successfully interposes the plea of insanity." He advances no argument and gives no statistics to support his astounding assertion. He makes the simple, uncorroborated statement, and does it, moreover, with an insistence which assumes consent as a foregone conclusion and contradiction as out of the question. What warrant has he for saying this? None whatever, at least none which could influence the judgment of any well-poised mind. Dr. Lamb finds fault with the New York State legal definition of insanity, but suggests no better one. Doubtless a more generalized definition and one wider in its scope might be adopted, but it is questionable if this would advance the cause of justice. As it is the law authorities do not require to be psychologists or physicians to decide upon questions of mental aberrancy within the limits of the simple, legal explanation of the term. Were Dr. Lamb's recommendations to be acted upon it would (as heretofore noted) so greatly embarrass legal proceedings, at all events so far as questions of insanity are concerned, as to make the administration of law well-nigh impossible.

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Progress of Medical Science.

Boston Medical and Surgical Journal, September 19, 1907.

A Suppurating Supernumerary Ureter Opening Into the Prostatic Urethra.—A case of this very rare anomaly is reported by A. L. Chute. His patient was a man of forty-two years with an old history of urethritis and epididymitis and a recent history of backache, pain over the pubes, in the groins and perineum, and frequent nocturnal micturition. Examination showed the right kidney to be normal. Washing out the left kidney pelvis gave but temporary relief from the turbidity of the urine, which was present, and it was believed that the organ should be thoroughly drained and possibly removed. The patient refused operation and was lost sight of for eight months, when he returned with all his old symptoms in an aggravated form and additional symptoms suggesting sepsis. Later operation revealed a normal ureter on the left side, while behind the bladder to the inside of the normal ureter and very closely bound to it by adhesions at the point where the normal ureter joined the bladder there was a thick-walled tube which appeared like a bit of small intestine without any peritoneal coat. This tube ran along on the bladder, then rose, becoming much convoluted, out of the pelvis, and extended upward, parallel to the normal ureter and inside of it. It was full of foul pus and was cut close behind the bladder, while after removal of a section of it the upper end was brought out of the upper angle of the incision (extraperitoneal) and fixed to the skin. Later the left kidney was removed and the patient finally recovered. The author finds that unilateral duplication of a ureter is a fairly common anomaly, while an abnormal opening of the lower end (as in the present case) is rarer and of greater surgical interest. The abnormalities are all referable to the very complicated shifting which occurs when the Wolffian duct and the developing ureter cease to enter the allantois by a common opening. Such a case as the one recorded, with the lower opening of the ureter in the prostatic urethra, give no symptoms unless infected. Infection of a badly drained ureter quickly involves the kidney, and hence the local signs and symptoms all point to an involvement of this organ. Summarized histories are given of several similar cases. The condition is one the possibility of which should always be considered by the surgeon when he is confronted with a case of atypical urinary suppuration.

New York Medical Journal, September 21, 1907.

Advantages and Limitations of the X-ray in the Treatment of Surgical Tuberculosis.—H. K. Pancoast contributes a lengthy article on this subject. He declares that while there is no proof that the *x*-ray has any direct effect upon the *Bacilli tuberculosis,* there is abundant evidence of the value of the ray in modifying and treating tuberculous lesions. The local tissue modifications as observed in lupus cases under ray treatment are described in full. The term "cure" as applied to these cases has an elastic significance. Some cases are cured spontaneously. Judicious application of radiotherapy to tuberculosis or any other disease calls for the observance of certain cardinal principles enumerated as follows: (1) A reaction of the tissues of the body to the *x*-ray is manifest in those tissues only in which the rays are absorbed. By the use of the proper tube, together with correct manipulation of the apparatus, the degree of penetration of the greater number of the rays generated may be determined and controlled to a great extent. (2) The first effect of radiation upon normal tissues is stimulation, followed by irritation, inflammation, and finally by cellular destruction. (3) The applications should be so administered as to secure that reaction which is necessary or most efficient in bringing about the desired results in the treatment of any disease. (4) In normal tissues the destructive effect is first manifest in those cells which are most highly specialized, as the epithelium of the glands and hair follicles of the skin, and the spermatogenic cells of the testicle. (5) In diseased structures it is first manifest, usually, in those cells which are distinctly pathological and of a lower vitality than the normal tissue cells. In treating certain lesions, such as those of tuberculosis, more than one reaction is often desirable. Superficially, we may go so far as to produce an inflammatory reaction in the healthy structures, but in the case of the deep lesions we must usually stop at stimulation. The exposures required for these reactions should, when possible, be destructive to diseased cells of lowered vitality. The author then passes in review the various surgical conditions in which radiotherapy has been tried and gives a fair estimate of its possibilities in the various clinical conditions. He believes that we must now recognize it as a rational and efficient means of treating many local lesions. With the possible exception of lupus, however, it is but an adjunct to other forms of treatment.

Nephroptosis.—J. Ullman gives a general description of this condition, quoting statistics as to its frequency, and discussing its various modes of production. Some cases give no symptoms. Those presenting symptoms fall into two main groups, the genitourinary and the gastrointestinal. The various symptoms of these two main classes of cases are given. Ullman gives the following rule for palpating for a movable kidney: Place the patient in a reclining position with the chest slightly elevated and the thigh drawn well upon the body. Place the left hand on the loins, while with the right hand you feel the kidney, the patient breathing deeply. Sometimes a change of posture, such as from right to left recumbency or a knee-chest position, and returning to the orignal posture, will assist in finding a nephroptosis. Certain tumors must always be thought of in palpating. There are hydrops of the gall-bladder, the "corset" liver, so-called, carcinoma of the liver or stomach, hydatid of the liver, visceral lymphosarcoma, malignant growth of the kidney itself, ovarian cysts, omental tumors, appendicitis, wandering spleen or liver, fecal impaction, and intussusception. Apart from those cases in which the kidney has become fixed in a faulty

position, a proper corset or belt will relieve the symptoms. Directions for diet are given for those cases attended with special debility. If there has been much emaciation or if the nervous symptoms are especially prominent, the patient should be given plenty of rest at the outset before more active measures are instituted. The paper closes with a lengthy bibliography.

Juvenile Paresis.—One case is reported by M. J. Karpas, whose patient was a young woman of twenty-three years of age, who probably had inherited specific disease. Her first symptoms of mental alienation began at seventeen. She first came under the author's observation in 1905. A full description of her physical and mental condition at that time is given. She remained in confinement until her death, some twenty months later. In referring to the clinical manifestations of paresis in juveniles the author notes certain atypical signs as of frequent occurrence. Thus optic atrophy is quite common. Paralytic attacks may occur and accompany the disease process and may ever be the initial symptoms. Convulsions naturally appear in the later stages of the disease. The mental picture is one of progressive dementia. Delusions may be present at the outset. Ideas of grandeur are rare, delusions of persecution are possible. Hallucinations are infrequent, depressed states are uncommon, while hypochondriasis is rare. Remissions are unusual and the course is slowly and progressively worse. The final stage is reached in about four years. Commenting on the rarity of this malady in juveniles, Karpas states that in 1902 there were but 80 juvenile paretics reported in literature.

Journal of the American Medical Association, September 28, 1907.

Hemoptysis Due to Tuberculosis.—J. M. Anders says we are apt to ascribe any early pulmonary bleeding in consumptives to congestion of the bronchial mucosa, but it is probable that minute areas of necrosis already exist when these bleedings occur. That a high grade of congestion, however, is a factor is shown by the influence of physical strain, and the heart's condition must be also considered. Patients with chronic valvulitis undoubtedly have more frequent hemorrhages. Hemorrhages from eroded vessels and miliary aneurysms are the more frequent causes of fatal results, and less frequent occurrence of pulmonary hemorrhage in advanced cases of consumption is ascribable to endarteritis, causing gradual thickening and greater resistance of the vessel walls. Undoubtedly there is in many cases an existing hemorrhagic tendency and hereditary taint is often obvious. Aggravation of the cough and muscular exertion are frequent exciting causes. Anders points out that the frequency of the symptom is very marked. His own experience does not show greater frequency in females than in males, and he says that sexual differences are not as great in this regard as has been claimed. Season has a decided influence, as shown by his table. More cases occur in the spring and summer months than in the winter. The attack does not seem to have any marked effect in reducing temperature in the majority of cases, and sometimes there may be a notable rise, due to exacerbations of tuberculous inflammation from the setting free of toxins, etc. The majority of bleedings occur after secondary infection with the streptococcus. Prophylactic measures are unduly neglected. The importance of rest and of avoidance of stimulants is hardly duly appreciated. A residence away from the seacoast and a cold dry aseptic air are beneficial, as pointed out by Curtin. Among drugs, he relies mainly on opium, discontinuing it if abundant moist bubbling râles are heard over the uninvolved portion of the lung—a rare event, except in case of rupture of a miliary aneurysm. In case there should be a ruptured aneurysm, with profuse hemorrhage and danger of inundation of the uninvolved lung, cough should be encouraged rather than suppressed, and opium is contraindicated.

Systemic Blastomycosis and Coccidioidal Granuloma.—L. Hektoen gives a summarized account of the published cases and comments on their special features. It would appear that the respiratory tract was the point of entrance of the infection in many cases, and this is a suggestion of its air-borne nature. The presence of blastomycosis in the sputum in some cases also suggests a possibility of contagion in this way. The pathological lesions and the organisms are described in detail. The latter are placed in the genus *Oidium* by Ricketts. The "protozoic skin disease" of Wernicke and the coccidioidal granuloma of Ophüls are also considered and abstracts of the reported cases are given, and their characteristic features described. The organisms of both blastomycosis and this disease are evidently closely related and the disorders resemble each other in many respects clinically and anatomically, but there are certain constant and distinctive peculiarities in each: 1. The nodular lesions of coccidioidal granuloma bear a closer resemblance to the typical, specific tubercle than the nodules of blastomycosis. 2. In coccidioidal granuloma there is marked tendency to involvement of the lymph nodes, in blastomycosis slight. There is also a difference in the organisms; in blastomycosis they multiply by budding, in the other disease by endogenous sporulation. Neither forms mycelium in the animal body.

Boston's Campaign for Clean Milk.—J. O. Jordan gives a history of the campaign inaugurated by the Boston Board of Health in 1904. The initiatory step was the adoption of a standard limiting the number of bacteria in milk to 500,000 per cubic centimeter and prohibiting the sale of milk having a temperature above 50° F. The bacteriological examination also permits the detection of milk from diseased animals and following up of the infection to the dairies themselves. The contracting firms have cooperated with the Board of Health to a considerable extent by inspection of dairies, distribution of circulars of information to producers, and even by the establishment of private laboratories. The Massachusetts State Board of Health also exercises supervision over the dairies and cooperates with the local board. The result has been a great improvement in the milk supply of the city. A possible outcome of the agitation of the milk question is the centralizing of the milk supply in cities in the hands of large concerns and the present tendency is toward such a result. The education of the public as to the necessity of clean milk is, however, the matter of the greatest importance of the present time.

The Milk Supply of Washington, D. C.—G. L. Magruder gives an account of the measures taken to secure a proper milk supply in the city of Washington during the past year. The prevalence of typhoid fever had called attention to the milk supply, and an investigation by the Bureau of Public Health at the instance of the District Commissioners had revealed a deplorable state of affairs, ten per cent. of the cases of fever being directly traceable to milk infection. In September, 1906, Dr. Magruder had a conference with the Secretary of Agriculture, whose interest was aroused and an inspection of dairy farms was instituted as had been recommended by a committee of the medical society of the District as far back as 1894. Remarkable conditions were found to exist. The water supply of sixty dairy farms, taken without selection, was found unsafe in as much as twenty-five per cent.; forty-five per cent. showed the presence of the colon bacillus. The investigations have been followed up by both the Department of Agriculture and Public Health Bureau, and the result has been the organization of the District Milk Commission under the chairmanship of ex-Surgeon-General Sternberg of the army, and including in its members a number of the scientific officials of the Health Bureau and the Agricultural Department.

The Early Diagnosis of Tubal Pregnancy.—P. A. Harris says twenty-nine out of every thirty cases of ectopic pregnancy present symptoms warranting a presumptive diagnosis of the condition before it becomes alarming. He found, however, from a study of 130 cases that while ninety per cent. of the patients consulted physicians before the tragic stage was reached only about twenty per cent. of the physicians arrived at a correct presumptive diagnosis, and many of the patients were wrongly advised of threatened abortion or were subjected to curetting for metrorrhagia, the cause of which was not suspected. The general answer he has given when asked how to diagnose ectopic pregnancy is as follows: "When any woman after puberty and before the menopause, who has menstruated regularly and painlessly, goes 4, 5, 6, 8, 10, 15, or 18 days over the time at which menstruation is due, sees blood in the vagina differing in quality, color, quantity, or continuance from her usual menstrual flow, and has pains, generally severe, on one side of the pelvis or the other, or possibly in the hypogastric region, ectopic gestation may be presumed." The blood of the ectopic pregnancy hemorrhages has a peculiar slippery feel, and the pains also differ markedly from those of ordinary dysmenorrhea. The pulse and temperature, except in cases of excessive bleeding, are not likely to be affected in the non-tragic stage. The tragic stage is ushered in by severer pains, pallor, weak and rapid pulse, lowered temperature, fainting, generally vomiting and restlessness, and sometimes a lethargic condition from which the patient can be roused. The findings of the physical

examination and the differential diagnosis from abortion, salpingitis, polypus, uterine cancer, ovarian cyst with twisted pedicle, and intrauterine pregnancy with metrorrhagia are detailed and six case histories are given. In his concluding remarks, Harris insists on the importance of thorough and accurate history taking in these cases, especially as to the character of earlier menstruations for a number of months preceding the symptoms. As soon as diagnosis is made, operation is indicated. In dealing with women in the non-tragic stage, the advice to them should be governed by the consideration that from one-half to two-thirds of all cases of ectopic gestation, uninfluenced by operation, eventuate in death, but that with prompt and proper operation ninety-nine per cent. of the patients ought to recover.

The Syncytium.—Laura H. Branson says the syncytial tissue is of fetal origin; it is in direct line from the ectoderm or trophoblast. The chorionic villi or parts of them, together with their epithelial covering, may circulate normally in the blood and lymphatic circulation of their host during pregnancy. The epithelial covering has the power to proliferate during the entire life cycle of the syncytium and Langhans' cells. The syncytium has a physiological function, but failing in this, its pathology may be detrimental to both fetus and host. It is the prime factor in the production of a peculiar neoplasm whose histology places it in a class by itself, viz., syncytioma malignum. Recent investigations also support the view that the syncytium is the prime cause of eclampsia; it is the one cause that can meet all claims made by recent investigations and theories. Hepatic changes are the rule, not the exception, in eclampsia. Malignant neoplasms of pregnancy have an eroding action on the uterine structures; this is the nature of the chorionic epithelium covering the villi normally. Chorionic epithelium is one of the pathological constituents of these neoplasms, and it is reasonable, therefore, to conclude that their origin is the same and that this activity continues in force in the neoplasms.

The Lancet, September 14, 1907.

The Polymastia of the Japanese.—A statistical study of this subject is made by T. Iwai, whose conclusions are as follows: (1) Among the Japanese, unlike the Western people, polymastia is generally found above the normal breasts, and most commonly on the anterior wall of the axilla, or above and external to the normal breasts along the front edge of the axilla. (2) It is likely that in many cases of polymastia the areolæ of those under the normal breasts are pigmented, and that in males they are more likely to be pigmented than they are in females. (3) According to the result of investigations made by the author and others up to the present time, the rate of polymastia is 1.68 per cent. among males and 5.19 per cent. among females. The fact that they find it more frequently in females than in males, and on the left side than on the right, exactly coincides with the results obtained in the West. (4) Six is the largest number of glands yet found on one person. (5) It is certain that polymastia is inherited and in most cases is transmitted from mothers. (6) In the perfect supernumerary mammary glands the secretory process begins at the time of parturition and sometimes it continues for over six months. The paper closes with an elaborate bibliography on the general subject of polymastia.

Spontaneous Aneurysm of the Popliteal Artery Treated by Extirpation.—The patient of H. A. Lediard was a man of fifty-four years, laborer, who three months previous to coming under observation had strained his right knee and had had, subsequently, pain in the knee and calf while at work. Two weeks before admission to hospital a swelling came on the popliteal region and grew rapidly. When seen it was pulsating, fusiform, and expansile, while both thrill and murmur were present. Incision was made six inches long over the popliteal space, the artery dissected out, ligated above and below, and the segment exsected. Some difficulty arose in separating the popliteal vein from the aneurysmal sac. The patient made a good recovery and left the hospital in about three months, able to kneel slowly without pain and to walk with only a slight limp. Three months later he was able to walk several miles without a cane and to do light work, as gardener, etc. The author refers to recent literature on the subject of aneurysms.

Actinomycosis of the Appendix.—Notes of five cases (three of them personal) are given by A. R. Short, who finds about 150 cases on record and believes that many cases have been recognized, but not published. Foreign bodies carrying the infection have been found in five instances. An analysis of 80 cases shows the disease most common between twenty and thirty years. The sex proportion is about five male to two female. Three types are described: (1) The mucous membrane may be very extensively ulcerated, forming the principal if not sole localization of the disease. (2) The wall of the appendix and cecum may be greatly thickened without perforation or extension. (3) Perforation is the usual sequence. Acute general peritonitis does not result, but abscesses form and track freely in all directions, enclosed by adhesions of very extraordinary density, more so that in any other abdominal condition. In one of the author's cases the peritoneum was half an inch thick. The author presents the grouping of symptoms arranged originally by Hinglais, viz.: (1) Initial period of visceral manifestations, vague pains in the right iliac fossa, sometimes associated with intractable diarrhea, which may be mucomembranous in type. Pain may be severe and a diagnosis of relapsing appendicitis is likely. There are no local signs. (2) Stage of fever formation. (3) Fistula formation. Abscesses burst or are opened in the neighborhood of the original site and dark fetid pus discharges. In this the granules may be found, but they are very often absent, especially if the discharge is fecal. The best time to look for them is when a new abscess is opened. This stage usually lasts for months, subphrenic or pulmonary abscesses form, and the patient dies from hectic fever and exhaustion. In some cases, however, there is— (4) A stage of cicatrization. The fistulæ close and cure results. Unhappily this is often only temporary. Diagnosis is assured only by finding the actinomyces in the stools. Prognosis is uncertain. Of a series of 71 cases, 22 were cured, 10 relieved, and 45 died. Treatment calls for the removal of all foci of infection. The cecum and neighboring bowel must be sacrificed if necessary. Mere opening of abscesses is not sufficient.

Irregularity of the Pulse in Diphtheria.—O. H. Peters claims that irregularity of the pulse in diphtheria in children is really of little special significance, being due to the great incidence of the disease in the early years of life, especially the fourth and fifth years. Children at this age, he says, commonly exhibit this symptom in any febrile disturbances and often in apparent health. The irregularity is very common indeed, it being found in over eighty per cent. of the author's cases. Comparisons of similar numbers of diphtheria and scarlet fever cases showed about the same percentage of cardiac irregularity. The irregularity is referred by various authorities to a nervous origin rather than a cardiac. There seems to be an excessive susceptibility in the inhibitory action of the vagus, and it is believed that the rhythmical stimulation of the respiratory center has a rhythmical effect on the vagus center. Peters refers to Barr's explanation *vs.* the mechanical effect of the respiratory act on the circulation. The fall in blood pressure in disease is undoubtedly the primal cause setting up the irregularity. If actual myocarditis is present an irregular pulse is of course of the gravest significance. In most diphtheria cases with irregularity the latter continues during hospital stay and the children are kept in bed week after week when they would do better if in the open air, which would certainly improve their anemia. We must first carefully assure ourselves that the irregularity is more than respiratory. The presence or absence of cardiac signs will help decide this point.

British Medical Journal, September 14, 1907.

The Treatment of Sleeping Sickness and Other Trypanosomiases by the Arsenic and Mercury Methods.—Sir R. Boyce reviews the history of clinical results with arsenic-acid anilid and declares that all authorities now unite in giving it the first rank as a trypanocide. Quite recently it has been demonstrated that even better and more lasting results than those obtained by atoxyl alone are obtained by treating injected animals from which the trypanosomes have primarily been driven out by atoxyl, by a second drug which will prevent the recurrences which so often follow the atoxyl treatment alone. The salts of the heavy metals were proven to have no marked results in this direction until the mercuric bichloride was used, whereupon a distinct benefit was immediately noted. Boyce believes that the application of a biochemical principle may prove to be of wide range in the therapeutics. Various protozoa have distinct phases in their life history and the drug which proves efficacious in the first phase or stage may prove powerless in the second, or *vice versa*. Such a sequence of remedies may not be arsenic-mercury, but this especial experience is a brilliant illustration of the principle. The mercuric salt alone has not the slightest effect upon the ordinary phase

of the trypanosome, as seen on the peripheral circulation and upon which the atoxyl has such a prompt and decided effect. This would appear to clearly demonstrate that the two drugs act upon two quite distinct phases of the life of the trypanosome.

Myelopathic Albumosuria.—One case is reported by A. L. Brown—that of a Jewish man of fifty years, complaining for about a year with pains in the hands and legs. Later all over the body. Examination showed anemia, tenderness of the ribs on percussion, intense pain on being moved, some bronchitis, and an albuminous body in the urine. This latter body was determined to be the albumose described by Bence Jones. Hard nodules soon appeared on the ribs over the previous painful areas, hard movable glands in the right axilla, diarrhea set in, the urine became scanty, and the patient died in about a month. No autopsy was permitted. The author describes the tests leading to the detection of the albumose and believes the case to have been one of myelopathic albumosuria, or Kahler's disease. This form is always associated, the author believes, with diseases of the bone marrow. He denies that albumose is alimentary in origin because (1) proteolysis normally proceeds beyond this stage, the terminal products being hexone bases and amino acids; (2) the B.-J. albumose reactions are not identical with the digestive albumoses; (3) a considerable alteration of diet has no effect on the amount of proteid excreted (confirmed in the author's case); and (4) the alimentary view does not explain why marked and persistent albumosuria should appear in this particular variety of malignant disease. In this particular case the diagnosis was for a time obscured by the fact that there coexisted a true albuminuria with hyaline and granular casts. Death apparently resulted from a terminal pneumococcic infection.

The Eyesight of the Poorer City Children.—The paper of H. W. Thompson is the result of inquiries made concerning the school children in Glasgow. The initial test was made by the teacher, who reported 35 per cent. of the pupils with defective vision in one or both eyes. It was found that children in schools nearer the open country could see better than those in the heart of the city, and presumably poorer. This defect of sight is not due to any physical abnormality of the eyes, but seems to be due partly to want of training and partly to malnutrition. The effect of the want of training might be, to some extent at least, neutralized by certain modifications of the infant department curriculum at school, notably by abolishing sewing and all forms of work which require close poring over, and by instituting suitable visual exercise games. The effect of malnutrition might be combated by proper feeding during school life, as the author has found it to be in the industrial schools which he investigated.

Berliner klinische Wochenschrift, September 9, 1907.

Mongolian Pigmentation in Two Berlin Infants.—Tugendreich explains that whereas as long as it was supposed that the peculiar pigmented spots occurring a little above the anus in Japanese infants were a racial characteristic the Japanese were proud of the mark and regarded it as an evidence of especial distinction. Further investigations have shown, however, that the accumulations of pigment cells forming the spots are also found in the other Mongolian races and to some extent in nearly all monkeys. The spots therefore are considered as being connected with the evolution of the human being, and it has been suggested that the races exhibiting them to the most marked degree are nearest to the lower forms. Accordingly the Japanese have been anxious to demonstrate the presence of similar marks in members of other races and have succeeded in doing so in many instances. Adachi found the pigment cells ten times in examining the bodies of twenty-four infants in Strassburg. Epstein estimates that the pigmentation may be seen in one out of about 600 white infants. Tugendreich has seen it twice out of 1,200 cases and says that even although a certain racial characteristic may sometimes occur in other nationalities it does not therefore lose its value as a distinctive mark, for even the relative frequency with which it occurs may be looked upon as a typical sign. It is interesting that the spots have been quite often found among Hungarian children and the relationship between the Magyars and Mongols is pointed out in this connection. Apparently in the instances that have been reported of pigment spots in white infants the individuals have all been of the dark type, with brown skin and brown iris.

Münchener medizinische Wochenschrift, September 10, 1907.

The Pathogenesis of Hirschsprung's Disease.—Neter says that in spite of the numerous modifications which the conception of this affection has undergone in the last few years, it may be defined as being a type of constipation appearing in earliest infancy, often during the first days of life, that is extremely obstinate and is not rarely fatal. Anatomically there is always found a marked dilatation of the lower portion of the colon, particularly of the sigmoid flexure, and usually also an abnormal dilatation of this portion of the intestine. Hirschsprung assumed that the dilatation and hypertrophy of the sigmoid were congenital, but some observers had advocated the view that there is a congenital dilatation of the lower portion of the colon with aplasia of the musculature. Others have believed in an idiopathic dilatation of the colon or in deficient tonus of a normal muscular wall in consequence of inadequate innervation. The author is of the opinion that the fundamental condition leading to the development of Hirschsprung's disease consists in an abnormal length of the sigmoid and that the dilatation and hypertrophy are secondary and not congenital changes. A case in point is reported which the author regards as affording evidence in favor of his theory.

The So-called Acquired Lymphangiomas of the Neck.—Dencks states that cavernous lymphangiomas of the neck are rather rare as a congenital condition, and are much more so as neoplasms appearing later in life. He has been able to find only six instances of the latter sort, and numerous authors, as a matter of fact, do divide the congenital and acquired lymphangiomas of the neck into two distinct classes. The author describes two cases of cystic lymphangioma first appearing during adult age, and as the result of the analysis of these, as well as of the other cases reported, he reaches the conclusion that the distinction between the congenital and so-called acquired growths is not tenable and that both genetically and morphologically the neoplasm is the same in each case. The germ of the new growth must be assumed as existing congenitally and the difference consists only in the time at which the growth becomes independent. While in most of the cervical lymphangiomas development occurs during intrauterine life, so that a tumor is already present at the birth of the fetus, in some instances the latent germ develops into a tumor only later in life. Why this peculiar course is sometimes observed cannot be explained, but it appears that the period of puberty has something to do with the development of the lymphangiomas, as is the case in the branchiogenetic cysts.

French and Italian Journals.

Palliative Treatment of Cancer of the Cervix Uteri.—F. Jayle says that in many cases of advanced and inoperable cervical cancer the only palliative treatment that is justifiable is the curetting of the fungosities and cauterization of them with a hot iron. In women who are still menstruating the progress of cancer is more rapid than in those who have passed the menopause. Therefore it is of advantage to the patient that the uterine circulation should be modified. It has been advised for this purpose to ligate the uteroovarian arteries, but this is very difficult on account of the extensive lesions. The best procedure is laparotomy, with removal of the ovaries to stop the internal secretion which prevents atrophy, and combined with it the ligation of the hypogastric arteries. Curettage and cauterization of the fungosities may be done at the same time.—*La Presse Médicale*, May 25, 1907.

Delivery by Bossi's Dilator in Eclampsia.—R. Schockaert believes that rapid delivery is the only rational means of treatment of puerperal eclampsia. In primiparæ with closed cervix and labor not yet begun it is necessary to dilate in some way. The author believes that the best method is by means of Bossi's dilator, used carefully, and slowly, with frequent digital examination to ascertain the progress of dilatation. The advantages of this instrument are ease of manipulation, lightness, ease of disinfection, ability to dilate slowly and to ascertain progress by reading off the scale on the instrument, and cheapness.—*Bulletin de la Société Belge de Gynécologie et d'Obstétrique*, Vol. XVIII., No. 1, 1907.

Elimination of Sulphur from the Urine of Sulphur Miners.—Francesco de Grazia has examined the urine of young and healthy sulphur miners who are in a constant sulphur dust and may be supposed to absorb the chemical if such absorption is possible. He estimated the total sulphur, acid sulphur, and neutral sulphur. He found that there were two modifications in the elimination of sulphur in these men: increase of total sulphur, with predominance of acid sulphur, as in normal conditions; and more rarely increase of neutral sulphur with increase of total sulphur elimination. These workers live very sparingly and the increase of sulphur elimination could not result from increased ingestion of proteids on account of the poverty of the workers.—*La Riforma Medica*, June 22, 1907.

Book Reviews.

Précis de Pathologie Interne. Par MM. Balthazard, Cestan, H. Claude, Macaigne, Nicolas, et Verger, Agrégés des Facultés de Médecine. Préface de M. le Professeur Bouchard. Four Vols. Paris: Steinheil, 1907.

Six of the younger teachers, agrégés at the various medical schools of France have united in producing this work, a textbook of internal medicine in four volumes. The names of the authors are well known to those who have followed the current literature of recent years, especially those of Balthazard, Claude, and Macaigne. The book is an exposition in concise yet quite sufficiently full form of the internal diseases from the viewpoint of modern clinical and experimental research. The first volume deals with infectious diseases (Nicolas) and the intoxications (Balthazard); the second is devoted to diseases of nutrition, blood (Balthazard), heart, lungs (Macaigne); the third to maladies of the digestive (Balthazard) and urinary organs (Claude); the fourth entirely to nervous diseases (Cestan and Verger). A feature of the book is that the several authors having studied and worked together and having been nominated agrégés at the same competition are quite in accord with one another in their views, and that consequently there is more uniformity in the various portions of the work than is usually obtainable in a book composed by a number of men. While much might be said in praise of the various portions of the work, we shall have space enough here only to call attention to the new plan of classification adopted in the volume on nervous diseases. Instead of studying these diseases according to the old anatomo-physiological scheme, an attempt is made to classify them according to modern pathological and etiological data. Thus acute inflammations are grouped together, meningitis, encephalitis, myelitis, poliomyelitis, etc. Then the chronic inflammations, the scleroses, including tabes, etc. This method of study is new in neurology, although it obtains in all other branches of medicine. The style of the book is very clear and easily grasped, and we would recommend its reading as a means of gaining a very good knowledge of medical French, as well as a source of enlightenment upon many of the puzzling themes of medicine in which modern research is gradually making its way.

The Röntgen Rays in Medical Work. By David Walsh, M.D. Ed., Senior Physician, Western Skin Hospital, London, W.; Hon. Physician and Senior Physician to the Skin Department, Kensington General Hospital; Late Hon. Secretary Röntgen Society, London. Part I. The Electrical Apparatus. By H. Lewis Jones, M.D. Cantab., F.R.C.P. Lond. Medical Officer in Charge of the Electrical Department, St. Bartholomew's Hospital. Part II. Medical and Surgical. By the Author. Fourth Edition. New York: William Wood & Company, 1907.

In part I is given a description of the electrical apparatus, such as the *x*-ray tube, the static machines, induction coils, secondary battery or accumulator, direct application of the mains, accessory apparatus, practical working of the *x*-ray apparatus, localization, and stereoscopic radiography, all of which is illustrated by sixty-two pictures. Part II deals with the medical and surgical applications. The systematic manner in which the author deals with this subject is shown by the following classification, which covers most of the ground broken by this modern means of accurate investigation: A. Surgery. I. Foreign Bodies. II. Bones. III. Mapping of Skin Surfaces. B. Dental Surgery. C. Nasal and Throat Surgery. D. Medicine. IV. Regional. V. Other Medical Points. VI. Action on Skin and Deeper Structures. VII. Therapeutics. E. Obstetrics and Gynecology. F. Legal Medicine. G. Anatomy. H. Physiology. I. Veterinary Uses. One hundred and ten pictures illustrate this part of the work. This book should be in the hands of all who are doing *x*-ray practice.

Ueber die Psychologie der Dementia Præcox. Ein Versuch. Von C. G. Jung, Privatdozenten der Psychiatrie in Zurich. Halle a. S.: Carl Marhold, 1907.

We recommend this suggestive little book to all students of psychiatry. It is in line with the author's studies on association and will be of especial interest to those who have followed his work and the work of Freud and Bleuler in psychogenic disorders. It is based on three years' clinical and experimental observations and comprises chiefly an attempt at a psychological analysis of dementia præcox by tracing all symptoms to their genesis. The mentality in dream states and hysteria is also analyzed and compared with the mechanism of the psychological disorder in dementia præcox. The book is instructive and shows considerable originality.

The Integrative Action of the Nervous System. By Charles S. Sherrington, D.Sc., M.D., Hon. LL.D. (Jor.), F.R.S., Holt Professor of Physiology in the University of Liverpool, etc. With Illustrations. New York: Charles Scribner's Sons, 1906.

The substance of this book was contained in the Silliman lectures delivered by the author at Yale in 1904. The subject constitutes a most important phase of neuro-physiology, and is best defined in the author's own words: "In the multicellular animal, especially for those higher reactions which constitute its behavior as a social unit in the natural economy, it is nervous reaction which par excellence integrates it, welds it together, from its components, and constitutes it from a mere collection of organs an animal individual. This integrative action, in virtue of which the nervous system unifies from separate organs an animal possessing solidarity, an individual, is the problem before us in these lectures." The lectures consider in turn the coordination of simple reflexes, the interaction between reflexes, the combination of reflexes, simultaneous and successive; reflexes as adapted reactions, the reactions of the motor cortex, the physiological position of the brain in the integration of the nervous system, and sensual fusion, *i.e.* integration in relation to sensation, as exemplified in the simple phenomenon of binocular vision. A very full bibliography is appended. The book will appeal to the special student of physiology and to the neurologist who likes to know the scientific basis of nerve phenomena. The lectures are written in a fascinating manner, without dryness, and are well illustrated with charts, etc.

The Miracle Worker. By Gerald Maxwell. Boston: John W. Luce & Company, 1907.

Whatever may be the reader's opinion of the singular method chosen by Dr. Ahmed for restoring the comeliness of the beautiful Countess Lichtenthal after a frightful burn had disfigured her charming features, we are sure that he will follow with the greatest interest the complicated steps by means of which this gratifying result was finally attained. A new anesthetic, the power of suggestion, experimental physiology, and transcendental cerebral surgery are among the ingredients of which this ingenious tale is compounded, and the author's acquaintance with medical and surgical matters is so intimate as to make it seem more than probable that he is the possessor of a degree which does not appear on the title page. The atmosphere of the German University City and of court life in a minor principality is cleverly reproduced, but we must protest that it is impossible to believe that any well-educated young German woman should be, like the heroine, ignorant of the authorship of the classical "Maria Stuart." That is a slip we feel no Teuton will readily forgive.

A Manual of Surgery for Students and Physicians. By Francis T. Stewart, M.D., Professor of Surgery, Philadelphia Polyclinic; Associate in Surgery, Jefferson Medical College; Surgeon to the Germantown Hospital; Out-patient Surgeon to the Pennsylvania Hospital. With 504 illustrations. Philadelphia: P. Blakiston's Son & Co., 1907.

In this volume will be found a concise and fairly complete statement of all the surgical facts and details required by the physician and undergraduate. Though small, the book contains a large amount of information, the whole of which has been well selected, well arranged, and amply illustrated. Due emphasis is laid on matters of clinical importance; the fundamental principles of general surgery are clearly dealt with, and the teaching represents the generally accepted methods of modern surgery. No space has been taken up by historical or bibliographical details. For a long time there has been a demand for a manual of this sort, as the previous successful attempts along this line (one or two in number) have outgrown the position for which they were originally designed; and the majority of the compends on surgery are too meager and incomplete to be of any real value. The main use of the present volume will be as an aid to the student in following lectures, or in preparing for recitations; also in preparation for the State board or other examinations.

La Cure de Déchloruration dans le Mal de Bright et dans quelques maladies hydropigènes. Par le Dr. Fernand Widal, Professor Agrégé à la Faculté de Médecine de Paris, Médecin de l'Hôpital Cochin et le Dr. Adolphe Javal, lauréat l'Académie de Médecine. Paris: J. B. Baillière et Fils, 1906.

In this pamphlet will be found an account of the dechloridation treatment or salt free diet in nephritis, and also in some other conditions, chiefly of cardiac origin. Whether or no the chlorides should be withheld from the diet of nephritics is a question that is still under discussion, and the authors of this monograph present their side of the subject with much ability.

Society Reports.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.

Held at the Academy of Medicine, New York City, September 9 to 14, 1907.

(Special Report to the MEDICAL RECORD.)

(*Continued from page 543.*)

Gangræna Cutis Hysterica.—By Dr. H. P. TOWLE of Boston. This paper dealt only with those cases of gangrene of the skin which were either of artificial or of so-called spontaneous origin. It did not consider the cases of gangrene which occurred in childhood or which were due to such causes as bacteria, organic diseases of the nervous system, or to obliterative diseases of the vessels. The paper gave the clinical histories of four cases of multiple gangrene of the skin, three in women and one in a man. While the cases varied somewhat from each other in minor details, they were alike in their essential features. They occurred in patients who were more or less markedly hysterical. Each case had suffered some sort of trauma before the appearance of the first gangrenous lesion. The first manifestation was in the immediate neighborhood of the preceding injury. After varying intervals of freedom, new lesions appeared farther and farther away from the starting point, as time went on. The affection had existed for months, and in one case for years. The changes in the skin from the time of the first appearance of the lesions until they became gangrenous were very rapid, while, on the other hand, healing was very slow. Recurrences never occurred when the patient was under control, and the affection never involved the parts which were not readily accessible. The physical examination showed nothing which would account for the changes in the skin. It was believed the eruptions were all feigned, but the evidence remained purely circumstantial, as none of the patients would confess and nothing was ever discovered with which the lesions could have been produced.

Prof. E. GAUCHER of Paris, France, said that not long ago he was the only one, with Prof. Raymond, to defend the existence of gangræna hysterica. This condition, he thought, should not be stricken from our nosology. Of course, the gangrene was a secondary phenomenon, caused by infection of a slight abrasion of the cuticle, but hysteria prepared the ground on which the gangrene developed. Despite the necessity of an initial lesion, hysteria was absolutely an essential factor. This was enough to justify the maintenance of gangræna hysterica as a separate morbid entity.

The discussion was continued by Dr. H. Radcliffe-Crocker of London and was then closed by Dr. Towle.

Afternoon Session.

DR. F. J. SHEPHERD OF MONTREAL, VICE-PRESIDENT, IN THE CHAIR.

The Etiological Relationship of Organisms Found in the Skin in Smallpox.—Prof. W. T. COUNCILMAN of Boston, in discussing this subject, said the cause of smallpox was believed to be a parasitic organism having its habitat in the epithelial cells of the specific lesions of the skin. It was first recognized by Guarnieri and named by him *Cytoryctes variolæ*. It was described in more detail by Councilman and his coworkers in 1904, and a probable life cycle was established by Calkins. The organism underwent a definite development within the skin, certain forms corresponding with the period of eruption. The same organism up to a certain period of development was found in vaccina. Certain stages of development were peculiar to smallpox and found only in the lesions of that disease. It was believed that there were probably two cycles of development: (1) An imperfect cycle, probably analogous to the asexual cycle of the coccidia, which was common to both vaccina and smallpox; (2) a complete cycle, representing a further development of the vaccine cycle, which was only found in smallpox. The virus of smallpox differed from that of vaccina in its capacity of transmission without contact. The monkey was susceptible to the smallpox virus, and inoculation with smallpox material (contents of pustules) produced a disease with the specific lesions of smallpox and with a complete cycle of the parasite. Inoculation of the rabbit or calf with smallpox material produced a disease comparable to vaccina, and with the incomplete or vaccine cycle of the organism. The inoculation smallpox of the monkey could be transmitted from animal to animal. The vaccina produced in the calf or the rabbit by inoculation of smallpox material was transmitted as vaccina from animal to animal. Monkeys had been shown to be susceptible to smallpox only by artificial inoculation. It was not possible to infect them by means of exposure. The inoculated disease produced in monkeys had the same period of incubation as variola inoculata in man. In addition to the skin lesions, lesions specific to the disease were also found in the bone marrow and in the testicle. All other lesions of the disease were not specific, and were to be attributed either to the action of toxins or to the action of infectious bacteria, chiefly streptococci. Both vaccina and smallpox led to active hyperplasia of the lymphoid tissues, with the production of large mononuclear lymphoid cells which passed from the lymph nodes into the blood.

Prof. GARY N. CALKINS of New York City said he would interpret the organism of smallpox as a rhizopod in which only one phase of the life history was known, namely, the asexual or vegetative phase. This was characterized by development of the chromidium and formation of small reproductive spores ("gemmules"), which repeated the cytoplasmic cycle. The intranuclear forms possibly belonged to the sexual cycle, and it was not improbable, as Councilman had early suggested, that the intranuclear forms might be a different cycle of the organism occurring in variola and not in vaccina. He would interpret the vesicular forms as either poorly fixed organisms, or as degenerated forms of the organism, the degeneration being produced by the accumulation of toxins found in the breaking-down vesicle. In any event, the intranuclear forms of the organism presented a different history from that of the cytoplasmic forms, and this history remained for some one to work out on well-fixed tissue, or, better still, on the living organism.

Dr. WALTER R. BRINCKERHOFF of Honolulu said that unfortunately the only animals available for experiments upon the modes of the transmission of smallpox were the monkeys, and in them we could produce only one form of the disease. To do more effective work in the study of the transmission of the disease from man to man, it would be necessary to produce true variola, and for that purpose it would be necessary to have monkeys that were nearer to man than the species previously experimented on. If we could produce variola vera in one of the lower animals, we would be able to undertake definite work bearing upon the therapy of the disease. That form of the disease which could now be produced in the monkey was never fatal.

Dr. THOMAS C. GILCHRIST of Baltimore referred to the similarity this organism bore to certain cell degenerations, which he had found particularly well demonstrated in benign growths of the skin.

Prof. COUNCILMAN, in closing, said the cell degenerations referred to by Dr. Gilchrist were common and perfectly well known. They were found in numerous conditions, but none of them suggested the perfectly definite structure seen in the smallpox organism.

Prof. CALKINS, in closing, said the organism found in smallpox could be traced back through a regular cycle.

The Opsonic Method in Skin Diseases.—Dr. ARTHUR WHITFIELD of London, England, said the term "opsonin" was applied to designate a hypothetical body present in the blood serum. It had not been isolated, but its action had been detected and estimated by Wright and Douglas. The method of opsonic determination consisted of mixing definite volumes of blood serum, bacillary emulsion, and living leucocytes under suitable conditions, and afterwards making stained preparations from the mixture to demonstrate the numbers of ingested bacilli. A comparison of various sêra by this method gave varying results which might be used for the estimation of the individual resistance to the organism in question. The method had been proved to be accurate within the limits of a 5 to 10 per cent. error, which was admitted. The opsonic method might be used for diagnosis, or, in conjunction with the inoculation of bacterial vaccines, for treatment. The diseases of the skin in which the method found a place were the primary and secondary staphylococcic infections and tuberculosis. The opsonic method in boils was always successful, and was the only form of treatment for general furunculosis that was in the slightest degree reliable. In sycosis the method was a valuable one, but must be continued for long periods in proportion to the duration of the disease, and was best combined with *x*-ray epilation. In acne the treatment was uncertain, some results being astonishingly brilliant; others entirely negative. In septic dermatitis and ulcers the treatment was of distinct value as an auxiliary. In Bazin's disease the treatment was somewhat uncertain, but it was often of help. In tuberculous ulceration it was of great value. In lupus vulgaris the treatment alone was too slow and uncertain to be recommended. According to Bulloch, it was a valuable auxiliary in those patients who relapsed after Finsen's treatment, and the speaker said he had found it of value combined with *x*-rays.

Bacterial Inoculation in the Treatment of Suppurative and Tuberculous Diseases of the Skin After the Method of Wright.—By Dr. E. M. VON EBERTS of Montreal, Canada. The author, after a brief review of the technique of opsonic determinations, gave his results with this method of treatment in acne indurata, sycosis, furunculosis, and lupus vulgaris. He stated that in the treatment of tuberculous infections of the skin, the question of autogenous vaccines was at present impracticable, but very encouraging results might be obtained with Koch's new tuberculin (T. R.). Increasing experience showed that the doses originally employed in staphylococcic infections were too large, so that at the present time, instead of 500 millions or more being injected at the initial dose, it had been found advisable to start with 100 or 200 million; or, in a tuberculous case, with 1-2,000 to 1-1,800 m.gm. of T. R. deciding as to the effect and subsequent dosage by the immunity reaction induced in the individual, as interpreted by the opsonic findings. If the negative phase following inoculation was severe or prolonged, the dose should be diminished. Where, on the other hand, the immunizing response was inadequate, *i.e.* where the negative phase was suppressed and the positive phase but slight, the dosage should be increased. The objective and subjective symptoms following inoculation were, to a trained observer, almost as valuable guides as the opsonic findings. Experience taught one that exacerbations in the local symptoms were the harbinger or accompaniment of a depressed opsonic index (negative phase). On the other hand, comparative freedom accompanied the positive phase. This latter phenomenon, no doubt, accounted for the decrease in the amount or severity of pain, which was invariably admitted by patients undergoing tuberculous infections. In old lupus cases the bleaching of the scar was a very striking feature. Constitutional symptoms were rarely met with, and should never develop if the dosage was properly adjusted.

Bacterial Injections in the Treatment of Diseases of the Skin.—By Drs. JAY FRANK SCHAMBERG, NATHANIEL GILDERSLEEVE and HARLAN SHOEMAKER of Philadelphia. In this paper the authors reported 21 cases treated by bacterial injection. This number included 9 case of sycosis vulgaris, 3 of furunculosis, 4 of acne, 2 of acne with sebaceous abscesses, 1 of eczema, 1 of psoriasis, and 1 of lupus erythematosus. Some of these patients had been under treatment only a short time, and were continuing to make progressive improvement. Of the cases of sycosis vulgaris, 1 was entirely cured, 3 were almost well, 1 was greatly improved, 2 were slightly improved, and 2 were not improved. Of the 3 cases of furunculosis, 1 was cured, 1 was almost cured, and 1 was improved. Of the 4 cases of acne, 2 were cured, 1 was not improved, and in 1 the flushing had been relieved. The 2 cases of acne with sebaceous abscesses were decided improved. In the case of eczema with pyogenic lesions, the latter were cured and the eczema rendered amenable to treatment. The case of psoriasis was temporarily improved. The result in the case of lupus erythematosus was still uncertain. Considering the fact that the majority of these cases were rebellious and of long-standing, and that they had resisted approved treatments of all kinds, the results must certainly be regarded as encouraging.

Dr. A. RAVOGLI of Cincinnati said he could confirm what had been claimed for the opsonic method of treatment in sycosis, and his personal experience with it had been very encouraging. With the gonococcic vaccine he had also obtained excellent results in a case of gonorrheal arthitis.

Dr. E. R. LARNED of Detroit said that if we could control the size and frequency of the dosage by the clinical results, then the opsonic method of treatment would come within the reach of many general practitioners; but if it was necessary in each case to compute the opsonic index in order to regulate the size of the dose, and to use autogenic vaccines instead of stock vaccines, then it would be a long time before the method would become of general practical value, and only those cases could be treated which were within easy reach of the laboratory.

Dr. STAFFORD TAYLOR of Liverpool, England, said that some of his cases of sycosis and acne had improved under the use of vaccines prepared according to Wright, but the majority had required *x*-ray treatment before a cure resulted.

Erythema Circinatum Bullosum et Hæmorrhagicum. An Erythematous Eruption, Followed by the Formation of Bullæ and Petechiæ, and by Death.—Dr. WILLIAM T. CORLETT of Cleveland reported a case of this character. The patient was a boy of 12, who received a scalp wound from the ball of a Flobert rifle, for which he was treated at Charity Hospital. No serious manifestations followed, and the wound healed in less than a fortnight. At this time, however, the patient complained of acute pains in the joints, notably in the ankles, which were found to be swollen, and one was slightly erythematous. This was followed by gyrate and ringed patches of erythema, which extended over the whole body. These at first were well defined, of a pinkish tint, with a pinkish fawn-colored central area. Some of the lesions soon assumed a dusky, cyanotic tint, which developed into petechiæ. This was followed by the appearance of bullæ, first seen about the neck, and which within a few days involved, more or less, the entire body. The contents of the bullæ, at first transparent, gradually took on a yellowish color. Later many of the lesions became slightly hemorrhagic. The patient's condition began to fail, and finally, three weeks after the injury and a fortnight after the onset of the disease, he died. Cultures from the purulent and hemorrhagic bullæ gave pure streptococci. The autopsy revealed old fibrinous adhesions about the spleen, and the gross appearance of this organ was found more dense than normal. Small hemorrhagic spots were found near the pyloric end of the stomach. At the cardiac extremity a

small area was found denuded of gastric epithelium. There was no evidence that the gunshot wound had any etiological influence on the disease. The case seemed to demonstrate a connecting link between erythema and purpura.

Dr. Oscar T. Schultz of Cleveland emphasized the fact that in the case reported the general streptococcus infection followed an infection by way of the gunshot wound, rather than the primary involvement of the skin.

Dr. Edward H. Shields of Cincinnati reported a similar case, in which death occurred at the end of the third week.

The Need for Higher Requirements in Examinations in Dermatology and Syphilology by Medical Colleges and Licensing Boards.—By Dr. William F. Breakey of Ann Arbor, Mich. The relative number of patients, clinical and private, suffering from dermal affections, as compared with other special fields of medicine, seemed to furnish a sufficient reason why a general medical education should provide better facilities for the study of dermatology and of syphilis in particular, not alone because of its gravity and often unsuspected presence, but also in view of the awakened public interest in this phase of social life.

Dr. A. Ravogli of Cincinnati said that in all the medical colleges in the State of Ohio at least 64 of the 2,000 hours that made up the yearly college curriculum had to be devoted to dermatology and syphilology. Medical students were already overburdened with work, and he did not think they would ever succeed in compelling the candidates to take a special examination in these branches.

Wednesday, September 11—Third Day.

Dr. Veiel of Cannstatt, Württemberg, and Dr. H. Halopeau of Paris, France, in the Chair.

The first two hours of the session were devoted to the exhibition of patients and formal discussion on the same.

Blastomycosis of the Skin.—By Dr. M. Oppenheim of Vienna, Austria. The first case in Europe conforming with the American cases of this disease (pseudolupus) was observed in Neumann's clinic in Vienna by the writer in 1904. Later he had occasion to observe three others. The clinical picture in the earliest stage was a light, red-stained, swollen lesion, with characteristic pustules. From the latter superficial ulcers with irregular margins arose, which produced superficial scarring. Histologically, there were intra- and subcorneal and intraepithelial abscesses; the rate pegs were increased in size, and the stratum papillare was infiltrated by round cells. In the abscesses and infiltration were found the blastomycetes, singly and grouped, but never abundantly. As the lesions grew older, the picture was similar to lupus verrucosis, with elevations surrounding cicatrized areas, thickening of the nose and lip, excoriations and deep ulcerations with irregular margins and uneven base, covered by thick crusts, sometimes destroying the nostrils and perforating the septum of the nose. From the base of some of the ulcers papillary excrescences soon overgrew the margins and showed points of cornification. Microscopically, there was an overgrowth of epidermis and an infiltration of the corium with round, plasma, and giant cells, even to the subcutis. A few blastomycetes were present. The therapeutic effect of potassium iodide was evident in all four cases.

Systemic Blastomycosis. A Critical Survey and Summary of Nineteen Cases (Four of them Unpublished).—Dr. Frank H. Montgomery and Dr. Oliver S. Ormsby of Chicago, in this paper, stated that about one hundred cases of blastomycosis involving the skin had been recognized, chiefly in Chicago and its vicinity, but also in other parts of the United States, in Canada, in various parts of Europe, in Japan, India, and South America. Of the nineteen cases recorded in this paper, twelve were dead, four were dying, two had recovered, and one had disappeared from observation. All of the cases, with possibly one exception, presented multiple subcutaneous abscesses and nodes, usually indolent in type. With the appearance of the abscesses there had been in all cases a disturbance of the general health. The duration of the disease varied from a few months to two and a half years. Blastomycotic lesions had been demonstrated in practically all of the tissues and organs of the body. The characteristic changes consisted in the presence of nodules or abscesses in the soft tissues, and caries in the bones. The abscesses varied greatly in size. Necrotic areas in bones, containing the organism in abundance, surrounded by leucocytes, giant cells, and other cells peculiar to the granulomata, had been noted and fully described in one case. It was worthy of note that, notwithstanding the presence of extensive suppuration in most of the cases, in two only was amyloid degeneration recognized, and in only one were these changes at all extensive, occurring in the liver, kidneys, adrenals, spleen, the colon, and in various lymph glands. The bacteriology of systemic blastomycosis was identical with that of the cutaneous form of the disease.

Dr. Joseph Zeisler of Chicago said that in view of the fact that there were many dermatologists who still had doubts as to the genuineness of blastomycosis, he wished to state that he had seen many of the cases reported by Drs. Hyde, Montgomery, and Ormsby. He briefly referred to one case of systemic blastomycosis which had been under his personal observation. This patient, after various methods of treatment had been ineffectually employed, went to California, where she recovered spontaneously.

Dr. Thomas C. Gilchrist of Baltimore referred to the similarity between the organism of blastomycosis and that of granuloma coccidioides.

Dr. James Nevins Hyde of Chicago said the fact that they had seen so many cases of blastomycosis in Chicago had been a surprise to them, as well as to their colleagues elsewhere, and he was justified in saying that in the cases reported in the east the symptoms were not so exaggerated or severe as those they saw in Chicago. He therefore had the conviction that the organism which produced the disease was more or less limited to a certain geographical distribution, and that for reasons which he could not explain that particular area was not far distant from Chicago and Indiana. It was there that the organism seemed to flourish as it did nowhere else.

Dr. Howard Morrow of San Francisco said he had had repeated opportunities to compare cultures of blastomycetes with those of the granuloma coccidioides, and he had found that they varied considerably. Both cultures, at the room temperature, had quite a characteristic growth, but the coccidioides grew in the shape of a thick mass, with a sharp edge, whereas the blastomycotic fungus, while it began similar to that of the coccidioides, after a few days developed radiating fibers which spread out and gave the appearance of a halo.

Dr. Douglass W. Montgomery of San Francisco said there was no doubt that there was a marked difference between the two fungi under discussion. In the cases of dermatitis coccidioides, a California disease, the organism in the tissues was a capsule, with spores in it like canister-shot.

Dr. Oliver S. Ormsby of Chicago said that blastomycosis was really a very serious disease, and one that did not belong entirely to the dermatologist.

The Thyroid as a Factor in Urticaria Chronica.—By Dr. M. L. Ravitch of Louisville, Ky. The writer claimed that chronic urticaria should be classified as a curable disease, and in connection with its treatment he made a plea for a more thorough study of thyrotherapy. He firmly believed that in many cases of chronic urticaria, thyroid extract was a specific. He claimed that disorders of the thyroid gland were the cause of many toxemic conditions, and that thyroid extract was an autotoxin; hence its usefulness in toxemic conditions, urticaria chronica in-

cluded. Chronic urticaria was more frequent among women than men, and the fact that functional thyroid disorders were also more common in women led the writer to believe that functional disorders of the thyroid were the cause of chronic urticaria. He regretted that thyrotherapy had been neglected in the treatment of skin diseases, and pointed to the fact that remedies useful in chronic urticaria were also useful in functional disorders of the thyroid gland. Outside of the eruption, the writer claimed, the symptoms of chronic urticaria were almost the same as in thyroid toxemia.

Hydroa Puerorum (Unna). By Dr. Max Haase of Memphis, Tenn., and Dr. Rose Hirschler of Philadelphia, Pa. After reviewing the recent literature on this subject, the authors reported in detail a case of hydroa puerorum seen with Dr. Unna in his clinic at Hamburg, from which a biopsy was made. The histopathological findings in the case were also detailed, and an attempt was made to establish its proper place among the hydroas. In claiming for this disease a place in the nomenclature as a dermatological entity, the authors offered the following conclusions: (1) It was an acute erythematovesicular disease, preceded and accompanied by intense burning and itching. (2) The vesicles coalesced to form bullæ. (3) Involution of lesions without pitting or scarring. (4) The first attack occurred in the first year of life. (5) Recurrence of attacks independent of external influences. (6) Gradual lessening of attacks in extent, intensity, and duration. (7) Spontaneous disappearance at puberty. (8) Unrestricted to any particular lesion. (9) Restricted to male sex. (10) Relatively normal health during attacks. (11) To these might be added the superficial character of the disease, the lesions being confined to the rete.

Dermatitis Coccidioides, with Report of a Case.—By Dr. A. Ravogli of Cincinnati, Ohio. The case was reported under the nomenclature of dermatitis coccidioides because the parasite found in the lesions closely resembled a coccidium. The clinical features of the disease, although related to blastomycetic dermatitis, were somewhat different. The parasite taken directly from the ulcerated surfaces had a long thread of mycelium, but when cultivated on glycerin agar and on blood serum showed only round bodies, with scarcely any mycelium. Its growth was rapid and abundant and its development seemed to be due to endogenous proliferation. The result of the treatment was also different from that obtained in true blastomycosis.

Dr. Douglass W. Montgomery of San Francisco said he could not make out the coccidioides in the sections shown by Dr. Ravogli.

BRITISH MEDICAL ASSOCIATION.

Seventy-fifth Annual Meeting, Held at Exeter, July 27 to August 2, 1907.

Special Report to the Medical Record.

SECTION ON TROPICAL DISEASES.

(Concluded from page 536)

Friday, August 2—Third Day.

Discussion on the Hemoflagellates.—Prof. E. A. Minchin opened the discussion. The zoologist, he said, studied living creatures for their own sake, working at their structure, life history, and habits, with a view to establishing their place in nature and their affinities and relationship with other organisms. The medical man was interested in them only in their relationship to disease. There were perhaps several points at which the spheres of the naturalist and the physician were in contact; certainly one, namely, the study of the life cycle and development of the parasites. This was a study of the utmost importance to the zoologist, since nothing threw more light on the affinities of any creature than its development; it was also of importance to the medical man, because such knowledge gave him a clew to methods of prevention, which were proverbially better than cure. The speaker confined his remarks to an account of the life history of the hemoflagellates, organisms belonging to the class *Flagellata* of the Protozoa, which had as organs of locomotion one or more flagella and which were further characterized by being parasites in the blood of vertebrate animals. Strictly speaking, the genera *Trypanosoma* and *Trypanoplasma* included all the hemoflagellates; that is to say, the flagellates parasitic in blood. But it was impossible in a natural classification to separate these two genera from certain others clearly allied to them comprising forms found parasitic in the digestive tracts of insects such as the genera *Herpetomonas* and *Crithidia*. The majority of the species belonging to these latter genera were found in blood-sucking insects, a circumstance which was highly suspicious, and pointed to their being, perhaps, only stages in the life history of *Trypanosomes*. It was very doubtful whether the peculiar blood parasites known as spirochetes should be included amongst the hemoflagellates or not. Many authorities still supported the older view that these organisms were bacteria belonging to the section *Spirillacea*. The more modern view, first advocated by Schaudinn, was that these organisms were protozoa allied to the hemoflagellates and resembling minute trypanosomes in structure. Schaudinn based this view, however, upon a form which was probably a true trypanosome of small size and not a spirochete. In the spirochetes of human and avian relapsing fever, it had not been possible to demonstrate the characteristic structures of trypanosomes, and their position must be considered at present very doubtful. It was highly probable that the genus trypanosome included forms which, though extremely similar, had two distinct lines of ancestry and descent. They might have inherited from their respective ancestors equally distinct modes of development, so that we should be prepared to find in this genus distinct types of life cycle, and we should not assume that the mode of development found in one species must necessarily be the pattern or model, so to speak, for the whole genus. As the simplest type of life cycle we might take that of the *Herpetomonas* of the common house fly. The parasite lived in the intestine of the fly and became encysted in the mid gut. The cysts passed out of the gut, and, being dropped about in all sorts of places, some of them contaminated the food of other flies, and were accidentally swallowed by them. In this way the cysts passed into the digestive tract of other flies and there germinated, setting free the parasite, which at once commenced to feed and multiply. By this simple direct method the infection passed from one fly to another. We might call this the causal or contaminative method of infection. It was of very common occurrence among protozoan parasites of all classes. In all other known cases, with one exception, the infection was conveyed from one vertebrate host to another by the intermediary of some blood-sucking invertebrate animal. The single exception was the case of dourine, a disease of horses caused by *Trypanosoma equiperdum*; this disease was transmitted by contagion during coitus. The invertebrate animal which transmitted the infection of hemoflagellates differed according to the habitat of the vertebrate host. In aquatic vertebrates such as fish, amphibia, tortoises, etc., it was a leech; in land vertebrates, especially birds or mammals, it was some arthropod, usually a biting fly or mosquito. With regard to the exact method of transmission but little was known. In the first place we must distinguish between what might be termed direct and indirect transmission. In direct transmission the bloodsucker took up the parasite with its food from an infected man or animal and gave it back again to another when next it fed, without the parasite having under-

gone any change or development. The transference of the parasite from one host to another, by this method, was as mechanical and direct as if it had been effected with two stabs of a needle, or by inoculation with a hypodermic syringe. In the trypanosomes of mammals, particularly those carried by tsetse flies, such as the nagana disease of horses and cattle and the sleeping sickness of man, only direct transference of the parasite had been demonstrated with certainty up to the present. In indirect transmission the parasite, after being taken up by the bloodsucker, persisted for some time in the latter and underwent a series of changes, constituting a definite developmental cycle, before being given back again to a new vertebrate host. A well-known example of this type of development was the transmission of the malarial parasite by a mosquito. It was known that the parasite was taken up by the mosquito in a feed of blood from a sick person; that the parasite went through a complicated cycle of development in the mosquito, and that finally the parasite was given back again by the mosquito to another person, passing down its proboscis with the saliva when it punctured the skin in order to draw blood. Hence the transmission of the malaria parasite took place by the indirect method and was of a type which may be termed *inoculative*. Examples of transmission of hemoflagellates by the indirect inoculative method were known to occur in the case of hemoflagellates infesting fish and other aquatic vertebrates; the transference had been worked out by Brumpt, who had shown in the case of the trypanosome of the eel, for instance, that the parasites were taken up by a leech and underwent a definite development in the intestine of this invertebrate, finally passing forward into the proboscis and thence into another eel at a subsequent feed of the leech. Brumpt had further shown that, as in the case of the malaria parasite, a close relationship existed between the parasite and the species of invertebrate that transferred it, and that in any leech except the particular species required, the parasite either did not develop at all or underwent only a part of its development, and in either case no transmission of the infection took place, the whole process being abortive. In the case of the little owl the infection had been worked out by Schaudinn, who had described a very complicated developmental cycle in the digestive tract of the bloodsucker, in this instance a gnat of the genus *Culex*. Indirect transmission of the inoculative type had been much sought for in the trypanosomes of mammals, but had not yet been proved to occur. The trypanosomes had indeed been seen to undergo a certain amount of change in the digestive tract of the invertebrate bloodsucker, but it had not yet been proved that after undergoing developmental changes the parasite was given back again to a new vertebrate host. In the transmission by tsetse flies of nagana and sleeping sickness trypanosomes it was not found possible to demonstrate, either by observation or experiment, any mode of transmission but the direct mechanical one. In carrying on these investigations it had been observed incidentally by all who had been engaged in this work that the tsetse flies caught wild might contain other species of trypanosomes, probably taken up by them from wild animals, and quite distinct from the disease-producing forms. In the case of one of these species the speaker was able to make an observation to which he was inclined to attribute some importance in the transmission of the trypanosomes. At Entebbe, the dusky tsetse fly, *Glossina palpalis*, was commonly found to contain in its digestive tract vast swarms of a trypanosome which Novy had named *T. grayi*. Professor Minchin found that in some flies the parasite occurred in the innermost section of the digestive tract and there became encysted, in a manner very similar to the *Herpetomonas* of the common fly. There could be no doubt whatever that the cysts formed in this way were destined to be cast out with the feces of the fly; the question was, what becomes of them afterwards? It had been stated that in *Herpetomonas* the cysts contaminated the food of other flies and so infected them. The tsetse fly, however, was a bloodsucker and appeared to feed exclusively in this manner; it seemed impossible, therefore, that it could ever infect itself by swallowing accidentally cysts dropped by another fly. The author's suggestion was that the cysts were intended to infect the (as yet unknown) vertebrate host of *T. grayi* by contaminating its food; and that when swallowed accidentally by the vertebrate host the cysts germinated in its intestine, producing probably herpetomonas-like forms, which passed from the intestine into the blood and produced a trypanosome infection. All this was as yet only a suggestion and required proof, but it was put forward as a working hypothesis. The view had been put forward by Léges and others that the ancestors of the hemoflagellates were forms similar to *Herpetomonas* and *Crithidia*, and were parasites of the digestive tracts of insects; and that by the acquisition of bloodsucking habits on the part of these insect hosts they were introduced into the blood of vertebrates and acquired thus a double developmental cycle with change of hosts. The difficulty in the way of this theory was that the invertebrate host was not necessarily an insect, but might belong to very different classes of the animal kingdom; it might be a leech, or an arachnid, a tick. Hence the only feature that could be said to be constant in the life cycle was the possession of a vertebrate host. The speaker suggested that the hemoflagellates were primitively parasites of the digestive tract, not of invertebrate, but of vertebrates. Many flagellates parasitic in the digestive tract of vertebrates, including man, were well known, and recently Léges had described a species of trypanoplasma occurring in the digestive tract of a fish. We might suppose that this hypothetical ancestor of the hemoflagellates lived in the intestine and that its life cycle was similar to that of *Herpetomonas muscæ domesticæ*—i.e. that it formed cysts in the gut which passed out with the feces and were accidentally swallowed with food by new hosts. So far as known, that was the method by which the intestinal flagellates of man or other animals were transmitted from one host to another. The next stage in evolution would have been the penetration of the wall of the intestine by the parasites and their consequent entry into the circulation. When they were once in the blood they found themselves in spaces from which there was no means of escaping by natural channels. Hence, in order to infect new hosts the parasites must do one of two things: (1) They might pass back again into the intestine of the vertebrate host in order to become encysted there and so pass out to the exterior, as before. This was not known to occur in any case, but the possibility existed of this mode of infection occurring, or at least having occurred, and the speaker would call it stage 1 in the evolution of the life cycle. (2) The parasites could be taken up from the blood by a bloodsucking invertebrate of any kind, in the intestine of which they would become parasitic, ultimately producing in this new situation the cysts which they formerly produced in the gut of the vertebrate host. The author would call this stage 2 in the evolution; it was the contaminative type, which he believed to occur in the life cycle of *Trypanosoma grayi*. When a parasitic relationship had become set up between the flagellate and the invertebrate host the third stage of evolution would be that the parasite would penetrate the organs of the invertebrate and reach its proboscis or salivary glands, there producing minute forms which could pass back by inoculation into the vertebrate host. Hence encysted forms would be unnecessary and would cease to be formed, and we should have the inoculative type of infection established. The fourth and final complication of the life cycle would be brought about by the parasites penetrating the ovaries of the invertebrate

host and so passing through two generations of the latter, being given back by the inoculative method by the offspring of the invertebrate which originally took them up. In this way would come about germinative or hereditary infection, well known to occur in *Piroplasma*, but not known with certainty in hemoflagellates. Finally, a few words about the herpetomonas of the house fly. The fact that this parasite had no vertebrate host might be regarded as supporting the view that the hemoflagellates were originally parasites of the gut of invertebrates. But it has been pointed out by Prowazek that the house fly was probably descended from bloodsucking ancestors and was to be regarded as a form which originally had, but had given up, the bloodsucking habit. Prowazek suggested that its herpetomonas parasite was acquired by its bloodsucking ancestors and was originally a form with an alternation of hosts, vertebrate and invertebrate. When the fly ceased to suck blood, however, the flagellate remained as a parasite of the fly alone and was to be regarded as a form stranded and left behind, as it were, by changes in its life conditions over which it had no control, like marine animals left behind in inland lakes by elevation of the land. Hence herpetomonas did not dispose of the suggestion that the ancestral hemoflagellate was a parasite of the vertebrate intestine. From a consideration of the evolution of these parasites there was the possibility of the existence of at least four distinct types of life cycle in hemoflagellates.

Dr. Louis W. Sambon maintained that *Glossina palpalis* played the part of a true alternative host and was not merely a mechanical carrier of the parasite of sleeping sickness. Direct mechanical transmission might occur under certain conditions, and indeed it had been brought about artificially both in sleeping sickness and nagana by means of tsetse flies and other flies, but certainly this could not be the usual mode of transmission under natural conditions. The malaria parasites might be transmitted indefinitely in their schizogonic stage by the direct inoculation of infected blood, but in nature they were propagated by specific mosquitos, which acted as their necessary definitive hosts. The strict limitation of both sleeping sickness and nagana to the peculiar stations of their specific carriers proved that the transmission could not be as simple as suggested by Colonel Bruce and Professor Minchin. Brumpt and others had proved that the trypanosomes of fish were transmitted by the indirect inoculative method and that they underwent a definite development in the body of the leeches which subserved them as definitive hosts. Why, then, should we be so reluctant to accept a similar mode of transmission for the trypanosomes of mammals and birds? We had ample evidence to show that the trypanosomes of mammals underwent a sexual cycle within the body of their respective invertebrate hosts. Dr. Sambon had pointed out some years ago that the sporonts of *Trypanosoma gambiense* might present sexual differentiation in the blood of long-standing cases. Koch, Prowazek, and others had shown that trypanosomes multiplied rapidly and acquired marked sexual differentiation within the gut of their invertebrate hosts. Koch had found numerous trypanosomes and no traces of blood in the clear liquid contained in the bulb of the proboscis of *Glossina fusca* infected with the nagana trypanosome. These forms were ready to be inoculated into a fresh vertebrate host and showed that the trypanosomes did not leave the body of the fly by way of the intestine, as suggested by Prof. Minchin. Koch, Bruce, Minchin, and others had invariably failed in reproducing the disease by inoculating the blood from the stomach of the fly teeming with vigorously active trypanosomes. This proved that the forms in the gut of the fly were gametes that must undergo a special development and were not able to reproduce any longer by schizogony. Dr. Sambon said he believed that the trypanosomes of both sleeping sickness and nagana were transmitted by hereditary infection. The peculiar mode of development of the tsetse flies suggested this mode of transmission.

Sir Patrick Manson, K.C.G.M., F.R.S., said the phylogenesis of parasites requiring two hosts dated from ancestors which in the history of evolution antedated the differentiation of the arthropodes from the vertebrates. Parasites evolved *pari passu* with their hosts and when these hosts diverged into species and genera these parasites adapted themselves to the altered conditions. Some eight or ten years ago he undertook to write a book on tropical medicine. At first the task was relatively easy, but in the progress of time and in consequence of the advances of tropical medicine the number of organisms, especially of those haunting the blood, with which he had to deal, became in subsequent editions so great that the work was almost overwhelming. In his trouble he asked Dr. Sambon to help him in arranging the blood protozoa in a way that might help and guide the medical man. The result was the following classification, which was based not on external organs such as flagella, but in the case of families on the behavior of the oökinete in the formation of sporozoites, and in the case of genera on the size and shape of the gametes.

CLASSIFICATION OF BLOOD PROTOZOA.

HÆMOPROTOZOA—Sambon, 1906.

- Oökinete
  - Encysts
    - Produces sporozoites in secondary capsules or spore bags..... — Hæmogregarinidæ, one genus, *Hæmogregarina*
    - Produces naked sporozoites ..... — Plasmodidæ, two genera: *Plasmodium*; *Laverania*
  - Remains free
    - Elongates and breaks up into numerous sporozoites ..... — Spirochaudinnidæ, three genera: *Leucocytozoon*; *Spirochaudinnia*; *Treponema*
    - Divides by longitudinal fission into two equal forms which divide again and again until minimal forms are reached, which represent sporozoites..... — Hæmoproteidæ, two sub-families:
      - Hæmoproteinæ, 1 genus, *Hæmoproteus*
      - Trypanosominæ, 4 genera: *Babesia*; *Leishmania*; *Trypanosoma*; *Trypanoplasma*

Development of Piroplasma Canis in the Tick.—Captain S. R. Christopher, I.M.S., read this paper. The development took place in *Rhipicephalus sanguineus* (Latreille), a common tick of dogs in India. It might

take place both in the adult tick and in the nymph. When it took place in the adult the infection was transmitted hereditarily; when in the nymph it could be transmitted by the adult. After reaching the gut of the adult tick the parasites enlarged and assumed a round or oval shape. Before reaching their full size they often showed irregularities, but the long processes described by Koch did not seem a necessary part of development. After attaining from 4 to 5 in diameter an achromatic line appeared, which divided the parasite approximately into two halves, one containing the chromatin mass and the other no chromatin. The two halves eventually separated, except at one point, and the portion without chromatin swung round to become the tail of a club-shaped body, the half with chromatin forming the anterior portion. The club-shaped body developed a peculiar apparatus at the anterior end and migrated to the ovary. Here it penetrated an ovum, swelled up and became a round body which might be called a "zygote" because of analogy with the malaria parasite. The zygote quickly underwent a great increase in size, reaching eventually as much as 25 . Then it broke up into a number of bodies termed "sporoblasts," which were found disseminated in the tissues of the larva. Finally, the sporoblasts divided to form bodies very closely resembling the blood forms. These being found collected in the salivary glands of the nymphs were termed "sporozoites." When development took place in the nymph the club-shaped bodies left the gut and penetrated the tissues, embedding themselves in the protoplasm of the embryonic tissue cells, which were already beginning to form the future adult. Many of these invaded cells later formed the salivary gland, a structure which occupied a large portion of the body of the infected tick. The sporozoites thus found themselves *in situ*. Many parasites, however, invaded embryonic cells which did not eventually become salivary tissue, and in that case the probability was that the sporozoites reached the salivary gland by their own movements.

Bilharzia (Schistosomum) Disease in Cyprus.—Dr. G. A. Williamson read this paper. He said that at the Manchester meeting of the British Medical Association in July, 1902, he had reported a case of bilharziosis from Cyprus on account of its interest from the point of view of geographical distribution. The case occurred in a policeman from the village of Morphou in the northwest of Cyprus. In March, 1906, having met with three further cases in persons from Morphou, he obtained a day's leave and devoted it to visiting the village, with the idea of investigating as fully as the very short time allowed the circumstances of its prevalence there. He found that the villagers were perfectly well acquainted with the disease, which they considered an inflammation of the kidneys due to exposure to the cold water in the river bed at Syrianokhori, a village two miles away, in those who went there to fish. Four persons came for examination, all being Morphou villagers, and all stating that at one time or other they had had hematuria. In the urine of three of these Schistosomum ova and blood corpuscles were found on microscopical examination. On going to the Syrianokhori school and examining the children there, the following result was obtained: Out of eight pupils present the urine of seven was examined and ova and blood were found in the urine of five children. In Morphou village the inhabitants stated that infection occurred solely among those frequenting Syrianokhori to bathe, wade, fish, water animals, or otherwise expose their skin to the water in the river bed. No case could be found among the females of either village, they not frequenting the river in the same way as the males did. In all cases examined the ova had the terminal spine of *Schistosomum hæmatobium*, and inquiry did not suggest the presence of rectal symptoms that might be caused by *Schistosomum mansoni*.

Books Received

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will be promptly made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Rational and Effective Treatment of Hip Disease. By P. Bruce Bennie, M.A., M.D., B.S. (Melb.). 8vo, 108 pages, illustrated, muslin. William Wood & Company.

Practical Observations upon the Chemistry of Food and Dietetics. Second Revised and Enlarged Edition. By J. B. S. King, M.D. 12mo, 147 pages, muslin. Boericke & Tafel, Philadelphia.

Transactions of the American Dermatological Association at Its Thirteenth Annual Meeting, 1906. 8vo, 247 pages, illustrated, paper.

Transactions of the Florida Medical Association, 1907. 8vo, 180 pages, paper. The H. & W. B. Drew Co., Jacksonville, Fla., 1907.

Studies from the Rockefeller Institute for Medical Research, Vol. VI, 1907, from reprints. 8vo, 680 pages, illustrated, paper. The New Era Printing Co., Lancaster, Pa.

Transactions of the Southern Surgical and Gynecological Association, Vol. XIX, 1907. By W. D. Haggard, M.D. Large 8vo, 565 pages, illustrated, muslin. The Association.

A Textbook of Physiological Chemistry. By Charles E. Simon, B.A., M.D. Large 8vo, 490 pages, muslin. Lea Brothers & Co., Philadelphia.

Anatomy of the Brain and Spinal Cord. By Harris E. Santee, M.D., Ph.D. 8vo, 453 pages, illustrated, muslin. Price, $4.00 net. P. Blakiston's Sons & Co., Philadelphia.

Transactions of the American Pediatric Society, Vol. XVIII. By Linnaeus Edford La Fetra, M.D. 8vo, 307 pages, muslin. E. B. Treat & Co., New York City.

Materia Medica and Pharmacy. By Reynold Webb Wilcox, M.A., M.D., LL.D. 8vo, 490 pages, muslin. Price, $2.50 net. P. Blakiston's Sons & Co., Philadelphia.

Die Einwirkung der Genussmittel auf den Menschlichen Organismus, speziell auf die Verdauungs--Organe. By Hofrat Dr. Friedrich Cramer. 8vo, 190 pages, paper. J. F. Lehmann's Verlag, Munich.

Introduction a la Therapeutique Naturiste. Par le Dr. Fernand Sandoz. Large 8vo, 260 pages, paper. G. Steinheil, Paris.

Elements of Human Physiology. By Ernest H. Starling, M.D. Lond., F.R.C.P., F.R.S. 8vo, 716 pages, illustrated, muslin. Price, $3.75 net. W. T. Keener & Co., Chicago.

Etude Histo-Chimique and Cytologique des Crachats. Par le Dr. S. Israels de Jong. Large 8vo, 156 pages, paper. G. Steinheil, Paris.

Surgical Anatomy of the Temporal Bone. By Arthur H. Cheatle, F.R.C.S. 8vo, 131 pages, illustrated, muslin. Price, 5s. net. J. & A. Churchill, London.

The Physiology of Alimentation. By Dr. Martin H. Fischer. Large 12mo, 348 pages, illustrated, muslin. Price, $2.00 net. John Wiley & Sons, New York City.

Thirtieth Annual Report of the Board of Health of the State of New Jersey, 1906, and annual report of the Bureau of Vital Statistics. 8vo, 456 pages, muslin. The John L. Murphy Publishing Co., Trenton, N. J.

Manual of the Diseases of the Eye. By Charles H. May, M.D. Large 12mo, 391 pages, illustrated, muslin. Price, $2.00 net. William Wood & Company, New York City.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, Vol. XII. 4to, 978 pages, muslin. Government Printing Office, Washington.

A Manual of Surgery. By Francis T. Stewart, M.D. 12mo, 778 pages, full limp morocco. Price, $3.50. P. Blakiston's Sons & Co., Philadelphia.

Manual of Diseases of the Ear, Nose, and Throat. By John Johnson Kyle, B.S., M.D. 12mo, 627 pages, full limp morocco. Price, $3.00. P. Blakiston's Sons & Co., Philadelphia.

Surgery; Its Principles and Practice, Vol. ii. By William Williams Keen, M.D., LL.D. Large 8vo, 920 pages, illustrated, half morocco. Price, $8.00 net. W. B. Saunders Co., Philadelphia.

A Textbook of Physiology. By William H. Howell, Ph.D., M.D., LL.D. 8vo, 939 pages, illustrated, muslin. Price, $4.00 net. W. B. Saunders Co., Philadelphia.

A Manual of Clinical Diagnosis. By Charles A. Simon, B.A., M.D. 8vo, 682 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

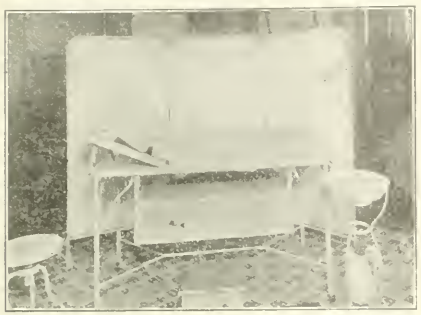
New Instruments.

A NEW TABLE FOR RECTAL WORK.

By CHARLES ALBERT SEWALL, M.D.

LOS ANGELES, CAL.

THIS table was born of necessity, was invented by myself, and has been used in about 5,000 treatments and operations on the rectum. The following are its advantages: The large drawers, with two compartments each, hide all instruments, cotton, gauze, bandages, medicines, and appliances out of sight, and at the same time they are exceedingly handy—within



reach at all times. The drawers can remain open when the patient is on the table, or closed if necessary while he is in position. My method is to put the patient in the Sims position, and as soon as need be to open the drawers, proceed with the operation, and to close them again, when he can step down and off the table. It is practically aseptic, or can be made so easily. Its appearance is good, being made of white enameled steel. The headpiece is easily lowered or elevated. The large rubber casters render it easily movable to any part of the room, so that the light can readily penetrate the speculum when *in situ*. It is practically indestructible.

507 DOUGLAS BUILDING

The Thymus Gland.—T. Gillman Moorhead, after describing the structure of this gland, states that according to many writers degeneration of the intimate structure of the organ, without loss of weight, occurs before puberty, but he adds that nothing absolutely definite is yet known except that, as a rule, there is a gradual increase of the interstitial connective tissue. Exophthalmos caused by the intravenous injections of thymic extracts has lately been shown to be produced by retroorbital hemorrhages, and is probably in no way specific, being caused by the nucleoproteids present. A study of recent work leads to the conclusion that this gland must exert some influence upon nutrition and also upon hemopoiesis. Pathology supports this view. Thus, in acromegaly, a persistent and enlarged thymus is the rule, and, apart from blood diseases, it is found that the thymus enlarges and shows evidence of active cell proliferation and division in most acute conditions attending leucocytosis. It is probable that its blood-forming function is entirely confined to the white cells. The writer believes from his own experiments, and from the study of those of Hexner, that although it is now recognized that cytotoxin sera are more difficult to produce, and are less specific than was at first thought, it must be admitted that the importance of the hemopoietic and other functions of the thymus in extrauterine life is not very great. The pathological changes in which the thymus is subject are very numerous.—*The Practitioner.*

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending September 28, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	345	130
Diphtheria	174	13
Measles	112	3
Scarlet Fever	134	2
Smallpox	..	..
Varicella	13	..
Typhoid Fever	180	23
Whooping Cough	18	5
Cerebrospinal Meningitis	15	10
Malarial Fever	..	..
Totals	991	186

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended September 27, 1907:

SMALLPOX—UNITED STATES

		CASES	DEATHS.
California, San Francisco	Sept. 1–7	4	..
Delaware, Delaware Breakwater Quarantine	Sept. 24	1	1 from S. *Vienna* from Tagal, Java
Iowa, Ottumwa	Sept. 14	1	..
Kentucky, Louisville	Sept. 8–14	1	..
Covington	Sept. 8–14	1	..
Louisiana, New Orleans	Sept. 8–14	1	..
Michigan, Detroit	Sept. 1–14	1	..
Saginaw	Sept. 1–14	4	
Minnesota, Stillwater	Aug. 1–31	3	..
Ohio, Cincinnati	Sept. 6–13	1	..
Utah, Salt Lake City	Aug. 1–31	3	..
Washington, Spokane	Aug. 1–31	2	..
Wisconsin, Milwaukee	Sept. 8–14	2	..

SMALLPOX—FOREIGN

Africa, British So. Africa, Kimb'ly	Aug. 1–31	1	..
Austria, Vienna	Aug. 24–31	23	6
China, Chefoo	Aug. 3–10	1	..
Shanghai	July 28–Aug. 10.	3	70
France, Paris	Aug. 26–31	4	1
Greece, Piraeus	Aug. 26–31	1	..
India, Calcutta	Aug 4–10	..	3
Mexico, Aguas Calientes	Aug. 1–25	..	4
Mexico City	Aug. 11–17	..	7
Portugal, Lisbon	Aug. 24–31	5	..
Russia, Moscow	Aug. 18–24	2	..
Warsaw	Aug. 4–10	..	1
Spain, Valencia	Aug. 25–Sept. 1.	22	1
Turkey in Europe, Constantinople	Aug. 25–Sept. 1.	..	1
Turkey in Asia, Bagdad	Aug. 3–10	..	Present

CHOLERA

China, Amoy	July 21–27	1	1
Amoy (Kulangsu—native city)		..	
Shanghai	Aug. 10	3	90
India, Bombay	Aug. 6–20	..	60
Calcutta	Aug. 4–10	..	15
Madras	Aug. 10–16	..	1
Rangoon	Aug. 4–10	..	1
* Russia, Astrachan City	July 14–25	354	123
Astrachan district	Aug. 22–25	19	..
Janotajewsk district	Aug. 22–25	1	..
Zaritzin district	Aug. 22–25	3	12
Ataman, Stanitza	Aug. 10	..	Present
Baku	Aug. 25	2	2
Jurino	Aug. 26	2	..
Melekes	Aug. 25–Sept. 1.	0	3
Nilolajwesk	Aug. 25	12	8
Nizhni, Novogorod	Aug. 26	2	..
Samara, Gov't District	July 16–Aug. 4.	50	10
Samara	July 16–Aug. 25.	202	92
Stavropol	July 28–Aug. 5.	3	..

YELLOW FEVER

Cuba, Cienfuegos	Sept. 18–24	4	1
Total from Aug 3.	Sept. 24	54	15
Habana	Sept. 24	1	..
Santa Clara	Sept. 18	1	..
Jovellanos	Sept 24	1	1

PLAGUE—UNITED STATES

California, San Francisco	Sept. 18–25	13	8
Total from	Aug 12–Sept. 25.	42	25

PLAGUE—FOREIGN

China, Amoy	July 21–Aug. 3	3	3
Amoy, native city, estimated 20 deaths daily.			
Foochoo	Aug 3	..	Present
Foochoo, Hinghua suburb	Aug 3	..	Epidemic
India, General	July 27–Aug 3	2,548	1,957
Bombay	Aug. 7–20	..	30
Calcutta	July 21–Aug. 10.	..	27
Rangoon	Aug. 3–10	..	29
Mauritius	Aug. 15–22	4	..

* Cases mainly from vessels.

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Original Articles.

THE SPECIFIC ACTION OF RADIUM AS A UNIQUE FORCE IN THERAPEUTICS.*

By ROBERT ABBE, M.D.,
NEW YORK.

In recounting the diseased conditions of the body in which we see favorable restorative power from radium, I do not invite criticism from those who may say that the same effects can be produced by caustics, Röntgen rays, dietetics, local medication, or electricity. I wish briefly to present facts to show that radium acts entirely unlike these, and to clear the air of some prevailing exaggeration and doubts.

Butlin recently said "there are two kinds of evidence: that which satisfies the inquirer who wishes to believe, and that which is required by the skeptic." If both these could follow the interesting series of results which men who have been able to use this remedy have seen, argument would be simple.

The inefficiency of word description or photography in delineating surgical growths, led me long since to keep records by plaster-of-paris casts, where possible, to enable me more accurately to compare by measurement and appearance before and during the study of radium effects.

A few demonstrations of this are more quickly convincing than words or photographs. As a basis for argument, therefore, I present to your notice a small group of casts chosen from hundreds which I have made.

As a typical epithelial carcinoma, observe this round, raised growth on one side of the forehead. It is 2 cm. in diameter by a half cm. in height. Strong radium (60 mgr. pure radium bromide) sealed in a glass tube, pressed against the growth for one hour, produced a prompt disappearance with only a shallow pink cicatrix.

*Read before the Sixth International Dermatological Congress, New York City, September 12, 1907.

Another of the same size on one side of the nose growing worse for two years, in an elderly lady, and showing fungus ulceration, disappeared in four weeks after one application of one hour. The accompanying cast shows the almost invisible shallow cicatrix. This has remained cured for three years. Scores of such cases have yielded similar results under radium treatment. Many of these casts have been modeled before and after treatment and show the specific action of this agent, with almost infallible results.

Observe this severe case of epithelial cancer of the nostril, septum, and upper lip, in a lady of 70 years. It had become distressing to herself and friends. When she was referred to me her age and delicate physique, as well as her dread of disfiguring operation, led me to try radium. I laid upon the diseased part Curie radium 15cgr. 300,000, and 10 mgr. 1,000,000, this would represent about the strength of 20 mgr. of the present standard pure German radium bromide. This was repeated for one hour on ten successive days. A slight reaction was then noticed, and treatment stopped. At two weeks the edges were much flatter and contracting, while discharge had ceased and the florid granulation changed to a gray surface, exuding a little thin lymph. In five weeks the entire sore had healed, and only a thin small cicatrix remained. These three stages are veritably shown in the accompanying colored casts (Fig. 1). Two years have gone by and the patient remains cured with a perfect smooth, small cicatrix.

The same type of disfiguring cancer is shown in another cast, one nostril and cheek being diseased. This patient was sent to me by Prof. Weir to see if a disagreeable plastic operation could be avoided. Three short séances, total thirty-five minutes, were given with the strongest specimens (amounting to twelve times the working unit of 10 mgr. pure). In two days it already had begun to retrograde, and in three weeks was entirely and permanently healed.

On the same day, nearly two years ago, another

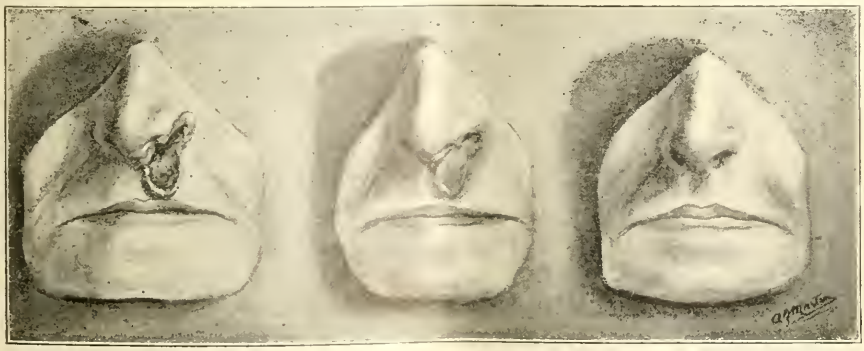


FIG. 1.—Epithelioma of the nose and upper lip, showing dimi[illegible]en at the end of two weeks, and disappearance at the end of five weeks.

man was referred from the same surgeon, for a similar growth which had involved one-third of the upper eyelid. Three five-minute seances with one cell of pure German radium bromide, 10 mgr. (working unit), permanently cured this man in two weeks.

In such cases I protect the eye by thin sheet lead, shaped like a spoon handle, covered by gutta-percha tissue, and slipped under the cocainized eyelid, between which and the radium the diseased part is compressed.

I show you also many other colored casts, indicating the condition, treatment, and result. A large proportion of these are situated upon the face, neck, and ears. These are not only favorite sites, but offend by their disfigurement, and tax the ingenuity of the surgeon to remove by a plastic operation adequate to prevent recurrence.

Most of the grave cases were subjected to critical microscopical study before treatment, and so uni-

Fig. 2.—Showing the [illegible] of [illegible] radium in [illegible].

formly found to be epithelial carcinoma that in minor cases I have trusted clinical appearances, which to me, after thirty years of surgical work, seem worthy of confidence.

The accompanying card (Fig. 2) shows a face, on which I have charted the presence of seventy-seven cases of epithelioma (or lupus that has in parts become epithelomatous) on seventy patients.

This represents a selected typical series, but by no means all, which I have treated by radium for this particular disease. Numbers of these existed for years as keratoses before becoming epithelomata. The ordinary senile keratosis has not been included among them, but forms another [illegible] interesting series. It can be made to disappear always in ten days by one application of twenty minutes of the working unit of radium.

Of the epithelomata charted above I may say that I have yet to lose one case which did not show retrograde [illegible] to the eye. In some of these, however, which had involved deeper layers than the cutaneous, the invasion would sometimes [illegible] ahead of the tissue treated, as, for example, in the orbit where the eyelid had first been diseased, and a mass had grown into the underlying cellular and fatty tissue of the orbit. One would uniformly see a superficial cure and a partial deep reduction. Then, after some weeks there followed a progressive invasion beyond where it seemed wise, or possible, to treat it on account of the proximity of the eyeball. In such cases, therefore, I have treated the case up to this point, and then thoroughly removed the diseased orbital contents.

Epithelioma of the eyelid, when confined to the cutaneous, mucous or glandular structures, seems to be controlled and cured as by a specific. No surgical agent has yet been found so efficient. Even small specimens of 1 milligram of strongest German radium bromide have shown their beneficent action.

As a further note preliminary to better understanding of the unique action of radium, let me recall its value in treating warts. The curative action is perfect in every case, no matter how inaccessible, even under the finger nails, or how large or ancient. A radium specimen sealed in a glass tube will always cure by contact. Even on the soles of the feet where painful callus had been found to have verrucous base, one application of radium has produced prompt cure in three cases.

In melanotic moles—either congenital, hypertrophic, or hairy—the action of radium is almost specific, and with this singular coincident action, namely, that where the dosage is graduated correctly the hypertrophic pigmented tissue atrophies and leaves normal appearing skin. Even in the pigmented skin of a black man I found pink skin areas defined the points of contact with my radium tubes. I have thought it might have selective action for pigment layer cells, and may be used in melanotic growths; hence, I have used it in superficial brown moles, coal black melanotic moles, recurrent nodules of melanotic sarcoma, melanotic epithelioma (primary), and on thick-skinned, hairy, pigmented moles. The result is invariable—the growth and pigmentation uniformly retrograde.

To illustrate, let me cite a case of pigmented hairy mole of the face. Large, hairy, pigmented mole on thick brown skin, covered with hair like a mouse skin, in which were a large number of longer hairs 1 to 1½ cm. long. Approaching this novel condition with caution, I began in June, 1906, with the strongest tube, 60 mgr., pure radium, pressing it on various parts for half an hour at a time. On three occasions during two weeks I applied it in all two and a half hours. On the following week a sharp reaction occurred with blistering and epilation. Watching the results of each treatment, I proceeded with such slowness that during nine months I made thirteen treatments, a total of eleven hours (nine hours of 60 mgr. tube and two hours of 10 mgr. cell). This would represent, therefore, fifty-six hours if I had used only a 10 mgr. tube.

The result is a perfect cure, with reduction of the thick pigmented skin to normal quality without vestige of a hair. At one stage a large part was normal, except for a thin coffee-colored stain. Assuming that some pigmented cells were undertreated, I made short applications of radium, and the color entirely faded. Had I to treat the case again I would apply to the entire surface my strongest radium tube, 60 mgr., for one hour each week—not pressing it longer than five minutes on any one spot. I believe eight séances of one hour each would produce a cure—and without a scar.

Let us emphasize the retrograde change that takes place in the pigment cells, the hair bulbs and cutaneous gland structure. In other words, radium

has changed a patch of thick skin resembling that of a hairy animal to human skin.

I ask attention to another case demonstrating radium's unique power. The casts here shown (Fig. 3) accurately depict a tumor of the lower lid in a middle-aged man, growing more than a year, microscopically a small-celled sarcoma which had progressively grown in spite of careful Roentgen-ray treatment. Four times I laid upon it some little sealed tubes of radium (total strength 20 mgr. R. Br.) for an hour each time—then waited. In two weeks the retrograde began. In four, as the cast shows, it had undergone rapid decline, and in eight weeks it was gone. The patient presents himself for you to see that after two and a half years he remains absolutely well without recurrence, and that you cannot distinguish upon which eye the tumor was situated.

Fig. 3.—Sarcoma of the lower eyelid, showing condition at the beginning of treatment at the end of two weeks, at the end of four weeks, and disappearance at the end of eight weeks.

In the spindle-celled sarcomas I have observed an arrest, but not a decline of the tumor, and will at present say nothing more of them.

But in a group of so-called giant-celled sarcomata, five in number, I have been able to demonstrate what seems to me to be a distinct specific action.

I reported in 1904 the case of a lad in whose lower jaw the bone was practically destroyed at one part and replaced by a soft purple growth—sarcoma rich in myelo placques.* Under radium stimulation this growth was rapidly reduced in bulk, developed ossific points throughout, and finally became solid with new bone. The boy has had no treatment for three and a half years, and he has now a solid jaw bone.

In a similar condition in a case referred to me by Prof. E. G. Janeway, an elderly lady had a fracture of the lower jaw and a tumor had developed at its site. Several treatments were given with rapid retrograde of the tumor, and fine bony union resulted.

In a lady of thirty years, prolific development of soft giant-cell growth of both upper jaws and the lower right jaw has been kept in check by radium application during two years. On every reappearance of the purple growth it promptly shrinks after one or two applications.

In a small Italian lad the entire hard palate was replaced by a soft giant-celled sarcoma; it expanded the upper jaw and was not less than 3 cm. in depth. Into two points in the mass where tissue was removed for microscopical study, the strongest radium tube (60 mgr. R. Br.) was inserted for one hour on two occasions. Rapid atrophy of the whole central mass, and ossification of the remainder, followed in a few weeks—and the apparent cure continues one year after.

In a fifth case a bleeding growth began between the incisor and canine tooth—microscopically shown to contain giant cells. Two applications of radium, 20 mgr. R. Br., total one-half hour, gave prompt arrest of hemorrhage and shrinkage of the growth.

*See Medical Record, August 27, 1904.

The force issuing from an hermetically sealed tube of radium consists of certain obscure radiations, to which the name beta and gamma rays have been applied, the former carrying a charge of negative electricity, the latter being without apparent electric charge. (The alpha rays carry a positive charge, but have such little penetrating power that they cannot escape through the glass.)

The beta and gamma rays are indistinguishable in their physical character from, on one hand, the electrons thrown off by the negative disk of the Roentgen tube, and, on the other, the rays emanating from the tube (Lodge).

It is easy to distinguish two methods of radium action. One, the specific retrograding effect on neoplasms, whose essential substance is an erratic overgrowth of epithelial, embryonal, or glandular structures. (The latter is seen in parotid or thyroid tumors, where extraordinary changes are occasionally produced by radium, though its precise limitations cannot yet be assigned.)

The other effect is seen in the occlusive blockade of highly vascular tumors by irritant action, as in nævi and large angiomata.

That its power does not reside alone in producing local inflammation is shown by its effect on dry seeds, whose life force is changed by exposure to it, so that growth is retarded after planting, in proportion to the time of exposure.

Also in animal life, as illustrated in meal worms, where radium so represses them that they go on living as meal worms, "veritable Methuselas," as it has been said, while their sisters and brothers, unradiumized, progress for generations, completing several cycles of beetles, eggs, meal worms, etc.

Of radium action on bacteria, it is enough to show two culture plates, upon whose central part strongest radium has been playing through sterile paper for fifteen hours. The colon bacillus and *Staphylococcus aureus* growth was checked thereby only in the immediate vicinity of the radium, after this very long exposure. In one a lead strip was interposed and growth occurred beneath it.

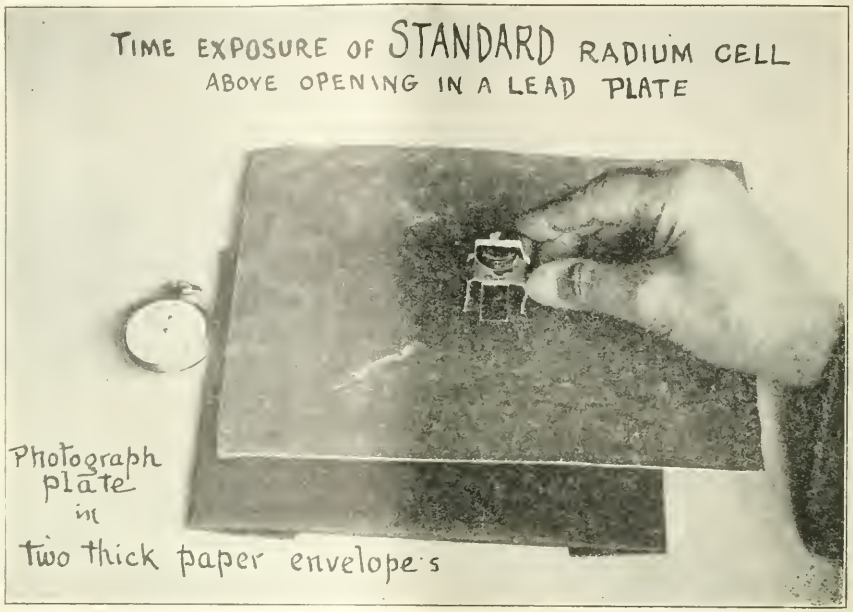
The time needed to destroy bacterial life in these cultures makes it improbable that the good action of radium can be considered bactericidal in malignant growths (even if these had been proved to be of bacterial origin), because that length of exposure would destroy all living tissue at the site of application. Practically the best results are seen when a tenth of this force is used and no necrosis of tissue follows. It is improbable, therefore, that its value is due in any large degree to its bactericidal power.

I invite your attention one moment to a very practical point, a simple and accurate method of measuring the power of radium specimens. Investigators have used extremely variable strengths and amounts of this precious mineral. It is fair to say that moderately strong specimens may be effectually used, but that very weak ones show uncertain results.

Hence, a standard may well be adopted, and must be put at the present time as 10 mgr. of the German pure radium bromide strength denominated 1,800,000.* Let us call this the "working unit."

Inasmuch as innumerable variations from this, both in weakness and quantity, are in use, we must

velopes and mark across the paper two series of squares, writing in each the numbers 5, 10, 15, 20, 30, 40, 50, 60; cover the surface with sheet lead in which a corresponding square is cut. Place this over the first square and suspend above it the standard 10 mgr. R. Br. held at a fixed distance by a bent



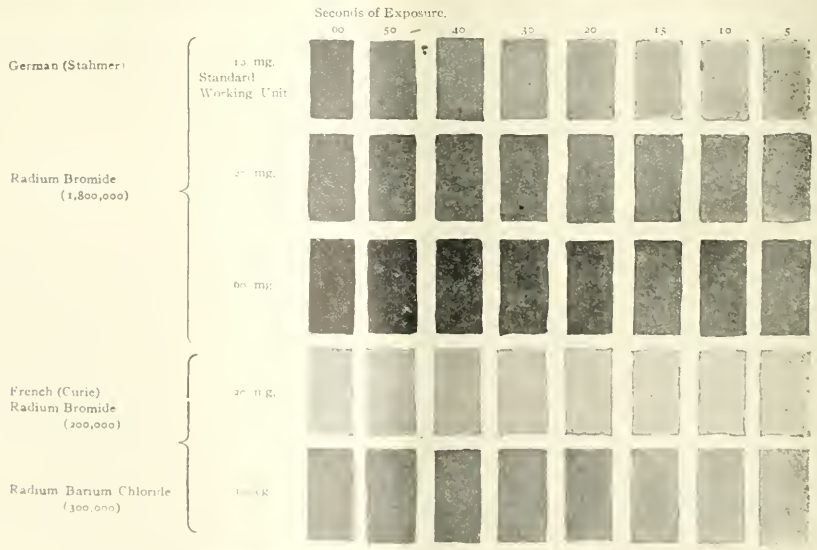


FIG. 4 [illegible] test mate of the working value of radium specimens.

have a fair gauge—and I offer the photograph plate as the easiest and most acuracte test. (Fig. 4.)

I have graphically shown my method of determining the working value of an unknown specimen. Enclose a sensitive dry plate in two black paper en-

piece of lead. With a stop watch in hand, expose it five seconds, move the open lead to the second square, expose 10 seconds, and so on for all. Repeat these exposures on the second series of squares using the unknown specimen of radium for the same exact times as the standard. When the photograph

*Obtainable from Hugo Lieber, 1 Platt street, New York.

plate is developed one sees two series of squares delicately shaded exactly in proportion to the time of exposure.

Observe that a shade of standard five-second exposure is identical with that of the unknown specimen of thirty seconds. We have accurate value, then, for the working force of the unknown, which will require six times the length of exposure to a tumor as the standard.

Having established the working value of a specimen of radium one may produce the results which one sees from the working unit of 10 mgr. R. Br. (1,800,000) as follows:

1. If this be placed upon the skin for ten minutes nothing will be seen for a week. Then a pink-red spot appears, with itching and burning. After two weeks it has gone.

2. Exposure of 30 minutes. Burning, itching, and redness occur in three days, are more severe, and last two weeks. If an epithelial growth has been treated, its retrograde begins about the tenth day. In previously painful tumors the pain usually stops.

3. If an ulcerated surface be treated, or a strong radium tube be inserted in a wound for twenty-four hours, there will result a specific toxemia in many cases. The symptoms will be headache, chill, general aching, coated tongue, fever up to from 103° to 106° F., and an occasional rash like that of scarlatina.

In six cases that were perhaps overtreated, I have seen a spreading rash resembling erysipelas starting at the diseased ulcer, and subsiding after two or three weeks.

In all cases of severe reaction the sequel has been favorable. In two, however (one cancer of the tonsil and one of the tongue), I thought the patient not as well for a time afterward. But reviewing all, I can definitely state that I have never seen harm follow the use of strongest radium. On the other hand the curative effect of severe reaction healed a large, deep angioma of the parotid, after grave toxic symptoms, with temperature 106° F.

At first I thought the toxemia might be favorable, owing to absorption into the lymphatics of a self-generated toxin (or antitoxin) along the line of preceding disease absorption. This hypothesis was disproved by two facts; first, that subsequent examination of axillary glands removed from a patient with a mammary scirrhus, who had had a lively toxic reaction, showed the disease still present in them, while the breast tumor had atrophied. Second, that the same toxemia occurred while treating a case of goiter and one of parotid tumor, in which a radium tube had been inserted with lively effect. Here was no chance for antitoxin generated from malignant growth.

I may say that my glass tubes are always cleansed and immersed in 95 per cent. carbolic acid, followed by alcohol—both after and before using—so that no infective toxemia would be likely to occur. I conclude, therefore, that fever is due to cell necrosis close to the strong radium tube, and not from liberation of a toxin.

In what does the beneficent action of radium reside? This question, with many others, still awaits solution.

We know only that we have a subtle force, which, as far as we discern, is a stream of rays charged with negative electricity with intense penetrative power, capable of traversing stone, human flesh, or solid steel with facility, which plays upon the vital cells (animal or vegetable) and alters their rate of growth, or kills them altogether.

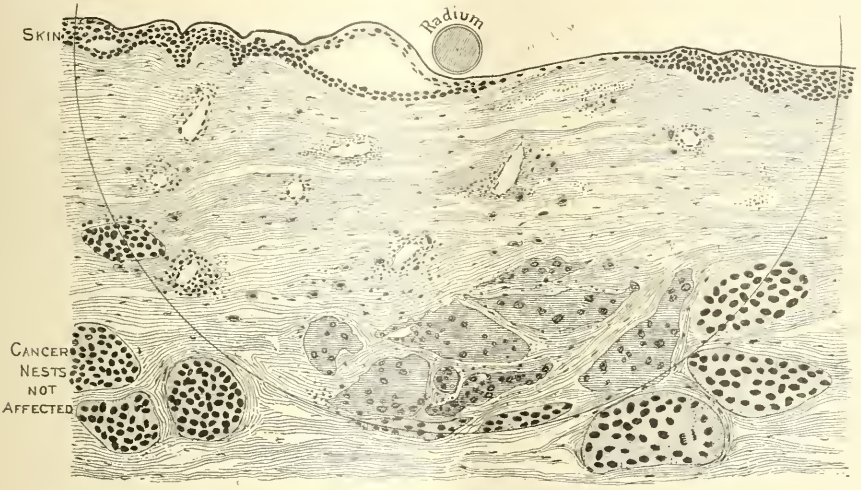


Fig. 5.—Recurrent subcutaneous nodule degenerating under one radium application; showing the sphere of influence; the dead cancer nests are indicated by horizontal hatching.

What the vital spark is in a living thing no one knows. It has been surmised that life itself may only be an embodiment of electric force. It has been supposed by some that a living cell continues its normal career owing to a balance established within it between positive and negative electric force, and that an aggregate mass of cells in the body, such as constitutes a tumor, may result from their erratic growth owing to a loss of balance of electric equilibrium. May it not be reasonable to suppose that a mild application of radium emitting its distinctive rays is thereby capable of restoring the electric equilibrium, while on the other hand a prolonged and intense application carries the balance to a destructive termination?

Consider for a moment that remarkable case you have seen of the tumor of the eyelid. It had displaced the normal skin and mucous membrane, and grown in bulk many times the size of tissues that had been lost in it. There was no semblance of an eyelid in the mass whose tuberous growth rose in

heaped up masses on the skin, and within, and on the edge.

A cross section would have shown no vestige of former tissues which were destroyed or lost in the mass. Yet, when retrograde was finished under radium action, behold the normal skin structure, the normal edge of the eyelid, normal mucous membrane, normal glands, and eyelashes! The original cells were not destroyed. There was a reassembling out of the conglomerate diseased mass. Whence, then, came the diseased cells? This can be answered only by the assumption that an intercellular invisible and ultramicroscopic system of particles had existed with a life of their own, constituting a network holding the visible cells together. This system, then, had itself taken on an erratic growth and become a sarcoma mass, engulfing the regular occupants of the ground.

Conclusions.—Radium ranks, not with caustics, cautery, antiseptics, or medication, but with specifics.

This does not mean a "specific" for cancer, in the popular sense, but for erratic cell growths constituting some types of tumor tissue in the earlier stage of invasion, or of moderate development.

Details of the methods of using it have not yet been fully worked out. The dosage, so to speak, or time of exposure necessary for curative action, is as yet empirical.

Some apparent cures of small epitheliomas or sarcomas have endured already more than three years.

A photographic plate provides a good test, to show the working force of an unknown specimen, in comparison with one of standard strength.

It is not entirely a mysterious force—but, in part at least, is an electric discharge, essentially of negative elements. Hence, as far as it is possible to say, it suggests a theory of its action, in that it may supply an element of electric force vital to normal and orderly growth, the loss of which may have caused a disorderly cell growth which, in the aggregate, constitutes tumor masses.

It is supplementary to Roentgen rays, and, in some cases, is efficient where they fail.

The overaction of strong radium is destructive and vitiates the benefit of moderate use.

The best results have followed one hour's exhibition of the working unit (10 mgr. R. Br.) on small growths, and three to four hours on larger ones, with an interval of one month for study of the effect.

Ischemia of the parts during treatment greatly enhances its action.

Pigmented moles, melanotic growths, and giant-cell sarcoma, like epitheliomata of the eyelids, face, and body, are particularly susceptible to its curative action—as a specific agent. But its value in nevoid and angiomatous tumors is due to its irritant action, producing obliterating endarteritis and fibroid changes.

A Bacillus in General Paralysis.—A. M. Robertson states that he has found a bacillus (Muirhead's diphtheroid) in the blood of persons suffering from general paralysis, adding observations on the *Bacillus paralyticans*. The primary observations were restricted to cultures made from the blood and cerebrospinal fluid of living general paralytics. The mucous surfaces were avoided, owing to the recognized occurrence of diphtheroids in those regions in other conditions, and post-mortem results were treated as of secondary importance, owing to the tendency to ante mortem invasion by microorganisms, and the rapid putrescence of those dying from general paralysis. The positive result of these researches was the finding in the blood of a bacillus of the xerosis group of diphtheroids differing from *B paralyticans*.—*British Medical Journal.*

PRACTICAL VENEREAL PROPHYLAXIS.*

By DENSLOW LEWIS M.D.,

CHICAGO.

THE DELEGATE OF THE SECTION ON HYGIENE AND SANITARY SCIENCE OF THE AMERICAN MEDICAL ASSOCIATION.

During the past few years the attitude of the medical profession towards venereal prophylaxis has undergone a marked change. To-day the sentiment may be said to be almost unanimous in favor of publicity. The medical press, which only a few years ago refused, in some well-known instances, to publish any reference to sexual hygiene or prostitution, now takes note of all attempts at prophylaxis, and even advises in editorial comment methods not long ago tabooed or, what is worse, totally ignored.

Medical societies have also taken action in this regard, notably the State Medical Societies of Washington and Michigan. In the latter State a standing committee was created two years ago who shall act as "the exponent and executive arm of the society in dealing with this important matter of venereal diseases."[1] The Washington State Medical Association appointed a committee on venereal prophylaxis in 1903. Two years ago the report of the committee shows, in answer to an inquiry regarding methods of instruction in use in various clinics throughout Canada and the United States, that thirty-two give verbal instruction only, and two issue pamphlets on venereal diseases. The society suggests a permanent committee on venereal prophylaxis to compile and issue proper pamphlets to be distributed by the profession. The committee of the Washington State Society, under the able leadership of Dr. G. S. Peterkin of Seattle, has prepared five pamphlets which consider the frequency and economic dangers of venereal diseases, the facts concerning gonorrhea or clap, rules for persons having gonorrhea or clap, together with rules to prevent complications and aid cure, facts concerning syphilis or pox, and instructions for persons having syphilis or pox. Each pamphlet is written in plain language, can be read in three minutes, and is of convenient size to be carried in an envelope or pocketbook.[2]

In 1901 the American Medical Association, as is generally known, effected a definite organization. Prior to that time attempts to interest the profession in venereal prophylaxis by favoring educational methods were, to say the least, unsuccessful. Valentine's experience[3] and my own on two occasions illustrate the former intolerance of professional opinion, even to the mention of such "filthy" subjects.[4] One object of such organization is said to be "to federate the medical profession of the United States for the purpose of enlightening and directing public opinion in regard to the broad problems of State medicine."[5] At the Saratoga meeting in 1902 the oration on "State Medicine" said: "Compulsory examination of prostitutes is another necessity for the purpose of preventing the spread of venereal diseases. It is said that either the city of New York or Chicago contains at the present day venereal infection sufficient to contaminate the male population of the United States in a very short space of time. We do not want legalized prostitution as it exists in European countries. I do not believe in authorizing houses of debauchery and making of prostitution a regular profession. The State has no right to regulate prostitution. I am proud of my country, which is fortunately free from the incubus of State-regulated vice. All that is desired is a State law for municipal governments to keep a register of all women

*Presented at the fifty-seventh annual meeting of the Illinois State Medical Society, held in Rockford, May 21 to 23, 1907.

known or suspected of prostitution and that such women shall be liable at any time to be called in for examination. But no certificates should be issued to them as to their healthy or unhealthy condition, for such a certificate would simply encourage the vice. However, if found affected with a venereal disease, they should be sent to a detention hospital or sanitarium and should be detained there until cured." The Massachusetts law is favored, which advocates that "a suitable hospital or sanitarium devoted to diseases peculiar to prostitutes should be established in each and every city, with the power to place and keep there all women so diseased until cured. The hospital should not be intended as a prison, for such is directly contrary to reformation. Liberal arrangements as a hospital would afford no encouragement to vice, and would certainly help wonderfully to eradicate the evils."[6]

Holton of Vermont introduced in the House of Delegates the resolution of Ludwig Weiss, which had been adopted by the Section on Cutaneous Medicine and Surgery. It states that "since there lies in the province of the medical profession the task of recommending to the respective State legislatures and municipalities means, not regulamentative, but social, economic, educative, and sanitary in their character to diminish the danger from venereal diseases, it is resolved that the Section on Cutaneous Medicine and Surgery invite the Section on Hygiene to cooperate with this section to bring about a propaganda in the different States looking towards the recognition of the dangers from venereal diseases and to arrange for a National meeting similar to the International Conference at Brussels." Sanders of Alabama suggested a committee of six members from the two sections "to stimulate the study in, and the uniform knowledge of the subject of the prophylaxis of venereal diseases and to present a plan for a national meeting."[7]

This committee reported at the New Orleans meeting in 1903 that there is an utter lack of laws to combat venereal diseases. "Seventeen States have the usual laws and sundry police regulations of general character against houses of ill fame, including specified nuisances therein, against soliciting in streets, and against enticing females under sixteen years of age." There was in no State a sanitary marriage law providing for medical examination of the contracting parties, no law against willfully or knowingly communicating venereal disease, and no municipal regulations in existence in any city in reference to venereal disease. There were police regulations of a general character, which were confessedly a dead letter; Detroit and Cincinnati had regulation on the continental plan. There was a scarcity of beds in every city for the accommodation of venereal patients. The committee again favored a National Conference on Venereal Prophylaxis, and suggested that the American Medical Association ask the accredited delegates from each State, or appoint a special committee to organize a movement in the different States to influence all State legislatures to appreciate the necessity of legislation against the venereal diseases. The committee recommended the appointment of a central committee organization to be in touch with the various State committees. The House of Delegates adopted these recommendations. It advocated the continuance of the committee to act as a central committee as suggested, the creation of cooperative committees to be composed of one member from each State appointed by the president of the State society, and it provided for a meeting at the St. Louis Fair in 1904 and advised trying to get $5,000 from Congress for that purpose. Evidently the committee failed in its effort, for I find no reference in medical literature to the proposed conference at St. Louis.[8]

At the 1904 meeting of the American Medical Association the Section on Hygiene presented a symposium on venereal diseases. In the House of Delegates the committee on venereal prophylaxis made its second report, which was most comprehensive. Attention was directed to legislative measures which minimize the ravages of tuberculosis by making it reportable to Boards of Health, and to prohibition and high license which "tend to curb the alcoholic demon." It was said that "government, State and municipal officials, university regents, and the educated public generally, are imbued with endeavor and good will to check the alarming spread of venereal disease." The general public, however, "dolefully ignorant, indolent, and unwittingly but criminally careless, must be reached, educated, and enlightened as to the importance, dangers of acquiring, and the dire consequences of disseminating venereal diseases." The committee reached the conclusion that "systematized action emanating from the medical profession—a dissemination of knowledge to teach the populace the hygiene of sexual life—is the first step to diminish the dire consequences of venereal disease." The recommendation was again made that National and State societies for combating venereal diseases be created, but the House of Delegates decided that the Section on Hygiene "do the work necessary for the opening of this important matter."[9]

At the Portland meeting in 1905 nothing was done relative to venereal prophylaxis either in the Section on Hygiene or the House of Delegates, but at the Boston meeting in 1906 the Section on Hygiene presented a special symposium on the subject; the crimes against woman and the relation of alcohol were also considered. The cordial cooperation of many who are eminent in the profession and in philanthropy made it possible to present a series of papers of very great practical value, which are now published in book form. In the House of Delegates certain resolutions relative to the advisability of continence, the necessity of teaching the public regarding venereal infection, and the desirability of reporting venereal diseases, adopted unanimously by the Section on Hygiene, were referred to the Committee on the Improvement of the Treatment of Uterine Cancer, but this committee took no action. It did, however, report in favor of devising some ethical way of instructing the people regarding matters of public health. It submitted a plan for the organization of a General Board of Public Instruction to be composed of members of the different sections of the American Medical Association.[10] At this year's meeting in Atlantic City it is hoped the committee's recommendation will be adopted, and in that event it is reasonable to suppose that the need of publicity in regard to the venereal diseases will receive appropriate attention. It is perhaps not too much to expect that the American Medical Association, now that organization is perfected, will take some positive action in venereal prophylaxis along practicable lines.

The International Conference, first held at Brussels in 1899, has been referred to. As early as 1902 it was hoped a similar conference might be held in America, but, as already stated, the hope was not realized. At the second Brussels conference, held in 1902, it was recommended that there be organized in all countries special societies "for the study of the best means of every order—moral, legislative, social as well as medical—to be employed in the prophylaxis of these diseases."[11] Such societies have been organized in Germany, France, Italy, Spain, Hol-

land, and other European countries. In February, 1902, the American Society of Sanitary and Moral Prophylaxis was organized in New York, and to-day also Philadelphia, Detroit Milwaukee, and Chicago have branch or similar societies. These societies vary in their activity, but whenever public meetings have been held, clergymen, teachers, lawyers, and public-spirited men and women from all walks of life have favored an educational campaign against the venereal plague, and have demanded an active propaganda which shall teach the truth.

Thus it is seen that at last there is a prospect of definite action along educational lines, and the outlook for consistent prophylaxis is encouraging. In the meantime there is work for every one of us to do. No educational effort regarding venereal diseases is adequate without full consideration of the hygiene of sex. Thus the attempt to limit venereal infection will restrict at the same time abortion, illegitimacy, infanticide, and other results of a misdirected sexual instinct. For several years past I have not hesitated to express my views on this important subject. I am now asked regarding actual means which are practicable, and I attempt to outline a plan of campaign, which, with certain modifications to meet local conditions, is to my mind feasible and desirable. Its first essential is frankness, telling the truth to everybody. Its details have to do with aiding parents to teach their children, helping educators, from the kindergarten instructor to the university professor, to impart consistent knowledge to their charges, showing the employer how venereal diseases incapacitate his employees, informing the public of the extent and seriousness of these diseases, the possibility of innocent infection, and the need of scientific treatment. This means the creation of a rational public sentiment which will appreciate actual danger and override and put down all maudlin sentimentality and all ignorance that parades as innocence, in the earnest effort to afford protection by an exposition of the truth.[12] Incidental to such an educational propaganda must be a revision of our school text-books on physiology, supplementary instruction by medical teachers, and the repeal or modification of our obscenity laws which to-day place every author of a popular book on sex topics at the mercy of an ignorant jury. As a further important incident in venereal prophylaxis the care of the prostitute, who is the chief source of infection, must be mentioned.[13] To accomplish any positive result the medical men of our country must be up and doing. The time has come when in every community their efforts will be sustained and encouraged. Their advice will be welcomed, their endeavor will be appreciated, there will be intelligent cooperation by the public, and the results obtained will be productive of good to all.

Furthermore, and this presents formidable obstacles to be surmounted, the public press must come to our aid in the dissemination of actual knowledge. Papers presented to medical societies and printed in medical journals are of relatively little value to-day when the profession acknowledges the need of teaching the public. To reach the people, the daily newspaper must print the truth so that the people may read it. My own efforts have failed to induce some of the leading periodicals of the country to publish any reference to sex topics or venereal disease. When, however, I addressed public meetings in Detroit, Meadville, and Erie, Pa., the newspapers favored [illegible] good reports, covering often one or two columns.

To [illegible] the usual attitude of the press, I instance one occurrence. When the National Purity Federation adjourned at the conclusion of its session in Chicago last fall, several clergymen and their wives, together with others interested in rescue work, visited the slums. My individual opinion regarding the value of such an excursion is immaterial, but in fairness it must be admitted that there was no more impropriety in it than there is when delegates to a medical convention visit clinics and hospitals. The reporters seized upon this incident and described all details, but a few words sufficed to report the praiseworthy proceedings of the meeting. Of the wealth of information furnished by rescue workers, clergymen, a few physicians, and noble-minded men and women whose lives are consecrated to the cause of humanity, only meager details, exploited in a sensational manner, reached the public; but the remarks of the saloonkeepers were reported *verbatim* and the actions of drunken denizens of the dives were described in full. The paper I had read by invitation was offered to the daily press and promptly returned with the explanation: "The policy of our paper has been to avoid discussion of the sex relation in our columns, and, therefore, I should not feel justified in publishing the article." Three other papers which I wrote for the public in language which several representative women in Chicago assure me is unobjectionable, were also refused publication by the *Arena*, the *Saturday Evening Post*, the Hearst syndicate, and the *Ladies' Home Journal*.

Prophylaxis in children is favored by removal of all sources of irritation which predispose to congestion of the genitals. Retained smegma under the prepuce, impacted secretion around clitoris, or adhesions of the parts, are easily relieved by simple surgical procedures, and cleanliness should be taught and maintained. The child should also be taught by reference to the flower, and the chick the reproduction of life from the egg. In simple language, it may be shown by reference to the dog, the cat, or other domestic animal, how the human animal likewise carries the egg within its body and gives birth to its young. Attention may be called to growth or development whereby the calf, for instance, becomes a cow, and in this connection salutary instruction in hygiene may be given, because it is easily realized that growth must not be impeded.[14]

As the boy approaches puberty he should be told of the sexual instinct which exists to insure the perpetuation of the species. It is a masterful instinct, because most important, but it should not be indulged until development is complete and the boy has become a man and has been privileged, under the restrictions of religion and civilization, to take his place as the potential head of a family. The new sensations that he experienced at puberty are thus understood and the evil of masturbation is known, because it has been explained as a practice prejudicial to health and development. The importance of the laws of health has been instilled into the child from the earliest moment when he was able to understand anything, and at this time the necessity of care is emphasized in relation to the newly awakened instinct.[15]

The girl should also know the truth. She should be told all that the boy has been told, and in addition that menstruation is the preparation of her body for the performance, when she is older and is married, of the sacred and important act of reproduction. She should understand that hemorrhage from the genitals is to be expected, and that, unlike hemorrhage from any other portion of her body, the loss of blood here is not dangerous, but salutary. She should be instructed in the care of her body during menstruation. She should realize that she is becoming a woman and that it is right for her to care for herself during the menstrual epoch, not only because

it insures good health, but also because by so doing she prepares herself for the fulfillment, in adult life, of the supreme duty incident to motherhood and the perpetuation of the species.

This much should be told every child by its parents, but alas! the parents themselves are too often ignorant or careless, and thus are neglectful of their duty to their children. Moreover, many parents fail to realize the need of this instruction, or at best they do not know just how to talk to children. They are apt to think it is a nasty topic and to exaggerate the value of a Christian home and surroundings of culture and refinement as the only necessary safeguards. Parents should be given to understand—and here the physician's duty becomes apparent—that the sexual instinct exists in every normal child, dormant to an extent, but easily awakened into pernicious activity by some chance occurrence, and often with the most deplorable result. Moreover, this idea of nastiness must be abandoned when reference is had to the most important of all functions. Parents must be taught regarding this imperious force in every human being, and must realize the necessity of imparting adequate and accurate information before unfortunate practices occur as the result of the irrational and fantastic explanations which will be volunteered by the child's immature playmates. I insist that the question is not as to the relative value of knowledge or ignorance, often falsely called innocence, but as to the imperative necessity for knowledge; the new sensations experienced by the child demand interpretation, and our duty should make us vigilant, so that a timely exposition of the truth may enable the child to repudiate impure suggestions, and thus escape disease and disaster. If this is done early there is little danger that the child will follow the immediate impulse, as has been said, "with an increase in the already dreadful evil of self-abuse."[16] On the contrary, the child will avoid all danger, because it is known and the possibility and advisability of continence is understood and appreciated.

But the child must know more, and in the imparting of further knowledge the parent and teacher are usually incompetent, and require the aid of the physician, who alone can speak with authority. He should talk in a friendly way to the child about conception and reproduction; he will tell of the venereal diseases and how they may be acquired innocently; he will explain about the dominant influence of the sexual instinct and will show how want of control is largely responsible for the existence of the unfortunate prostitute who is the chief purveyor of these loathsome and dangerous diseases. He will extol the dignity of virility; he will show the preeminent value of purity; he will inculcate a chivalrous sentiment of honor.[17]

The result is that each boy and girl knows that the physician is the best friend. The child realizes that the eminent practitioner has not forgotten that he himself was once young and exposed to similar temptation. He will feel that the family doctor can sympathize with him and can give sensible advice. He will hasten to consult him if nocturnal emissions cause alarm, if he fears he is hopelessly addicted to masturbation, or if gonorrheal symptoms appear. He will avoid the advertising quack, for he knows where to find a sympathetic friend willing and able to help him in any emergency.

Instruction must also be given to the young who live apart from the family. The employees of store and factory, the workers everywhere, the student, the farmer, the married, and the single, the rich and the poor—everyone must know the truth and understand the great danger.[18] Such a plan of education requires laborers in the vineyard, and each medical man should constitute himself a committee of one in his immediate neighborhood to devise the best means of imparting accurate knowledge. In some instances books like those of Dr. Lyman Beecher Sperry may be advised; in every school a medical lecturer should teach hygiene and the physiology of the whole body; at woman's clubs, secret society meetings, and in fact wherever there is a gathering of men or women, the opportunity should be afforded the medical man to speak on these important topics. Each county medical society should have a permanent committee to arrange frequent public meetings. It has been demonstrated in all parts of the country that such meetings are largely attended and that the people are eager to know the truth. In our colleges, especially our medical colleges, there should be regular public lectures on these topics so that all may learn. In addition, special pamphlets free from technicalities should be distributed freely, but in this endeavor to diffuse consistent knowledge, there is a serious obstacle to be confronted in the existence of certain United States laws in reference to the use of the mails. Obscene literature is declared unmailable and the author may be fined or imprisoned.

At first thought such a law seems just and desirable. We have all seen certain smutty books which excite our disgust. We shudder to think they may fall into the hands of children, and we are glad when such publications are confiscated and destroyed. Few of us know the law or appreciate its workings. None of us can give a legal definition of the word "obscene," because there is none. All statutes describe what is prohibited as lewd, indecent, obscene, lascivious, disgusting, or shocking. In the first English decision on record, Hicklin had sold a pamphlet entitled "The Confessional Unmasked." It was a political circular to promote the election to Parliament of men who would "expose and defeat the deep laid machinations of the Jesuits and resist grants of money for Romish purposes." It consisted of extracts from Catholic theologians, and was intended, as the author believed, to improve morality. Nevertheless, the court held the pamphlet to be obscene, and gave this test, which holds to the present day: "Whether the tendency of the matter charged as obscenity is to deprave and corrupt those whose minds are open to such immoral influences, and into whose hands a publication of this sort may fall." In another judicial decision there occurs this statement: "The matter must be regarded as obscene if it would have a tendency to suggest impure and libidinous thoughts in the minds of those open to the influence of such thoughts." Still another judge, after quoting these alleged definitions, remarked: "These are as precise definitions as I can give. The case is one that addresses itself largely to your good judgment, common sense," etc.[19]

Now, if I say triangle there is presented to the mind an object which may vary in many particulars, but which conforms to certain mathematical requirements in a manner that is a matter of common knowledge quite beyond dispute. If I say murder, arson, or burglary, we think at once of a specific crime, varying perhaps in degree and punishable in different ways in accordance with custom, but nevertheless clearly outlined and well defined. If I say obscene, who can say what it means? To every juryman it has a different meaning in accordance with his personality. The contemplation of nude figures in an art museum suggests no impure or libidinous thought to the artist or the man of culture; an inspection of the female genitals does not affect the gynecologist. The peasant woman is

shocked by the indecency of the society woman's bare neck and shoulders, and the society woman is shocked at the peasant woman's bare feet and ankles, especially if exposed in the city woman's parlor.

The most unfortunate circumstance in connection with obscenity law is that no man may know in advance if he be a transgressor. No man can foretell what will be another man's opinion about the probable tendency of a book upon those susceptible to its influence who may chance to read it. The practical workings of the law have been most curious and unjust. Haverlock Ellis's "Studies in the Psychology of Sex" were, I believe, wholly suppressed in England, and the German translation is denied admission into the United States. Another suppressed book is described by a former Attorney-General of the Post Office Department. He says "it consisted mainly of a description of the causes and effects of venereal diseases, and secondly of two circulars, one of which described in separate paragraphs the symptoms of various venereal diseases." This was held to be criminal. In 1892 a public school teacher wrote a book called "Almost Fourteen." He submitted it to his wife, the pastors of the Broadway Tabernacle and the Church of the Heavenly Rest, and to Dr. Lyman Abbott, all of whom indorsed it. The Rev. L. A. Pope, pastor of the Baptist church at Newburyport, Mass., placed the book in the Sunday-school library of his church. Five years afterwards an enthusiastic newspaper reformer of Newburyport, who had incurred the ill-will of many influential citizens by exposing the impurity of the city administration, the owners of houses of prostitution, etc., secured permission to republish the book in his paper. He was arrested, convicted, and fined.

In 1872, George Francis Train was arrested for circulating obscenity, which proved to be quotations from the Bible, and again, in 1895, John B. Wise of Clay Centre, Kansas, was arrested for sending obscene matter through the mails, which consisted wholly of a quotation from the Bible. In the United States Court, after a contest, he was found guilty and fined. It is to be remembered that courts have often decided that a book, if obscene in any part, is an obscene book within the meaning of the law. Of course, the Old Testament, like all books valuable for moral instruction, contains many unpleasant recitals. At the same time, its hygienic teachings are of more than historic interest, and in many instances apply with wonderful force to our present civilization. The fanaticism which induced Queen Mary to inhibit reading or teaching the Bible in churches, and which, under Edward VI., caused the burning of thousands of Bibles because of the immoral tendency toward private judgment involved in the reading of them, is still conspicuous in certain quarters, and would still dominate as in the past. Indeed, the desire to persecute, even for mere opinion's sake, seems to be an inherent characteristic of nearly every man of firm conviction and earnest purpose. Education alone can make us overcome this tendency and teach us the value of toleration which permits advancement by encouraging and liberalizing the study of what each man believes to be the truth.[20]

My friend, William Lee Howard, speaks of a young woman who happened to see a portion of a man's garter, which held up his silk hose. Upon her return home there began distinct, clear, and culminative erotic dreams. These commenced by the subconscious visualization of the garter, and the vital vision led up to what might be seen in a healthy, virile man. One day in a shop she saw a duplicate of her fetish, which she instantly appropriated. From fondling the article to manustupration and fetishistic masturbation was a short road. When the kleptomaniac was arrested for stealing garters a large collection of these articles was found in her bedroom.[21] I mention this case to show that under the usual definition the exposure of garters in a shop is obscene. Here was the "mind open to immoral influences" and "the tendency was to deprave and corrupt." Or, in accordance with another definition, we can truthfully say that the sight of garters had "a tendency to suggest impure and libidinous thoughts," because in this case "the mind was open to the influences of such thoughts."

Many other cases could be cited to show the incongruity and absurdity of the law. An author sent to jail in California finds his book recommended by innumerable clergymen, including several bishops, goes through the mails unchallenged for twelve years, and is suddenly declared criminally obscene and suppressed by a postal official. A book is found "not immoral or indecent at all" in Boston and suppressed by fines aggregating over $5,000 in Chicago. Another book goes through the Chicago post-office by the thousand each year and is excluded by the Boston post-office. Even judges have reached different conclusions concerning the obscenity of the same book, and several men have been pardoned because the President did not believe a book to be obscene which a judge and jury had declared to be so. Postal authorities have declared a book not to be obscene, and some State official declares it is obscene and arrests the vendor; sometimes conditions are reversed. In 1899 my own paper on the sexual act was refused publication on the grounds of obscenity by the editor of the *Journal of the American Medical Association* and by two of the trustees, and commended by another trustee.[22] It was copyrighted after submission to the postal officials at Washington, and for seven years went through the mails to physicians in all parts of the civilized world without a word of protest. I make this statement now because the edition is exhausted and the pamphlet is no longer on sale. Otherwise, I confess I should be at the mercy of every ignorant, spiteful, or impressionable individual.

It is evident this state of affairs is intolerable and a serious interference with the work of diffusing accurate knowledge which is recognized as an important element in venereal prophylaxis. To be sure, certain judges have recognized that an impartial enforcement of the letter of the law would entirely extirpate the scientific literature of sex. They have, therefore, quite in excess of their power, made a judicial amendment of the statute excepting from its operation books circulated only among physicians. Such judicial legislature is made under the pretense of "statutory interpretation," and involves the ridiculous proposition that a book which is criminally obscene if handed to a layman, changes its character if handed to a physician; it assumes that a scientific knowledge of sex is dangerous to the morals of all those who do not use the knowledge as a means of making money in the practice of medicine. Thus, medical books which treat of sex circulate among members of the profession as a matter of tolerance, in spite of the law, and not as a matter of right under the law.

If a remedy is asked for, I must confess my inability to give a complete and practicable recommendation. My friend, Theodore Schroeder, the eminent attorney for the Free Speech League of New York, argues that all obscenity laws should be repealed. He claims that obscenity is not an objective fact, not a sense-perceived quality of literature or art, but is only a quality or contribution of the view-

ing mind, which, being associated with some ideas suggested by a book or picture, is therefore read into it. He shows how custom sanctions certain expressions which otherwise would shock us. For instance, we may speak of the mare to those who would take flight if we call the male horse by name. With like unreason, we may speak of an ox or a capon to everybody, of a gelding to many, but of a eunuch to very few without giving offense. He claims the right for every adult man or woman to study sex if they want to do so as freely as they may study law, theology, architecture, or any science. The Agricultural Department of the United States distributes information on the best methods of breeding domestic animals, but the advocates of a higher stirpiculture for the sake of a better humanity are often sent to jail.

I am indebted to Mr. Schroeder's writings for the facts regarding obscenity laws which I have submitted to you. I have told him his argument was unanswerable. At the same time I cannot bring myself to believe it is practicable to let down the bars completely. The marriage guide, which exaggerates symptoms and serves as an advertisement for the mercenary quack and the lascivious pamphlets and photographs which are imported from France, cannot, in my judgment, be properly exposed for sale. If there is here an infringement of personal liberty, I beg to remark that all law is a compromise and that the good of the majority must ever be the chief object of our concern. While I make this admission I also insist that the proper education of the public is of supreme importance, and that all restrictions to a diffusion of knowledge are inimical to the public good. Of course, this statement does not apply to children. As an adult, it is my right to read bawdy books if I want to do so; as a minor, it is a matter of discretion in others what I shall be permitted to read. No adult has the right to limit the opportunity of another adult to know anything that is to be known, but a parent has the right so to limit the child's opportunity. If parents had access to all scientific books upon sex, and our schools did their duty in the matter of instruction, the second generation would find all morbid curiosity dispelled, and the quack, who thrives only on ignorance and fear, would be put out of business by the general intelligence that would prevail. For the present perhaps it were well to demand that all writings which are indorsed by State Boards of Health, reputable medical societies, the National Educational Association, or other organizations which are acknowledged to have the welfare of humanity at heart, should go through the mails and be offered for sale without placing the author in danger of fine or imprisonment. This much we can consistently avocate today, and, with our State and county medical societies properly organized, we can at once hope to secure relief from the oppressive, uncertain, and inconsistent law that now restricts unjustly our efforts in venereal prophylaxis.

The prostitute question must also be considered in a common sense manner, free from sensational sentimentality. The prostitute is a creature of our civilization; as a factor in the dissemination of venereal disease, she becomes of interesting importance in every rational attempt at prophylaxis.[23] At the recent meeting of the State Medical Association of Texas, I detailed my views regarding prostitution. For that reason I need now but briefly refer to the fundamental principles which underlie every judicious consideration of the subject. I do not speak now of the Christian charity which should protect the young and save the innocent, of the injustice which condemns the one false step on the part of the girl and condones continued and excessive libertinism on the part of the young man. I speak here only of the prostitute as an agent for the propagation of venereal disease, and I remark first that it is within the limits of the truth to say that it is only a question of time before almost every prostitute becomes diseased. For this reason, if for no other, she should become and remain the object of special concern. It is most unfair to condemn measures that do not eliminate all disease at once. Because we cannot examine all prostitutes several times a day, it is unjust to say we should do nothing. Because the men cannot be subjected to inspection and quarantine, it is absurd to say no one should be isolated. If I find a prostitute diseased this morning and put her in the hospital, I know that she will infect no man to-night. Thus, in any event, one source of contagion is eliminated, and at least some good is accomplished.[24]

It seems impossible even for medical men to consider prostitution calmly and scientifically. At once there is raised a cry against "recognition" or "legalizing." Someone says there must be no compromise with sin and no dickering with vice. Then someone else quotes from the Bible and says "her feet take hold on hell." That statement usually settles the matter and no one has a word to say in reply. Now, I claim in this connection that we should minimize prostitution by an educational effort such as I have tried to outline, and by economic measures, which, among other things, increase the young girl's earning capacity and diminish her expenses. With the prostitute we should limit the spread of venereal disease by instruction in prophylaxis and by increasing our inadequate facilities for treatment.[25] These matters I have considered so often that I will not now impose on your courtesy further.[26] Since, however, the time for action has arrived, it is but proper that the State Medical Society of Illinois should be put on record as advocating well-recognized methods of prophylaxis now adopted by other medical organizations. For that reason I offer the following resolutions:

Whereas, We appreciate the rational crusade against the venereal plague which has been inaugurated in the United States, and wish to cooperate in every way in our power in all efforts to limit disease, to diffuse scientific knowledge, and to increase general healthfulness and happiness; be it

Resolved, That we favor in the Illinois State Medical Society the appointment of a standing committee on venereal prophylaxis which shall direct an active and vigorous campaign against the spread of venereal diseases, and shall report annually to this society regarding legislative, educational, restrictive, preventive, and therapeutic means best calculated to limit these diseases.

Resolved, That we recommend the appointment of a similar committee by every county medical society which, in harmony with the committee of the State society, shall act for the best interests of the community, in reference to prophylaxis, as mature deliberation shall determine to be most desirable.

Resolved, That while deprecating the sensational and alarming statements promulgated by the mercenary charlatan, we favor an educational propaganda which shall teach the truth, and that we advise in every community increased facilities for gratuitous treatment of all venereal patients.

Resolved, That in lieu of all present laws against "obscene" literature, we favor that the young be safeguarded against corrupting information by laws which shall put the postal matter of the immature wholly within the control of parents or guardians. We favor such other proper legislation, having ap-

plication only to the immature, which shall be so definite in meaning that there will be no doubt as to what is prohibited, and which will not preclude any adult from acquiring full and complete information regarding all scientific subjects.

Resolved, That we recommend the amendment of all National and State laws so as to declare that no prohibition in them contained shall be deemed to apply to any serious discussion of sexual facts or conditions or of any branch of science dealing with sexuality, or of any sociologic, moral, or religious questions connected therewith, as against those who write or publish the same for circulation or exhibition in good faith among persons of legal age, and who, in good faith, deliver them by mail, express, or otherwise, only to individuals of legal age.*

ADDENDUM.

At the recent Atlantic City meeting of the American Medical Association there were presented in the Section on Hygiene and Sanitary Science papers which considered syphilis and gonorrhea as factors of depopulation and gonococcus infection as a cause of blindness, vulvovaginitis, and arthritis. These three papers represented all reference made to venereal prophylaxis at this meeting. The masterly oration on State Medicine did not mention the subject. A Board of Public Instruction on Medical Subjects was created to arrange for the publication of suitable articles through the public press, keeping on file in a central bureau suitable articles in pamphlet form for general distribution to the public, the organization when possible, of public courses of lectures in cities which have medical schools and in other localities under the supervision of county medical societies and the dissemination by circular letters of matters of general moment to the medical profession.[27] This board is nominated by the president and is not composed of a definite number from certain sections as was originally suggested by the committee. No report was made on the resolutions, introduced a year ago at the Boston meeting, regarding the healthfulness of continence, the advisability of reporting venereal diseases and the duty of State boards of health to educate the public regarding venereal infection so, by direction of the Section on Hygiene and Sanitary Science I called up the matter in the House of Delegates and, on motion of Dr. Craig of Pennsylvania the resolutions were taken from the committee that had failed to consider them and referred to the Committee on Hygiene and Public Health. This committee asked for a more detailed statement as to what is meant regarding "control of Boards of Health" in reference to venereal diseases, it favored an educational propaganda through proper channels, which recommendation, on motion of Dr. Frank Billings of Chicago, was approved, and it also favored the resolution of Dr. Morrow regarding the healthfulness of continence, but, strange to say, the House of Delegates laid on the table the report of the committee on this resolution as well as the resolution itself. No action was taken on my own resolution, introduced the first day of the meeting, which commended to all educators the advisability of teaching the truth regarding the healthfulness of continence, the physiology of the whole body, and the possibility of innocent infection, and which favored a modification of existing obscenity laws so that the young might be safeguarded against corrupting information, while pamphlets emanating from societies of recognized standing might go safely through the mails and be offered for sale without danger of arrest to the vendor.

*The resolutions were adopted unanimously by the Joint Session of the Medical and Surgical Sections.

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92 State Street.

SEPTAL PERFORATIONS: THEIR CLOSURE BY PLASTIC OPERATION.*

By CHEVALIER JACKSON, M.D.,
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The enlarging of a septal perforation to stop the "whistling" of a small perforation is, in the writer's opinion, an obsolete and unjustifiable procedure. Small perforations are very easily closed by a simple operation, and great relief will be afforded from the manifold annoyances which accompany such perforations.

The operation is, briefly, as follows: The inferior turbinal of one side and the septum are anesthetized with cocaine and adrenalin in the usual way. Then a long, tongue-shaped flap is made in the inferior turbinal by two parallel incisions, using Kyle's right-angled tonsil knife or Ballenger's or Freer's, or Watson's septal knives. This flap is made of the entire thickness of the mucosa with some of the submucosal tissues. It is free posteriorly and attached anteriorly. It must be at least 6 millimeters larger vertically than the perforation, and must be of very ample length, usually almost as long as the turbinal itself (Fig. 1). After the flap is raised, the

*Read before the Pennsylvania State Medical Society, September 24, 1907.

edges of the perforation are freshened with a cataract knife and the flap is brought forward in the position shown in Fig. 2, and is stitched in place with silk sutures, using Killian's or Yankauer's suturing instruments.

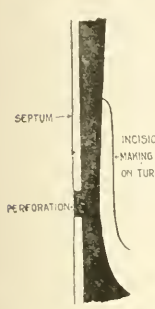

FIG 1

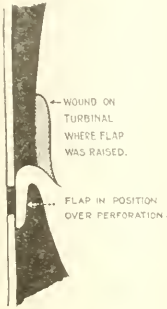

FIG 2

In case of a very small perforation, the operation is now completed. In case of a larger perforation it is better to duplicate the operation on the other side. Usually no packing is required, but if it is deemed necessary it must be placed behind the flap before the flap is sutured. Then the packing may be completed after the flap is sutured.

The result of the operation, when the flap unites with the septum, is to create a synechia. But this is very simply removed by clipping out a section of the bridge formed by the flap and inserting a strip of bismuth lint, which is left for five days.

It is absolutely essential that all excess of the inferior turbinal be removed, as, if the turbinal is hypertrophic, a troublesome synechia will result. The turbinated bone must be resected after the flap is raised, so that the healed turbinal will be far out of contact with the septum. If this be watched, and the mucosa around the edge of the perforation be properly freshened, an excellent result will follow. Should the small opening remain after the first operation, a second operation will close it. It is preferable for this reason to operate only upon one side,

FIG. 3.

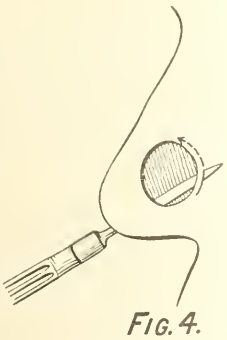

FIG. 4.

leaving the other turbinal untouched, so as to be fully available for closing what remains of the perforation after the healing of the primary operative wound. The best method of freshening the edge of the perforation I have found to be to transfix with a cataract knife the edge at the bottom from the operated side (Fig. 3) and carry the incision carefully forward, then upward along the anterior edge, as shown by the dotted line, never allowing the knife to cut out through the edge until the topmost limit has been reached. Then the knife is withdrawn from the nostril on the side whose turbinal is to be used and is inserted into the other nostril, transfixing the bottom margin with the knife whose cutting edge should now be backward. The knife is then passed backward and upward along the posterior edge (Fig. 4) until the top of the perforation is reached and the other denudation met. This encircles the perforation on the side of the turbinal that is to furnish the flap with a beveled denuded surface (Fig. 5), to which the flap will promptly unite.

One of the greatest merits of the operation is that it can be used on cicatricial septa and on those where the cartilage has been removed by a submucosal operation.

SYPHILIS AND MASSAGE.*

By ROBERT W. TAYLOR, M.D.,

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Among the curiosities of the literature of syphilis are those cases in which operators of various grades and kinds have been the medium by which this far-reaching infection was communicated, sometimes sporadically and again in epidemic form. Many articles on this subject relate to vaccinal syphilis, in which the victims were reported by the hundreds. To-day this mode of infection is practically unknown.

A singular mode of transmission of syphilis is said to occur in Roumania and Russia. It is the custom in these countries to attribute all affections of the eyes (and trachoma is very frequent) to foreign bodies, for the relief of which there is a class of women called leeching oculists who cleanse the eyelids with the tips of their tongues. One of these women having mucous patches in her mouth conveyed syphilis to many persons; in some instances to whole families. Large numbers of cases have been reported in which lues was transmitted in the operation of tattooing. According to one recital a tattooer who practised his calling for years over a large area of territory was arrested in Philadelphia, where, and in the vicinity, fifteen syphilitic infections were proved to have been caused by his ministrations, he having moistened with his saliva the tattooing instruments. In his mouth were discovered mucous patches, from which he had suffered for a year.

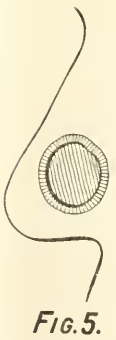

FIG. 5.

We no longer hear of luetic infection from the introduction of soiled catheters into the Eustachian tubes, a not uncommon accident many years ago.

A few old-time instances of syphilitic infection resulting from skin-grafting were reported in the past. They are hardly to be feared in these aseptic days.

Infection by means of dry and wet cups and by breast drawing is to-day, as of old, probable, but no recent record of such accidents has been published.

Though operations in dentistry have been cited as the starting point of syphilis in many cases, there

*Read before the Sixth International Dermatological Congress in New York, September 13, 1907.

is not as yet a thoroughly authenticated case of this mode of infection.

While in many instances the good offices of the barber seem to have been the precursor to luetic infection, there is not on record a perfectly satisfactory history of a case of this accidental infection.

The culpability of both dentists and barbers, as operators, should be established on clearly cut, salient, clinical evidence. Hazy, ill-reported cases should be rejected.

I desire to call attention to a mode of syphilitic infection by an operator which is as yet unmentioned. The ungarnished history of the case is as follows:

On February 8, 1907, a gentleman, 38 years old, undergoing treatment for chronic posterior urethritis, casually called my attention to a group of lichenoid lesions seated over the prominence of the right gastrocnemius muscle. He is of stout build, shows a tendency to obesity and complains of mild, fugitive rheumatoid pains of uncertain seat and duration. He is a spare drinker of alcoholics, but much given to the pleasures of the table. He is of hirsute development and has had mild intermittent attacks of scattered lichenoid eruptions seated around hair follicles. He had severe gonorrhea in 1897, and a relapse in June, 1903. From the latter date to this time he has had gleet, for which he sought treatment when he saw fit. He never had syphilis, as shown by his statements and several exhaustive examinations by me. The skin lesions, nine in number and sparsely scattered over an area of three inches, were conical in structure, of the size of two lines, distinctly elevated, lichenoid in character, and of a dull red hue. They were non-pruritic, whereas in the past itching had been a concomitant of his hair-follicle-hyperplasia. I attached little significance to the present crop and concluded that cold and heavy flannels were the exciting causes. A camphorated zinc ointment (Lassar's formula) was ordered for inunctions and as a plaster. No internal medicine was given.

On February 20 the patient complained that his leg lesions were worse. I found the papules much increased in size, rather more elevated and scaly, resembling flat papular syphilides. The central lesions were redder than the rest, decidedly excoriated, resembling typical chancrous erosions. There was brawny induration over the morbid area; no heat nor tenderness. My suspicions were aroused. Further examination showed thickened, goose-quill-like vessels and lymphatics curving behind the inner condyle of the femur, and moderate hyperplasia of the ganglia at the saphenous opening and in the groin. The accessible ganglia of the body were very perceptible. The local treatment was continued and a placebo was ordered. There was no systemic reaction and no spirochætæ pallidæ were found in the blood at any time.

Matters went on uneventfully until March 7, when a group of eight scattered papules was exhibited to me, seated over the prominence of the left deltoid muscle. These lesions were similar, but less developed than those over the right leg. All the lesions at this time had the characteristic raw ham-like appearance of syphilis. In a previous interview the patient had asked inquiringly whether these exanthems had probably been caused by massage, which he took twice a week; at this time he stoutly expressed the conviction that they were thus produced.

On March 18 a typical erythematous syphilide was seen over the whole body, the lesions being markedly papular in the neighborhood of the leg and shoulder initial lesions. The usual symptoms of active secondary syphilis were present: mild fever, rheumatoid pains in joints and muscles, early incipient alopecia, and pharyngeal hyperemia. The patient was at once placed on active treatment; hypodermic injections of the bicyanide of mercury, and blue ointment was rubbed into the initial lesions. The patient responded promptly and well to treatment, and to-day, September 30, has no general eruption. The initial lesions having faded, left coppery spots; the adenopathies are slowly subsiding.

Here, then, is a case of syphilitic infection seemingly caused by the manipulations of the masseur-operator. The patient had not had coitus for months nor had he dallied with any woman. His habits were correct and the only person who had access to his legs and arms was the masseur.

He convinced himself that he had suffered from blood poisoning.

My interest in the case prompted me to run down the operator and ascertain his physical condition. This search took much time and demanded tact, prudence, and patience. After several weeks' inquiry I luckily found a companion of the operator, a male nurse. Through him I learned beyond a doubt that my patient's masseur was affected with recent active syphilis, and that he had had severe sore mouth and a swollen neck. The information was forthcoming that the buccal and pharyngeal lesions, thought to be diphtheritic, caused the patient much discomfort and to copiously secrete saliva; that he constantly slobbered and dried his mouth with his fingers and the backs of his hands. This action he performed very frequently. The mystery of my patient's syphilis was thus fully cleared up.

Here, then, is the case of a healthy man having simple efflorescences over the legs and arms who was infected by a luetic masseur in his vigorous ministrations, his hands becoming soiled with the secretion of mucous patches. The teachings of the case are evident.

The course of syphilitic infection here presented is clear; its salient features are as follows:

1. The development of multiple syphilitic chancres, 17 in all.

2. The evolution of successive chancres in the intraprimary stage, a not uncommon instance of superinfection. The first lesions appeared presumably about 38 days before the secondary climax and their sucesscors 11 days before that event.[1]

3. The development of preponderating papular lesions just beyond and near the sites of the hard chancres,[2] whereas elsewhere the eruption was erythematous.

[1] R. W. Taylor: "The Development of Multiple and Successive Initial Syphilitic Lesions and the Pathology of Syphilis," *The Journal of Cutaneous Diseases*, September, 1906, and "The Evolution of Intra-Primary Lesions of Syphilis," etc., *British Medical Journal*, October 6, 1906.

[2] Hallopeau: "Proliferations locales *in situ* et à distance de l'agent infecteur de la Syphilis," etc., Clermont (Oise), 1905.

142 West Forty-eighth Street

THE PRESENCE IN VACCINE VIRUS OF BACILLI AND SPORES RESEMBLING THOSE OF TETANUS.

By ROBERT N. WILLSON, M.D.
PHILADELPHIA

Five years ago I published an analysis of fifty-two cases of tetanus following vaccinia, which was prefaced by this paragraph: "The following analysis of a large number of instances of tetanus in the course of or following vaccinia was prompted by the occurrence of a case in the practice of the writer, and by its fatal termination in spite of an early diagnosis and heroic treatment. During the five months that have succeeded the report of this case

before the Philadelphia County Medical Society, an attempt has been made to ascertain the details of such a number of similar cases, both in recent and past years, as would warrant a conclusion as to the source of the tetanus infection" (*Journal A. M. A.*, May 3, 1902). The analysis, which was exceedingly thorough and careful, seemed to justify the conclusion that "a secondary infection, and one occurring as a rule about the time of the acme of the vaccinia, is indicated by the otherwise discordant chronic incubation period and acute symptoms, by the almost uniformly fatal termination, and by the severity of the course of the disease; also by the severity of normal vaccinations with the same virus, by the simultaneous deaths from tetanus known to be due to other causes, by the diminution in the number of such cases now that continued aseptic care is more generally exercised, by the fact that in every case in which particulars are known overabundant opportunity was offered for such secondary infection, and, finally and most important, by the absolute failure of all bacterial and inoculation experiments in the lower animals and man to indicate the presence of the tetanus microorganisms or their toxin in the virus." In short, I was forced to conclude upon the evidence that the tetanus infection was introduced, not with the vaccine virus, but subsequent to the scarification and at a time near the acme of the vaccinia.

The article was already in type, and the issue of the *Journal* probably printed, when I found it necessary, owing to a new and somewhat confusing series of culture experiments, to set myself right with the medical public that would read my still genuine conclusions in the course of a few days. I had, whether fortunately or unfortunately, procured samples of virus, as before, from three prominent manufacturing firms, of a date corresponding with that used prior to the then recent epidemic. I cultured in bouillon of one make the dry point, the glycerinated point, and the glycerinated tube virus; of the second, the dry point and the glycerinated tube; and of the third, the glycerinated tube alone.

1. From the first make of virus I obtained, after incubating at body temperature for twenty-four hours, the following: The dry point—Bouillon very turbid; no surface growth; no odor; mixed culture, including diplococci, streptococci, staphylococci, and many unknown forms. The glycerinated point—Bouillon orange yellow, turbid; ivory point could hardly be seen in the tube; no surface growth; a nasty, fetid odor, resembling closely that of a neglected vaccine wound; a mixed culture of bacilli and spores resembling tetanus, with the bacillus subtilis. The glycerinated tube virus—Very slight turbidity; no surface growth; no odor; diplococci and staphylococci.

2. From the second make of virus: The dry point—Considerable turbidity; no surface growth; no odor; diplococci and a bipolar bacillus resembling *Bacillus subtilis*. The glycerinated tube virus—Slight turbidity; no surface growth; no odor; pure culture of encapsulated diplococcus, morphologically resembling the pneumococcus, Gram positive.

3. From the third make of virus: The glycerinated tube—Slight turbidity; an extensive growth on surface of bouillon, dirty white, like parchment; no odor. (Report of microscopic examination has been lost.)

It will thus be noted that all cultures were negative, except that of the glycerinated point of make No. 1, from which a suspicious growth was obtained. Of this point not only the ivory, but the virus and also the sheath were cultured separately in about 15 c.c. of bouillon. By good fortune, there remained one point in the box from which had been taken that which had given the suspicious culture. In order to determine whether the infection was one of a single point, or of the virus, and from what portion of the point came the tetanus appearing organism, I cultured again, and this time separately, (*a*) the virus from the point, (*b*) the ivory point itself, still carrying some virus, and (*c*) the scabbard or sheath, also carrying virus.

From each of the three tubes I obtained the same orange-yellow color at the end 24 hours' incubation at body temperature, and under the microscope the same spores and bacilli as before, indicating, of course, their presence in the virus.

I then undertook, in the middle of a busy winter's clinical work, the following experiments:

Series I.—1. Inoculated a white mouse at the base of the tail with 0.3 to 0.4 c.c. of the turbid culture containing the suspicious bacilli. After six hours this mouse was rigid and dead. No convulsion. 2. A second mouse, inoculated also at the base of the tail with 0.5 c.c. of the same fluid, died in convulsions eight hours later.

Series II.—1. On the afternoon of the same day I inoculated a full-grown and active white mouse with 0.3 c.c. of the suspected culture, also at the base of the tail. Six hours later very stupid; respirations cannot be counted; hind legs stiff and drag after him. Two hours later marked contractures of legs and twitchings of lower limbs. Two days later recovered use of legs; very weak and nervous; then jerky movements of head and body; hind legs again useless. Died without convulsion, extruding urine and feces in death contraction. 2. Injected a young white mouse at the root of the tail with 0.1 c.c. of the same culture. One minute later died in convulsion, mainly of lower extremities. 3. Inoculated a full-grown white mouse at the root of the tail with 0.1 c.c. of the same culture. On the next day it was very stupid; paresis of lower extremities; marked twitchings; dragged posterior extremities. Three days later respirations very rapid; weak and paretic. Died during this night, urine and feces extruding during death agony.

As already stated, these crude and uncontrolled experiments were noted down and roughly described. The culture tubes (still containing the points, tubes, virus, etc.), as well as stained specimens, were shown before the Philadelphia County Medical Society on April 23, 1902. Visitors were excluded, in order that the confidence of the report might be assured, a step that seemed advisable, owing to the then excited state of the public mind over the epidemic of tetanus in vaccinia.

Unfortunately, owing to pressure of other work and possibly influenced by a reluctance to prove these organisms to be actually tetanus bacilli at such a time, the work was suspended, and my notes, as well as the stained specimens, have remained hidden away. No filtration tests to separate the toxin were attempted, and later on it proved impossible to obtain virus of even an approximate date. One year after the suspected culture, however, a glycerinated point was obtained from Dr. Simpson of Cleveland, the sole remaining point from a box, one of which had been used to vaccinate his own sister, who developed a month later a fatal case of tetanus. This point was cultured, but yielded only a few diplococci and staphylococci, and some unrecognized fungi.

I present, therefore, a series of fag ends—all interesting, but of no serious scientific value, apart from their evidence as to the association of bacilli

and spores resembling those of tetanus with the implements used in vaccination, and at a time corresponding closely with an outbreak of tetanus, synchronous with an epidemic of vaccinia.

What significance to attribute to the cultures—whether to consider them growths of tetanus or pseudotetanus bacilli—will remain a matter of conjecture until we see them otherwise than through a glass darkly. The method of culture which proved successful pointed to the pseudo form. The toxic results upon the white mice, and (as our brethren, the antivaccination fanatics, might suggest) the tetanus occurring during the course of vaccinia in human beings, seemed to favor the true tetanus germ. The morphology and the epidemic were all, in fact, they would have needed to prove their case. Dr. Flexner examined the stained specimens with me, and agreed that morphologically they were very suggestive. Yet the nature of the organisms was and is far from proven.

On notifying the manufacturing firm of my discovery, I was informed by them that a New York bacteriologist had "tested their virus and found a bacillus resembling the tetanus bacillus, but had not found it pathogenic." Also that "he had found that the tetanus bacillus would sometimes, when inoculated into animals, fail to produce symptoms."

Both of these characteristics were demonstrated to belong to the true tetanus germ by Huddleston in 1903, who not only found tetanus bacilli in the stools of the vaccine (formerly hay-fed, later milk-fed) calves, but also the fact that the bacilli could live in vaccine virus for some time; that they were more easily demonstrated by cultural experiments than by animal inoculation, and that "small amounts of the tetanus infection easily fail of demonstration, both by animal and by culture tests"—some animals living in spite of inoculation with tetanus bacilli, and some dying from other infections than that of tetanus.

The question immediately arises, were my original conclusions regarding the secondary and non-vaccinal origin of the tetanus correct or fallacious? And, if the latter, is there a constant danger, even if only slight, of primary infection by tetanus bacilli at the time of vaccination? The instances of tetanus during the course of vaccinia have not yet come to an end, occasional notices appearing in the various journals during the last five years. Many, moreover, must have been the unpublished instances since the period in which Jenner launched the vaccination habit. With hardly an exception, the recently published cases have displayed the same delay of two to four weeks before the onset of symptoms, and all tend to verify the theory of an outside, secondary infection.

I must hold to my former verdict, and not a whit less strenuously because of the discovery of tetanus or pseudotetanus bacilli in one out of nearly one hundred specimens examined. I have explicitly stated my belief, whenever I have discussed the subject, that the possibility always exists of tetanus bacilli finding lodgment in any lot of virus or on any individual point or tube. That it did so in the epidemic of 1901, however, and that the bacilli were trained to develop their toxin almost to the day or hour, remaining secreted until two weeks had flown by, and then crawling forth from nook and cranny to produce the usual acute symptoms, I decline to believe, nor have I yet heard an argument from those who seemingly do which would lead me to alter my attitude in this regard. When in half a hundred cases the incubation period is almost invariably from two to three weeks—to wit, that of the so-called chronic tetanus, recognized to be a comparatively mild and favorable type—and yet nearly all of the cases run a severe, almost fulminant, and usually fatal course, the natural assumption is that a later date of infection than the scarification is in evidence, and the case is one of acute infection, not abnormally and indescribably delayed. Add to this the fact that nearly every vaccine wound was treated with studied neglect, that on many filthy shields or filthier rags or clothing were used, that in at least four instances the victims either lived over or in stables, and that in two they had been throwing handsful of earth over one another a day or two before the appearance of the tetanus; consider the tetanus in the light of these admitted facts, and we must, I think, make haste slowly in crediting the vaccine virus with the tetanus epidemic. It requires a broad mind to reserve to one's self the privilege of considering that the great majority of cases were instances of secondary infection, due to dirt and neglect, while isolated instances may indeed have been due to such an unfortunate virus as that cultured in my experiment. We must take this high ground, remembering that no make of virus goes scot-free, since the record of each and all includes one or more instances of the so-called vaccine tetanus.

MANAGEMENT OF THE THIRD STAGE OF LABOR.

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This stage is often looked upon as the least important of the three stages; but this is by no means true, for improper management of this stage has and will often lead to untold trouble. Few of us stop to think how disagreeable a leucorrheal discharge is, and how much suffering comes from displacement and congestion of the uterus. We all know the methods to be followed, but they are not always carefully followed, and the object of this paper is to add, if possible, to the comfort of the mother by making us more thoughtful.

The third stage, or placental stage, of labor may be described as beginning with the birth of the child and ending with the expulsion of the placenta, blood, and membranes, and the complete reaction of the uterus. After the child has passed all bleeding points below the internal os must be looked after, and all tears located. If the latter are in the cervix it is best to leave them to a later date, when the tissues in that part have regained some tone. If the tears are in the vagina, it is best to repair while the patient is still under the anesthetic, when they are small and when pressure from the passing placenta will not tear out the stitches. With the larger tears, it is best to place the sutures at once and wait for the passage of the placenta to tie. In all these cases care should be taken to avoid entering the rectum, and the vagina should be packed above to keep blood off the field. It is always best to place the sutures while the patient is under the anesthetic, for very often they cause a good deal of pain, even with the sharpest needles and the most skilful hands. A small tear furnishes a nidus for infection, and often the smallest laceration may form an ulcer and become very irritating if left unclosed.

It is not the object of this paper to describe the methods by which repairs are made, but the point in view is what to do in order that the involuting uterus may be retained in the best possible condition and position to involute with as little trouble on the part of nature as possible.

The position of the placenta is as well ascertained before birth as is possible, and at least we can know whether it lies on the contractile or dilatable portion. If the placenta is prævia, it and the membranes are taken at once, as they generally come away directly; but if retained and when not retained hot irrigation and packing is resulted to at once. Ergot in these cases is, of course, inadmissible, as it dilates instead of closing the sinuses. Much more could be said about the management in placenta prævia, but we are dealing with the placenta in the normal position (on the anterior and posterior walls touching on the fundus).

A vulval dressing of folded sterile gauze while waiting for the placenta is a good rule, for it indicates the amount of blood coming out and protects the gaping vagina from the dust that may be in the room.

Immediately after the child is born the uterus lies for a while in a relaxed condition, which is normal and need not be interfered with, unless it slowly begins to enlarge—that is, to fill up, when it should be made to contract, not by a digging process, which we often see the nurse practise, but by gentle rubbing over the whole ball-like mass. After the uterus has been induced to contract firmly, if bleeding then occurs, it is probably in the vagina or cervix, and should be located.

The hand must be on the uterus almost constantly from the time the child is born until the placenta is expelled from the vagina, and after this the uterus should be watched an hour, so that once empty it is not allowed to fill or partly fill again. Holding the hand constantly on the uterus does not by any means mean that it is needed all this time, but the object is to keep a steady contraction and to know when the placenta loosens. This loosening of the placental attachment is easily made out by the trained hand, and a bulging just above the symphysis tells us it is in the lower part of the uterine canal.

Until the placenta presents at the cervix gentle friction should be used over the external surface whenever contraction lets up, for often more bleeding than is necessary to accomplish separation will take place when the tension is relieved, and this unnecessary amount of blood lost is so much from the mother By clotting it may cause the sinuses to be held open and thus allowed to bleed. All mothers are supposed at this time to be prepared to lose blood, but in no case should we carelessly lose more than is necessary.

The placenta, according to Schultze's explanation, separates from the center in consequence of the contraction and crumpling of the uterive wall at the place of placental attachment and the resulting accumulation of blood behind its center. This cannot occur before birth because of the pressure of the waters. Duncan claims that the placenta separates at the margin.

Halzapel holds that the placenta presents at the internal os by Duncan's method and escapes by the Schultze mechanism. Williams says it is difficult to reconcile the contradictory statements, but it would seem justifiable to class both modes as normal, the Duncan method occurring most often when the placenta is in the lower uterus and the Schultze when in the upper. Usually the placenta enters the lower uterine canal within fifteen minutes after the birth of the child, but it may be much sooner, and often it is longer.

It is not right to wait in ignorance a certain time for the placenta, but we must be able to tell when it separates and where it is located after the separation.

When the placenta is in the lower uterus and entering the vagina, it is no longer acted upon by the uterine contractions, unless there is a quantity of blood transmitting the force. The abdominal muscles then do the expelling, and it is often the case that they are insufficient. The placenta, once loosened from its attachment, becomes a foreign body and its presence in the uterus can do no good, and as fast as the membranes will safely follow it should be taken away. Nature has made her best effort to get rid of it, and when she fails to finish the act there can be no objection to helping her. To remain in the uterine outlet means that it is acting as a dam to the blood behind, which becomes clotted; the clots harden and, by pressure on the uterine walls, hold open the sinuses, allowing the blood to flow.

Thorough contraction in the area of placental attachment is an important step against septic absorption, the entering of embol into the veins is prevented, bleeding is stopped, and after pains are almost done away with. In animals, expulsion is aided by traction on the cord, as the cord has to be torn off, and after separation the dragging cord pulls on the stubble it happens to catch. When there is nothing to hold the placenta, which is lying loose in the upper vagina, no objection can be raised to gentle traction on the cord until the membranes cease to be slack; but by this time, in most cases, the placenta has escaped the vaginal orifice and the normal amount of blood enclosed in the membranes has escaped from the uterus. Persistent contraction of the uterus should be maintained, or at least relaxation must not be allowed to remain.

At the moment of relaxation the uterus gives up its hold on the membranes, and then gentle traction will bring away without tearing or other damage. In most cases the loosening of the placenta can be ascertained from without, but in doubtful cases introduction in front of the placenta of a sterile gloved finger through a thoroughly cleansed vulval orifice can do no harm.

Expression is best started, best performed between the contractions, as the gate is then open and the hold on the membranes is let up. When the placenta escapes through the valva many advise twisting the membranes so as to make them stronger; these, if then carefully manipulated between contractile periods, generally come away in toto. If any should be torn off, those in sight are removed and the others left to nature.

If the loosened placenta has not been allowed to plug the opening too long, the gush of blood following the placenta empties the uterus, but when blood has been retained in the uterus too long clots often form. The uterus should be emptied of clots by external manipulation from the outside, which is effective in most every instance. Edgar advises giving a douche into the uterus in all cases, in order to have the uterine cavity entirely empty. Some not only advise against flushing the uterus, but even advocate leaving the expulsion of the placenta to nature. Ahlfeld states that when left to nature only 14 per cent. of the placenta will be expelled in two hours. The earlier the expulsion takes place properly the easier it is for the woman, the uterus is more natural in position, and the doctor spends less time.

When the placenta has not loosened in thirty minutes Credé's method should be tried, and if this fails the sterile gloved hand may be introduced and, by a pulling motion, remove it. When the placenta is very adherent, as in some of the syphilitic cases, it is best to let nature make the separation; but one should always remember that separation and expulsion are two entirely different things.

The longer a uterus has to wait to come to its

postpartum size the less contractile becomes its tissues. After quick expulsion of the placenta, the uterus is more liable to hemorrhage than if we wait for the sluggish abdominal muscles; but, on the other hand, it is more contractible, and closes the vessels better, and takes a better form.

Immediately after the placenta is expelled the uterus is looked to, and if firmly contracted is left alone, but if relaxed, it is kneaded over the whole surface until it contracts. The uterus is treated at frequent intervals in this manner for one hour, at the end of which time it is safe to leave alone, as it should be, and often we could leave it sooner. It is best, however, to adhere to this rule, for a uterus may act well at first and then become stubborn; or, again, it is slow at first, but later contracts firmly.

When hemorrhage is present, if it is from a torn vessel in the vagina or cervix, the vessel must be tied; when the bleeding is from the placental site, the cause (as clots) should be removed and the uterus stimulated to contract by the proper manipulation or heat. Hot water in the uterus should be at 115° F., as below this point it does not work well, and above will cause subsequent relaxation. Other remedies are inferior to this, even when they are on hand, and hot water can nearly always be had in readiness. Application of the child to the breast takes too much time, and does not serve the purpose in a serious case. Vinegar and other astringents have been recommended, but seldom need to be used.

When the hemorrhage is from the non-contractile portion of the uterus, as in placenta prævia, the treatment is to avoid contraction of the upper portion and pack until coagulation does the work.

Rupture usually belongs to an earlier stage, but when present the bleeding points must be caught up and the tear repaired.

Edgar advises the postpartum douche to wash away any loose material and help to protect against infection, but no infective material in ordinary cases should be introduced, and the washing is entirely unnecessary. When used, one should avoid too much intrauterine pressure, as it may dislodge some clot into the circulation. Williams has shown that the vagina is freer from infective material before than after a vaginal douche in a series of tested cases. Edgar claims that you have a cleaner uterus and more comfortable vagina after irrigation. After all these things have been done the parts are cleaned and dressed, and the woman is made comfortable in bed and allowed to rest.

Afterpains will not amount to much if the uterus has been properly manipulated, as clots will not be present to cause irritation. Afterpains are not only disagreeable, but they do material harm by balling up the upper uterus and thinning out the cervical portion, which a few hours after labor should begin to regain its tonicity.

Concerning the use of ergot, we may say that it is at least a convenient thing in the busy man's hands, but no one can dispute that it has serious disadvantages. Never use ergot when eclamptic signs are present. In its favor may be said that it is a safeguard against hemorrhage in high placenta at the third stage, and should be used when the nurse is not skilful. It closes, or rather keeps closed, the sinuses, and is a safeguard against the entrance of infective material into the circulation (blood and lymph). If it caused the whole uterus to contract equally no one could raise an objection to it, other than it causes a too steady contraction, which holds the membranes to the wall tightly; but it does not cause the whole to contract alike, as it thickens the portion above the retractive ring and thins out and lengthens the lower portion of the uterus, that portion on which the heavy upper part is supported.

The supported portion becomes heavier all the time that the neck (the supporting portion) is becoming elongated and thinner, and the point is reached in some cases when the support fails; then the uterus bends. A uterus thus verted into an abnormal position must so remain until nature replaces, and this will not happen if it is unduly congested. In many of the cases it is remarkable to see how well nature handles them. The displacement itself causes congestion and retards involution, and our object is to prevent in all cases the first displacement, for we do not know what the result is going to be.

Lastly, we come to the abdominal binder, the application of which I am sorry to say is familiar to all; it has been so generally used and that women know its imagined comforts so well that the young man fears not to apply it. Having tried it in my first hundred cases and having left it off in my last fifty, I am prepared to say that it does not add in any way to the comfort of the patient other than to ease her mind. Williams says that it is responsible for many displacements and versions, and one has only to remember the direction of the axis of the uterus and the strength of its neck at this time not only to believe, but to know, that this is true.

In my list of cases it was remarkable to notice at the end of two weeks the difference in the uteri of those wearing the binder and those without it. Without the binder the displacements were almost nil, and involution proceeded faster in spite of the fact that Edgar says that the moderately tight binder promotes involution of the uterus.

With the patient in a recumbent position, how the pressure of an abdominal binder can help to preserve the form is hard to see, but anyone can see how pressure pushes the uterus backward. Edgar claims that it prevents splanchnoptosis and sudden filling of the abdominal veins; but the patient should not be allowed to take a perpendicular position until it is time for the pelvic binder. The first cannot occur with the patient in a recumbent position, and the filling of the veins from release of pressure will occur before the abdominal bandage can be applied, if it is going to happen at all. Pressure on a muscle does not develop it, but often makes it flaccid and causes atrophy.

After the patient begins to walk around the pelvic elastic or muslin support helps to preserve the form, as it supports the abdominal muscles that then have some tendency to sway down. The muscles need support and massage when they are strained, but never pressure. The pelvic binder is a convenient way to hold the vulval dressing and causes no pressure on the uterus.

Corrosive Sublimate.—It is said that much less pain is caused by solutions of bichloride of mercury when applied to mucous or raw surfaces if they are made up with normal salt solution instead of water.

A Simple Nutrient Enema.—After abdominal section (and some other serious operations as well) rectal feeding becomes a necessity. An excellent nutrient enema is made by dissolving a tablespoonful of sugar in a teacupful of hot water and boiling in it, for a few minutes, a teaspoonful of starch; add a wineglassful of wine; beat up two eggs in a tablespoonful of milk, and mix with the other and inject. It may be repeated every four to six hours until the patient is able to take nourishment by the mouth.—*American Journal of Clinical Medicine.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR

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THE REPORT OF THE SURGEON-GENERAL OF THE ARMY.

In his report to the Secretary of War for the fiscal year ending June 30, 1907, Surgeon-General O'Reilly states that the health of the army during the year was very good, the admission rate having been 1,276.88, compared with 1,205.97 for the previous year, and 1,833.11 for the septennial period 1898 to 1904. The deaths from all causes numbered 358, equivalent to a rate of 6.11 per 1,000 of strength, compared with 6.28 for the previous year, and 14.62 for the period from 1898 to 1904. The death rate for disease was only 3.28, the lowest since the occupation of tropical countries, and comparing favorably with the rates prior to 1898. As a cause of death tuberculosis led, with a rate of 0.77 per 1,000, which was greater than that for the previous year. Typhoid fever came second, but in this there was an improvement over the rate for the two preceding years. Pneumonia showed a death rate of only 0.24 as compared with 0.32 for the previous year, but the greatest improvement was in diarrheal diseases, the rate of which was less than half as great as last year, being only 0.09, as compared with 0.20. The morbidity rate for malaria was higher than last year, and has been steadily increasing since 1904; the rates for admission and noneffectiveness were 107.67 and 2.30 respectively, compared with 88.85 and 1.85 in the previous year. It is astonishing to learn that screening against mosquitos as a protective measure is practically neglected in the Philippines. The latest reports received in the Surgeon-General's office show that in the department of the Visayas not a single hospital is screened, while the department of Luzon has but three buildings or parts of buildings thus protected. Recommendation has, however, been made that all barracks, quarters, and hospitals used by American troops be thoroughly screened with 18-mesh wire gauze so as to exclude all mosquitos. In view of the facts that typhoid fever and other infectious diseases are often transmitted by flies and that flies breed especially in horse manure, recommendation has also been made that all stables at military posts be provided with a fly-proof room or bin for storage of manure, and that the manure be so treated as to prevent the breeding of flies therein.

Some excellent work has been done by the Board for the Study of Tropical Diseases. The first original discovery made by the Board was that of a new blood parasite, which they designated *Filaria philippinensis*. This new filaria, while so far as known not pathogenic, is of interest as being of common occurrence among natives of the Philippine Islands. Its presence in the mosquito *Culex fatigans*, as well as its life history in that insect, has been demonstrated. The Board has also investigated the prevalence of *Entameba coli* among healthy American soldiers, and has found it among a very large percentage, and demonstrated its continued presence in the intestine for long periods without producing symptoms. The Board also concludes that *Entameba dysenteriæ* may be readily distinguished morphologically from *Entameba coli* and is uniformly pathogenic. After an exhaustive study of dengue, the Board is unable to find any organism in the blood of infected persons, but has been able to reproduce the disease in susceptible individuals by intravenous inoculation of filtered and unfiltered blood from dengue patients. It has been able to prove the transmission of the disease by a mosquito, *Culex fatigans*, and concludes that the disease is not contagious. Yaws has been found to be quite prevalent among the natives in certain districts, and the *Treponema pertenue* was found in abundance in the lesions; the disease was also reproduced in monkeys inoculated with material from the lesions of yaws in the human subject.

Additional testimony regarding the evil results of the abolition of the canteen privileges is furnished in this report. Venereal diseases were, as in previous years, the most important factor affecting the efficiency of the army during the year; they had the high admission and noneffective rates of 190.44 and 13.09 respectively, showing little improvement over the corresponding rates for last year. There can be no doubt that these figures would be materially reduced were the temptations to frequent the low dives outside the posts lessened by the opportunity to find innocent amusement over a glass of beer in the post exchange within the lines. The high admission rate for alcoholism of 30.22 per 1,000 men recorded in the previous report is increased to 32.27 in the present one. Commenting upon these figures, General O'Reilly says: "This office concurs in the opinion expressed by most medical officers of the army that the abolition of the sale of beer in post exchanges has had much to do with the increase of venereal diseases and alcoholism in the army by driving the soldiers to disreputable resorts outside of the post and beyond the control of the post authorities."

Legislation to increase the efficiency of the medical corps is urgently needed. A bill providing for this passed the Senate last winter, but failed to come to a vote in the house of Representatives, although its passage had been urged by the President of the United States in his special message to Congress, by Secretaries Root and Taft, by the Chief of Staff, by the General Staff, and by the Surgeon General's office. In the leading foreign armies the proportion of medical officers is fifty per cent. greater than in ours, and they have further a large reserve of trained surgeons to draw upon in case of emergency while we have practically none. Under the existing law the number of commissioned officers in the medical department is 323, and actually there are but 302, leaving 21 vacancies, three more than there were a year ago. The number of applicants for admission is steadily falling off, only 24 having appeared for examination in April of the present year. At this examination no applications

were received from the medical centers of the country although, as General O'Reilly says, the hospitals in any one of the larger cities could furnish a sufficient number of well-qualified young physicians to supply the needs of the service if proper inducements could be offered. The lack of a sufficient number of medical officers has become very apparent since troops were sent to Cuba and there are now not enough medical officers left in this country to supply the positions that cannot be filled except by commissioned medical officers (recruiting service, larger military posts, examining and retiring boards). This inadequate supply of medical officers not only works injury to the Army, but is also a cause of considerable expense to the Government which has to pay for transferring patients to general hospitals and to larger posts where experienced medical officers are stationed, because many of the contract surgeons employed at the smaller stations are not sufficiently experienced to undertake the treatment of serious and complicated cases. Not only is the number of applicants for admission to the medical corps falling off, but the number of students in the Army Medical School is also diminishing, having been smaller during the last session than in any year since 1900. The reasons for this decrease are obvious. "The army medical service has lost much of its attraction for the bright young graduates from our best medical schools, and unless a remedy is soon supplied, by suitable legislation, it will be impossible to fill vacancies in the medical corps without lowering the present standard of examination, a resort which, if adopted, would leave us distinctly outclassed by the medical corps of the armies of all other civilized countries." The defects in the organization of the medical department can be remedied only by Congress, which, unfortunately, does not appear to regard the health and lives of our soldiers as a matter of very great importance.

RELATION OF THE HEIGHT OF THE ARCH TO THE FUNCTIONS OF THE FOOT.

By flat foot we ordinarily mean a condition characterized by functional disturbances of the foot and by pain referred to its inner border. Inasmuch as this affection is dependent upon a weakened, injured arch, and not upon its lowness, and as a true flat foot is not necessarily present, the term weak foot, as used by Whitman, is a far better one. It is still the common opinion that the height of the longitudinal arch is of value in estimating the strength and usefulness of the foot, but some statistics by F. Hoffmann in the August number of *American Medicine* prove this view to be wrong. He studied the relationship between the height of the longitudinal arch and the functions of the foot by obtaining impressions on smoked paper of feet that were functionally normal and abnormal. It is true that they do not really show the height of the arch, but only its breadth and how much of the sole comes in contact with the ground on weight-bearing. This, however, bears a relationship to the height of the arch. Comparison of smoked imprints with plaster casts of the same feet, taken while bearing the load weight, showed that the carbon impression corresponded to the flattened area of the sole of the cast, and that there was an almost constant relation between the extent of this area and the arch height. To simplify the comparison of records he chose six types of arches, ranging from the well marked to the totally absent.

Impressions were taken of seven African negroes and 179 Filipinos who had never worn footwear, and of forty-five African negroes who had worn shoes during the last five years only; not a single one suffered from the symptoms of weak foot. Their feet showed a great variation in the height and shape of the arch, the general trend being towards a flat arch. He compared these results with 200 Caucasians and 100 American negroes wearing shoes, and having symptomless feet, and found a similar variation in the arch. The primitive and American negro presenting a smaller percentage of low arches, contrary to the general opinion, than the Caucasian, and the latter a smaller percentage than the Filipino. The feet of 560 shoe-wearing Caucasians with symptoms of a weak arch also showed a variation in the height of the arch, and did not present a much larger percentage of low arches than did the 536 symptomless feet. The histories of these show that the feet with long-standing or severe symptoms were not found oftener among the lower arch types than were those, the symptoms of which were mild and of short duration. In patients whose two feet displayed a difference as regarded both symptoms and impressions, the lower arch was found just as frequently in the strong, as in the weakened foot. It is significant that among all the non-shoewearing people Hoffmann did not find a single foot associated with the symptoms of weakness, so common in adult shoewearing feet which are weakened by the restraint the shoe exerts over function. His statistics thus prove that impression records of the longitudinal arch, commonly made by surgeons, are of no value in the diagnosis of weak foot, or so-called flat foot, as the height of the arch is no criterion for the usefulness of the foot. They furthermore show that normal feet present high, medium, and low arches in nearly the same proportions as do feet with weakened arches.

THE PURE FOOD QUESTION IN GREAT BRITAIN.

The annual meeting of the British Association of Sanitary Inspectors took place a short time ago. The meeting was distinguished by a quite remarkable speech by the man who may not inaptly be termed the silver-tongued orator of the British medical profession, Sir James Crichton-Browne. Here a short digression may be made to moralize briefly on the fact that physicians as a rule are not blessed with the rhetorical gift. England, perhaps, is particularly sterile in medical orators, although the ranks have been greatly strengthened of late years by the advent of Dr. William Osler, who, of course, neither learned nor matured his very considerable powers of expression in Great Britain.

However, all this is beside the question. Sir James Crichton-Browne, at the meeting referred to, touched upon several subjects of engrossing interest to medical men everywhere. On the subject of milk he spoke very vigorously and earnestly.

He described as the primary and permanent food question the protection of milk, which enters in a greater or less degree into the diet of a vast majority of the population, and forms the almost exclusive food of a large proportion of its most susceptible units. Sir James stated that he was of the opinion that a complete reorganization of the whole milk trade throughout Great Britain was inevitable. There has been some awakening on the question, but proof of the lamentable apathy still prevailing was given by the statement made to the British House of Commons by Mr. Burns, to the effect that 20 per cent. of existing sanitary authorities have as yet made no regulations under the Dairy, Cowsheds, and Milkshops Order of 1883, a fact readily comprehensible when it is remembered that rural sanitary authorities are largely composed of the very persons whose actions such regulations would control.

When alluding to the slaughter-house and food-adulteration questions the speaker said that "if Chicago had its jungle, London had its dismal swamp," meaning that if the manner in which the meat business had been conducted in Chicago was deserving of the severest censure, London was not free from food scandals of a somewhat different character. In support of this statement, the report of a jam factory inspector was quoted, from which it was shown that for the manufacture of the so-called jam, fruit was used which was unsalable for other purposes.

Sir James then paid some compliments, chiefly left or back-handed ones, to the food faddists who flourish so abundantly at the present time. He asserted that he was in entire disagreement with those who advocated a purely vegetarian diet, and he was still a firm believer in the virtues of the mutton chop. On the question of food the faddists are as inconsistent as in all matters. Moderation in all things is a valuable maxim, and might be followed with advantage by those who advocate strict abstinence from flesh food.

The Treatment of Wounds of the Heart.

The number of reported cases of suture of the heart, according to a statement made before this year's German Surgical Congress by Rehn, one of the first to perform the operation, exceeds 120, with over 46 per cent. of recoveries. Fischer and Loison collected 729 cases of heart injuries without operation, and found that only about 16 per cent. of the patients survived, so that the benefits accruing from surgical intervention are apparent. Nevertheless, even at best the mortality is a terribly high one, and improvements in operative technique and after-treatment would undoubtedly reduce it still further. Most surgeons now recommend that in cases of gunshot or stab wounds, in which injury of the heart seems possible, the wound should be immediately enlarged down to the pericardium and the diagnosis be established by this exploratory exposure of the organ. This attitude is opposed by Franke (*Deutsche medizinische Wochenschrift*, September 19, 1907), who considers it much too radical, and proposes in its place that exploratory puncture of the pericardium be resorted to as a diagnostic measure. One of the chief dangers, he alleges, of injuries of this nature consists in the embarrassment of cardiac action resulting from the distention of the pericardial sac with blood. In many instances actual bleeding from the injury ceases spontaneously in the course of time, but the patient's life is jeopardized through the pressure of the accumulation in the pericardium, and, at any rate, the prompt performance of pericardial puncture will often tide over the critical period of time that must elapse before adequate assistance can be obtained and the necessary preparations for the more radical operation can be completed. Franke considers paracentesis of the pericardium to be not at all difficult, and attended by only slight risk, so that the practitioner should not hesitate to perform it when necessity requires. He prefers to enter the pericardium in the fifth interspace two to three cm. from the left sternal border. In order to be sure of avoiding the internal mammary artery, it is better to keep close to the sternal border. A thin trocar or large exploring needle may be used and can be slowly advanced somewhat diagonally toward the midline. Local anesthesia may be resorted to if necessary, though it is better not to use ethyl chloride, owing to the greater resistance frozen skin offers to the passage of the instrument and the consequent loss in tactile sensibility.

The Bacteriology of Plasters.

A recent article in the *Lancet* (September 21) refers to some results of examining plasters reported in one of the English pharmaceutical journals. Ordinary adhesive plaster from a package frequently opened contained an average of 22 colonies per square centimeter, and a specimen of soap plaster contained 20. Adhesive plaster with a rubber basis gave better results, but only fresh packages were sterile. Medicated adhesive plasters, with a lead, resin, or soap basis, were found to be not sterile; chalybeate, belladonna, and cantharides plasters containing respectively 13, 53, and 160 colonies in the same area. But medicated adhesive plasters with a rubber basis gave better results; plasters medicated with capsicum, belladonna, belladonna with aconite, and opium containing respectively 5, 31, 2, and 17 colonies to the square centimeter. These samples, with the exception of the belladonna plaster, were all newly opened, and newly opened packets of menthol and oxide of zinc plasters were found to be sterile. An examination of a number of "court plasters" disclosed a worse state of things. A sample of isinglass plaster stored in a tin that had been fully exposed contained 341 colonies to the same area. The various organisms found in these examinations comprised *Staphylococcus pyogenes aureus, Streptococcus pyogenes albus, Bacillus murisepticus, Bacillus pyocyaneus,* and others. Such an array of infecting agents makes one pause. The observations made showed, however, that the addition of an antiseptic substance is an efficient method of sterilization. Types of such antiseptics are salicylate of methyl, thymol, alcohol, iodol, etc. The ideal plaster medium appears to be the rubber basis made from pure Para rubber. It mixes well with various medicinal agents, is free from irritation, and is strongly adhesive. It should always be sold on reels so as to expose the smallest possible surface to the air.

The Surgical Treatment of Emphysema.

The theory in regard to the etiology of emphysema advanced many years ago by W. A. Freund appears to be receiving confirmation by the results of some surgical operations recently performed. Freund has maintained that in many cases of alveolar emphysema a congenital or acquired abnormality of

the upper thoracic opening is at fault, usually taking the form of undue rigidity of the upper ribs, particularly the first. An interesting substantiation of this view is afforded by the fact that the operation of resection of the costal cartilages of the upper ribs has produced very great relief in three cases reported respectively by Krauss and Hildebrand, Moser and Bramann, and Pässler and Seidel. The latter authors (*Münchener medicinische Wochenschrift*, September 17, 1907) speak very favorably of the possibilities of the procedure, and describe at full length the technique of the operation, which is said not to be difficult, even in the case of the first rib. The increase in mobility of the thorax, and the consequent return to the thoracic type of breathing, is said to be very striking, and great relief to the dyspnea is afforded, even though the operation is performed only on a single side. For the present the authors recommend that the operation be carried out only in more or less uncomplicated cases of alveolar emphysema, and that secondary complications, such as chronic bronchitis and cardiac insufficiency, be regarded as contraindications. The ease with which the operative details can be mastered leads the authors to consider that a practical application of Freund's view that apical tuberculosis may be induced by fixation of the upper thoracic aperture is also possible, and that operative measures planned on these lines may be found equally useful in dealing with this disease.

News of the Week.

The Harvey Society.—The program of the Harvey Society course of lectures for the coming year is as follows: October 26, Prof. E. O. Jordan, University of Chicago, "The Problems of Sanitation;" November 16, Prof. James Ewing, Cornell University, "Etiology of Tumors;" November 30, Prof. D. L. Edsall, University of Pennsylvania, "The Bearing of Metabolism studies on Clinical Medicine;" January 11, Prof. Ernest H. Starling, University of London, "The Chemical Control of the Body;" January 25, Prof. George W. Crile, Western Reserve University, "Shock;" February 8, Prof. Joseph Jastrow, University of Wisconsin, "Subconsciousness;" February 22, Prof. Otto Folin, Harvard University, "Problems of Chemistry in Hospital Practice;" March 7, Prof. Ross G. Harrison, Yale University, "Embryonic Transplantation and the Development of the Nervous System;" April 11, Prof. E. A. Schäfer, University of Edinburgh, "Artificial Respiration in Man." The lectures are given under the patronage of the New York Academy of Medicine, and are held at the Academy Building on Saturday evenings at 8:30 o'clock. They are intended for the medical profession, and all interested are cordially invited to attend.

To Legalize Sale of Skimmed Milk.—In order to answer some of the objections made by those opposed to the measures under way compelling milk producers to exercise greater regard for sanitary requirements, especially the one that the increased cost of production under the new regulations would either drive the small dairy out of business, or else would raise the selling price of the milk, the Milk Commission appointed by Mayor McClellan has decided to recommend that the sale of skimmed milk be legalized. It is estimated that 100,000 quarts of skimmed milk are at present disposed of as casein to glue and paint manufacturers at the rate of about a cent a gallon in spite of the fact that the food value of skimmed milk is very high. Formerly, when the cream was separated by the gravity method, the length of time necessary before the skimmed milk was ready for the market rendered its sale unsafe, but now under the universal use of centrifugal separators it is obtained without delay, and danger from that source is removed.

Child Suicide in Germany.—The increasing frequency of self-destruction among school children continues to attract attention in Germany, and the Ministry of Education has ordered an investigation of the causes of the situation. Statistics of such suicides show that in the twenty-one years, 1883-1903, there were 1,125 suicides of pupils of the gymnasiums and common schools. By far the greater number of such suicides were of children under 15 years old, the average yearly number for these alone reaching almost forty-two. Less than one-fifth of these were girls. The greater frequency of suicides below 15 years, however, was due wholly to the fact that the pupils below that age so far outnumber those above. As a matter of fact, suicides above 15 years are four times more frequent—reckoned as a percentage of the total number of pupils—than below that age. The official statistics do not give the causes of the suicides, except in 284 cases. The causes given for pupils of the lower schools were fear of punishment, mental derangement, and harsh treatment by parents, relatives, or teachers. In the higher schools the causes were dread of examinations, wounded self-esteem, mental derangement, fear of punishment, love affairs, and melancholia. Not less than 28 per cent. of the suicides were of children whose parents were epileptics, drunkards, or mentally unsound. In more than 48 per cent. of the cases it was found that the character peculiarities of the pupils rendered it difficult for them to accommodate themselves to the rules and regulations of the schools. The German system of education and of maintaining discipline is notorious for its severity, and it would appear that some of the reasons leading the school children to such depths of despondency could easily be eliminated.

Medical Fees in France.—The local medical association of Charenton, a suburb of Paris, created widespread excitement at a meeting on October 2 by announcing that in future the fees for medical attendance would be increased and determined on a sliding scale according to the social condition of the patients. Workmen would be charged three francs, as usual; tradesmen, well-to-do employers, small landholders, clerks, four francs; large manufacturers, merchants, and rich landholders, five francs, during the day. Between 7 and 10 in the evening and Sunday and holiday afternoons the prices would be doubled. From 10 in the evening until 7 in the morning the price would be 10 francs.

A New Deposit of Radium?—A Swiss newspaper is authority for the statement that Prof Joly, in examining specimens of the strata collected from the borings for the Simplon tunnel found rich traces of radium, indicating large deposits of the mineral. The presence of the radium, he believed, accounted for the unusual heat experienced in constructing the tunnel.

A Laboratory of Animal Psychology.—After years of delay, Prof. Hachet Souplet of Paris has succeeded in obtaining the sanction of the Minister of Public Instruction for the creation of a laboratory of animal psychology to be established in connection with the Natural History Museum for

the purpose of investigating the mortality of animals.

Flies as Carriers of Infection.—The Health Committee of Liverpool is reported as attributing the recent high morbidity in that city among infants and children to the unusually large number of flies that appeared during the warm weather and contributed to the contamination of milk and other foods.

Higher Death Rate for New York State.—According to the Bulletin of the State Department of Health, during August 13,420 deaths were registered in New York State. This gives an annual rate of 19.6 per 1,000, an increase over that for the corresponding month last year of 1.4 per 1,000.

Epidemic of Rabies in Pennsylvania.—As the result of an epidemic of rabies in Chester County, Pennsylvania, it has been necessary to kill 154 dogs, 25 cows, and 10 horses. Hydrophobia has now received official sanction, for the newspapers state that as the result of experiments undertaken at Bethesda, Md., in order to put a quietus on those who maintain that it is an imaginary ailment, the Department of Agriculture has announced that hydrophobia exists and is a real disease.

Yellow Fever in Cuba.—Several new cases and one death are reported from Los Palos, Havana province.

Plague in San Francisco.—Reports from health officers show that there are over fifty undoubted cases of plague in San Francisco and about thirty suspected cases under observation. Twenty deaths have been recorded so far.

Cholera in the Far East.—Cholera is spreading throughout Korea, and the entire district through which the Chinese Eastern Railroad runs has been officially declared likely to suffer from a widespread epidemic.

Smallpox in Chicago.—The first case of smallpox in Chicago since July 21 occurred September 20, the patient having come from Montana and never having been vaccinated.

Bequest to the Presbyterian Hospital.—By the will of the late D. Willis James, who died on September 13, each of the following institutions is to receive $100,000: Columbia, Yale, Amherst, Cooper Union, Hampton Institute, the Children's Aid Society of New York, the American Board of Foreign Missions, the Cathedral of St. John the Divine, the Union Theological Seminary, and the Presbyterian Hospital.

International Association of Stomatology.—The organization of the International Association of Stomatology, which took place at Paris, August 6 and 7, at the time of the First French Congress of Stomatology, was very successfully consummated. The officers chosen were the following: *Honorary Presidents,* Drs. Eugene S. Talbot, Chicago, and L. Cruet, Paris; *President,* Dr. Jos. von Arkovy, Budapest; *Vice-Presidents,* Drs. C. Redard, Geneva, C. Platschick, Milan, Otto Zsigmondy, Vienna, and Johan Rygge, Christiania; *Secretary-General,* Dr. H. Allaeys, Antwerp; *Secretaries,* Drs. J. Sim Wallace, London, J. Breitbach, Dresden, and D. Nicolescu, Bucarest; *Treasurer,* Dr. F. A. Meyer, Amsterdam. A consulting committee, composed of a member from each represented country, was also appointed. The American member of this committee is Dr. G. V. I. Brown, Milwaukee. The next meeting of the International Association of Stomatology will take place at Budapest, August, 1909, at the time of the XVI. International Medical Congress, which Congress will have a Section on Stomatology open to all medical graduates.

International Congress on Tuberculosis.—The preliminary announcement of the International Congress on Tuberculosis, which is to meet in Washington, D. C., next fall at the invitation of the National Association for the Study and Prevention of Tuberculosis, has been issued in the form of a pamphlet written in English, French, German, and Spanish. The officers of this special committee on the congress appointed by the National Association are as follows: *Chairman,* Dr. Lawrence F. Flick of Philadelphia; *Secretary,* Dr. Joseph Walsh of Philadelphia; *Treasurer,* Mr. Henry Phipps of New York; *Secretary-General,* Dr. John S. Fulton, 810 Colorado Building, Washington, D. C. Seven of the governmental departments have signified their intention of participating in the International Congress, and have taken measures to secure the necessary appropriations. Most of the State governors have also taken official action in regard to the congress. The congress will be divided into the following seven sections: Pathology and Bacteriology, President, Dr. William H. Welch, Baltimore; Clinical Study and Therapy of Tuberculosis; Sanatoria, Hospitals, and Dispensaries, President, Dr. Vincent Y. Bowditch, Boston; Surgery and Orthopedics, President, Dr. W. J. Mayo, Rochester, Minn.; Tuberculosis in Children, President, Dr. Abraham Jacobi, New York; Hygienic, Social, Industrial, and Economic Aspects of Tuberculosis, President, Mr. Edward T. Devine, New York; State and Municipal Control of Tuberculosis, President, Surgeon-General Walter Wyman, Washington, D. C.; Tuberculosis in Animals and Its Relations to Man, President, Dr. Leonard Pearson, Philadelphia. The section work of the Congress will be done during the week September 28 to October 3. During this period there will be two general meetings, and during the three weeks from September 21 to October 12 a tuberculosis exhibition will be open, and special lectures will be given. Three prizes of $1,000 each and several smaller prizes are offered in connection with the exhibition. Active members of the congress pay a fee of five dollars and receive a full set of the published transactions. Associate members pay two dollars and do not receive the transactions or enjoy all the privileges of active members.

The Southern Medical Society.—At the meeting of this organization held in Birmingham, Ala., on September 27, Atlanta was selected for the next place of meeting, and officers were elected as follows: *President,* Dr. B. L. Wyman of Birmingham; *Vice-Presidents,* Dr. W. P. McAdory, Alabama, Dr. H. M. Folkes, Mississippi, Dr. Frank Watson, Louisiana, Dr. J. R. Holden, Florida, Dr. R. Wallace, Tennessee, and Dr. A. L. Fowler, Georgia; *Secretary-Treasurer,* Dr. Oscar Dowling of Shreveport, La.

Chicago Physicians and Surgeons' Golf Association.—At the annual meeting of this Association, held September 22, the following officers were elected: *President,* Dr. Thomas J. Watkins; *Secretary,* Dr. George W. Webster; *Executive Committee,* Drs. John Ridlon, Wm. Allen Pusey, and Frank W. Lynch.

East Tennessee Medical Society.—Officers as follows were elected at the meeting of this organization held in Knoxville on September 28: *President,* Dr. J. W. Matthews, Johnson City; *Vice-Presidents,* Dr. D. E. Shields, Morristown, and Dr. S. C. Smith, Newport; *Secretary and Treasurer,* Dr. William Copenhaver, Bristol. The next annual meeting is to be held in Newport.

New York State Medical Society.—The annual meeting of the First District Branch of the Medical Society of the State of New York, comprising the counties of Dutchess, New York, Orange, Rockland, Putnam, and Westchester, will be held at 2:30 P.M. on Monday afternoon, October 28, at the New York Academy of Medicine.

Dr. William Oliver Moore, after an absence from the city of two years, has resumed his practice at The Sydenham.

Dr. Francis D. Patterson, surgeon to the Philadelphia Departments of Police and Fire, has resigned.

Obituary Notes.—Dr. James J. McManus of Brooklyn died on October 2, at the age of forty-nine years. He was a graduate of the Long Island College Hospital, and held a position in the Department of Health.

Dr. Henry Stiger of this city died last week of apoplexy while on a visit at Schooley's Mountain, N. J. Dr. Stiger was seventy-four years of age.

Dr. J. Howard Thurlow of Boston died suddenly on September 29. He was graduated from Harvard Medical School with the class of 1881 and had practised in the Roxbury district since that time.

Dr. R. S. B. O'Brian of Nanaimo, B. C., died on September 23, at the age of fifty-four years. He was born in Ontario, and, after graduating in medicine from McGill University, began practice in Nanaimo in 1883.

Dr. Benjamin F. Dake of Pasadena died on September 24 after a long illness. Dr. Dake was born at Portage, N. Y., in 1831, and, after graduating from the Cleveland Medical School, practised for a time in Mount Vernon, N. Y. In the early sixties he removed to Pittsburg. He retired from active practice in 1900, and since that time had made his home in Pasadena.

Dr. Benjamin S. Satterfield of Kansas City died on September 18, at the age of seventy-nine years. Dr. Satterfield was a native of Tennessee, and received his medical education in the St. Louis Medical College. He began practice in Lafayette, Mo., but after four years continued his medical studies in Philadelphia, and was graduated from the Jefferson Medical College in 1861. In 1885 he removed to Carrollton and lived there for about twelve years, at the end of which time he took up his residence in Kansas City.

Dr. Beecher W. Braley of Barre, Vt., died on September 24, at the age of fifty-four years. He received his medical degree from the University of Vermont, and previously to beginning practice in Barre had lived in Chelsea.

Dr. T. S. Collins of Burchinal, Ia., died on September 20 of heart disease, at the age of thirty-six years. He was a native of Delaware County, Ia., but had practised in Burchinal for about six years.

Dr. H. C. Hull of Crawfordsville, Ia., died after a brief illness on September 27, at the age of eighty-one years. He had practised in Crawfordsville since 1852, and leaves a son, Dr. J. H. Hull, and a grandson, Dr. H. C. Hull, both of whom are in practice in Washington, Ia.

Dr. J. Henry C. Simes of Bala, near Philadelphia, Pa., died at Cape May, N. J., on September 28, at the age of sixty-three years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1870, and subsequently spent several years abroad in study in foreign hospitals. He served as resident physician and subsequently as visiting surgeon to the Episcopal Hospital of Philadelphia. He was one of the founders of the Philadelphia Polyclinic, for many years occupant of the Chair of Venereal and Genitourinary Diseases, and later Emeritus Professor.

Correspondence.

THE BUSINESS OF MEDICINE.

To the Editor of the Medical Record:

Sir:—In the *Evening Post* of New York City, September 18, and if I remember rightly on the same date in the *New York Times*, a statement appears that at the Day of Atonement services the Rev. Joseph Silverman, Rabbi of Temple Emanuel, attacked the practitioners of medicine in the following manner: "It is not a profession; it is a trade that the doctors ply to-day. It is not the practitioner of a profession, who, with his commission to heal from on high, comes into a household and demands his fee of $500 or $1,000 before he will apply the knife to the cancer, the anesthetic, or the healing lotion to the wound. It is a trade, I say, that is plied. And such practices ought to be condemned from every pulpit, every rostrum in the land. The Government ought to step in and prevent them. It is not the art of healing, I reiterate, that is practised; it is a trade. . . ."

Remembering the tendency of newspapers to exaggeration and misrepresentation, I took occasion to write to the reverend gentleman and ask him what he really did say. He very obligingly wrote back enclosing a cutting from the *New York Times* containing a letter from a Mr. C. D. Jackson, which the rabbi said was what he really did preach in his sermon. Putting aside for the moment the statement by the rabbi that medical science is not progressing in a manner commensurate with our modern opportunities, in which statement there is ample room for discussion and dissent, Mr. Jackson's letter goes on to say that "Dr. Silverman did not charge the whole profession with greed, as Dr. Weinstein maintains, but merely referred in a single phrase to that class of doctors who demand exorbitant fees before they will operate or even relieve the patient. Such practices the rabbi justly maintained are reprehensible and should be condemned."

I write my letter to you instead of to the public prints because I believe that the subject can be better discussed in a medical journal than in a lay paper, and what I am about to write is addressed more particularly to doctors than to laymen. Of course, neither reading of the reverend gentleman's remarks is pleasant for medical ears, but I think medical men are perhaps not entirely undeserving of the criticisms which they receive. In the first place they try to combine sentiment and business, and one might as well expect oil and water to mix as sentiment and business. The practice of medicine is a business, not a profession; it is open to question if there are any genuine professions left, not even excepting the profession which the reverend critic of the medical men so ably and so well represents. The moment people work for money and for a living they engage in business, but because it is a business it does not necessarily mean that it should be a trade. Now the fact that some doctors decline to respond to a call unless they are paid beforehand is, when viewed from the sentimental side of humanity and brotherly love, a shocking and hard-hearted proceeding. It is not perhaps what the good Samaritan would have done, but then so far as the parable is concerned the good Samaritan was out two-pence in consequence of his charitable deed, nor is it recorded that the gentleman from Jericho received any benefit. It would appear that the only person who profited by the transaction was the innkeeper.

Now, I would like to ask this question: When a doctor is called by a perfect stranger to attend him or to perform an operation, why should the doctor be anathematized because he asks for his fee in advance or demands a proper guaranty that it will be paid before he takes charge of the case, and, failing such, to decline the case, if he so choose? I knew a very estimable and prominent surgeon of this city, now, alas! no more, who told me that he made it a rule to be paid for his operative work before the operation, and that on one occasion, when a personal friend of his came under his ministrations, he told him before the operation that he would trouble him for his fee. His patient remonstrated and said, "My dear Doctor X., you know me perfectly well and you know I am good for the fee," to which Dr. X. replied, "I know that; it isn't that I think you will cheat me, but it is a rule of my office and one I have adopted as a matter of self protection. I cannot make an exception in your case. To make fish of one and flesh of another would be unfair."

Now I believe that no business man would trust a stranger without having either some guarantee that the stranger was honest and solvent or that he would pay cash. Why should the doctor not be allowed a similar privilege? A great many people seem to think that a doctor is compelled to attend whenever he is called upon.

This is a mistake. It has been judicially decided that a doctor is no more bound to give his services unless he chooses to than a tradesman is bound to sell something in his shop if he does not wish to.

Now would it not be better for the medical profession to drop all the foolish cant about the extreme nobility of their profession (which is really no more noble than other professions) about their self-sacrificing and charitable attributes, and do their charities, of which God knows they do enough, quietly and unostentatiously, and give up this ridiculous habit of patting themselves on the back and calling God and man to witness that they are the noblest works of the Creator. F. R. STURGIS, M.D.

NEW YORK.

FORMALIN IN TYPHOID FEVER.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—The following extracts from two recent letters addressed me by Dr. Wm. G. Christian of Gordonsville, Va., seem to me of considerable interest, possibly of great value. I have suggested to Dr. Christian that he permit me to embody them in a letter to the MEDICAL RECORD—and the following paragraphs are sent you with his approval.

"For some time (four or five years) I have been thinking of the use of formaldehyde in typhoid fever, and recently I have had some cases which I think are undoubted typhoid, and have been using it. You know that we rarely see, here in Virginia, a typical case of typhoid. I have had five cases recently, of which the following is a brief outline:

"The first was seen by me about at the end of his second week, as I judged by the history. At any rate, he had a hemorrhage on the fourth day after I saw him and died five days later from repeated hemorrhages. The second, third, and fourth were seen early and each showed the gradual rise of temperature, not influenced by quinine, headache, anorexia, coated tongue, red at the edges, pointed and tremulous, dicrotic pulse up to the middle of the second week; and, in the second case, slight iliac tenderness and gurgling with moderate diarrhea of a yellow or grayish-yellow color. I saw no rose spots, but as these were negroes this is hardly remarkable. The fourth patient had nose-bleed and has since had a slight intestinal hemorrhage. The second case recovered and was dismissed about three weeks ago. During this case I did not have the Widal outfit. In the other three I used this test and got a distinct grayish deposit in the bottom of the test tube in each instance; but I am afraid I always got some blood corpuscles in my serum. This was due to the very imperfect collecting tubes, making it most difficult to get a sufficient quantity of serum to separate the clot entirely.

"Now as to the formalin. I used it in each case. The second recovered promptly at the end of three and a half weeks and never had any bad symptoms. I mean there was no meteorism, delirium, subsultus, or any symptom of the typhoid state. The third and fourth did the same thing. The fifth showed marked but not profound stupor after the formalin had been used about ten days. I stopped it for forty-eight hours and the stupor disappeared. I then commenced to use it again and to-day, the third day since its resumption, find him delirious and with a slight tendency to stupor. This is the sixteenth day of his sickness. His pulse is now 120, temperature 102.6°, respiration 30. I forgot to say he is thirteen years old. His temperature had been steadily about 104° to 105° for a week prior to to-day and pulse 130 to 140. All these cases have shown a gradual decline in temperature beginning on the sixteenth to the eighteenth day. Of course, I have used bathing, attention to diet, etc., just as if I were not using the formalin.

"The questions are: (1) Are these cases typhoid fever? and (2), if so, does the formalin do any good? My idea has always been that the bacillus typhosus had nothing to do with the production of the typhoid condition, but that the latter was the result of a mixed infection, was a septicemia, in fact, the organisms being introduced through the typhoid ulcers, which act as any other solution of continuity would do in introducing septic infection. I do not believe that formadlehyde or any other antiseptic would affect the course of typhoid fever, even if you could douche out the entire intestinal canal as you do an open wound; but I have thought it possible that we could prevent the septicemia by giving intestinal antiseptics throughout the disease. I selected formalin because it seems to be germicidal in the gaseous form in such attenuated strength; because I found it to volatilize so rapidly and thoroughly impregnate the air when moderately heated; because it was nearly nonpoisonous; and because it is eliminated through the kidneys, and I thought, might sterilize the urine—possibly the feces also. Of course, it is difficult to administer. I have found the following prescription the easiest to take:

℞ Oil of turpentine ..... gtt. lxiv.
Formalin ..... gtt. cxxviii.
Menthol ..... gr. v.
Alcohol ..... ʒii.
Pulv. gum arabic ..... ʒiv.
Dist. water ..... qs. ad. ʒiv.
M. Liq. Teaspoonful in 2 to 4 ounces of water every 4 hours.

"The turpentine I use because I have found it to have a good effect in relieving tympany. The menthol was put in because I saw that it rendered the formalin less irritating. Without it, my patients suffered from laryngeal irritation and coughing.

"Do you think the plan worth trying in hospital work, where accurate tests can be made? With one exception my cases are all negroes and of course get very imperfect nursing. The one white patient has been rational and perfectly comfortable throughout his attack. I do not believe formalin shortens a case of typhoid, so far as the typhoid fever is concerned; but I am inclined to think the unmixed typhoid is not a disease of much over two weeks' duration. I do not think the treatment does any good unless begun early. I find very copious dilution with water necessary to prevent vomiting. One of my patients had to take a large glassful of water with each dose. I saw Dr. Harper (Professor of Chemistry at Fort Worth) a few days ago and asked him how much formaldehyde gas a four-drop dose would probably place in the intestinal canal. He said about 1-20,000."

WM. N. BERKELEY, M.D.

NEW YORK.

GERM-ENCRUSTED BREAD.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Imagine that you have seen a loaf of bread through the process in a bakery, and that it is now ready for the delivery wagon—and driver. The driver's employment involves the care of stable and horse. He is on hand early, and cleans out the stable and then curries and grooms the horse. And if a bacteriologist ever goes germ-hunting he can find the richest of all fields in the dust and dirt scraped from the hide of a city horse. There never was such a culture bed as the warm, sweaty, hair-protected hide of a horse to cultivate germs and allow them to multiply. So the driver curries on, filling the air with germs and fairly dusting or abundantly peppering himself all over with them, making his coat a veritable germ storehouse. And the horse curried, he is harnessed and then put into the wagon, very likely with only a grated open back; and, all being in readiness, the driver, with arms full of fresh, sweet bread, hugs the loaves to his bosom, as if he were cuddling a favorite child, and throws them into the dusty bread-box in the wagon. And, armful after armful, he lugs and hugs, and if the germs are smart, and know a good thing when they see it, they desert his coat by the millions and fairly encrust the new, warm, moist culture ground, where, within ideal surroundings, they can thrive, increase, multiply, and depopulate the earth. And then away goes the driver, stopping at houses and hugging the loaves to his bosom. How that driver does love that bread, the way he hugs it all the time, and what a time the germs are having in a migratory sense! A crusty loaf of fresh bread is a much better lodging than the dry meshes of a man's coat. And, it being, perhaps, a windy March day, the bread has cooled nicely in the well-ventilated wagon and collected a few germs from the dusty air of the street that the horse's hide failed to appropriate.

And then the driver, loath to quit hugging that sweet bread, lays it down outside the area window or on an open hall basement table, or in an elevator shaft—anywhere, in fact—and if there are any germs about he can't see them. So the bread, that was so carefully guarded and protected from dirt and germs by the careful, painfully clean baker has had the devil's own germ-spell between the bakeshop and the table. Much like the French convent girl, made a recluse, and then given her diploma and turned loose into the world, after going through a mariage de convenance. The driver may be faulty as to germs, but think of the vicissitudes, in a germ sense, of a loaf of bread left at the grocer's, to be put on the shelf or counter and sold to a customer! What may, can, and does happen to that loaf, speaking in a germ sense, no one short of a bacteriologist with a microscope of the highest power can properly tell. The Board of Health inspector will chase a suspicious can of milk across half the town because of suspected germs, but he will pass by several

millions of quite as dangerous ones nestling snugly within the interstices of the crust of thousands of loaves of bread in the drivers' wagons of the bakeries.

And where is the remedy? How can this menacing situation be met, and the cleanly efforts of the baker within his building, but not without, be made to count? Waxed paper is impervious to moisture, air, germs, or infection of any kind. It is cheap. If each loaf of bread, when coming from the oven, were inclosed and sealed in a wrapper of waxed paper, then the bread would deserve a place in spotless and germless town—be free of all contamination from dirty hands and flirtier, germ-infested clothes. The infinitesimal cost of such absolute protection and its absolute sanitary advantages should prompt any physician, not only to demand his own bread wrapped in a waxed paper germ-proof wrapper, but he should instruct his patients accordingly. And all this being so, when typhoid develops in a family, the doctor, if the bread eaten were delivered so sealed up, would guess the source of the germs that made the trouble as coming from some other source than the bread, that picked the germ up from somewhere between the bakery and the dining table.

CHARLES CRISTADORO.

POINT LOMA, CAL.

OCCLUSION OF THE POSTERIOR NARES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—I see in the MEDICAL RECORD of September 7 an article on congenital occlusion of the posterior nares by Dr. J. E. Mackenty. In a paper read before the Missouri State Medical Association in 1898 I reported two cases treated by me in 1894 and 1897. The operation was performed by means of the dental engine, and my case of 1874 was the first instance of the employment of the dental engine for this purpose. The young woman upon whom I operated then is now living in this city, and the result of the operation has been all that could be desired. I was at that time indebted to Dr. Alvin A. Hubbell of Buffalo, who wrote an article on the subject which was published in the Buffalo *Medical and Surgical Journal* for December, 1880.

The first reference to this trouble was by A. W. Otts of Breslau, in the "Compendium of Human and Comparative Pathological Anatomy," English translation, 1831, p. 181. Karl Emmerts reported a case in the Lehrbuch der Chirurgie, Vol. 2, p. 355, 1853. The next case reported was by Luschka in the *Archiv. für pathologische Anatomie*, Vol. XVIII., 1859. Betol reported a case in the *Archives de Toxicologie*, September, 1876. I notice Mackenty makes the same error as Mackenzie in calling this author Betts. In the second edition of his work on "Diseases of the Throat and Nasal Passages," 1870, p. 385, Solis Cohen reports another case. Morton of Philadelphia reported a case in 1880 (Surgery of the Pennsylvania Hospital, 1880, p. 333).

In 1881 Oren D. Pomeroy reported a case at the meeting of the Medical Society of the State of New York (see Transactions, 1881, p. 200), and in the same year R. C. Brandeis reported another case in the MEDICAL RECORD for November 12. T. B. Wilkinson records another instance in the *North Carolina Medical Journal* for June, 1882. And finally, W. E. Casselberry of Chicago reports one in the *Journal of the American Medical Association* of August 8, 1885.

At the time my article was written there were only 19 cases on record, including the two I reported. It seems to be becoming more fashionable, as the increase from 19 cases in 1898 to 100 in 1907 testifies. The greater number of these cases were found at autopsy and had apparently never been treated.

J. RUTH FRITTS, M.D.

MEXICO, MO.

FECUNDITY IN THE AGED.

TO THE EDITOR OF THE MEDICAL RECORD:

Mrs. Catherine Sherwood at [illegible] of life bore quadruplets to triplets, who were named respectively, Frank [illegible], and Frederick. They all became successful in [illegible] to be more than seventy years old.

All [illegible] of the brothers that [illegible] Charleston, S. C., [illegible] all went into the same [illegible] shop and lay [illegible] down in the early morning [illegible] and [illegible] in the evening. And the baker said that he never [illegible] whose beard grew so rapidly as theirs did.

F. POWERS, M.D.

[illegible], CONN.

OUR LONDON LETTER.

(From Our Special Correspondent.)

INSANITY—MEDICAL INSPECTION OF SCHOLARS—OFFICIAL SCIENTIFIC RESEARCHES—SANITARY INSPECTOR'S CONGRESS—DISEASE IN A MENAGERIE—DEATH FROM CARBOLIC ACID.

LONDON, September 21, 1907.

THE sixty-first report of the Commissioners in Lunacy has appeared and as usual set the newspapers commenting on the increase of insanity and amazing or alarming their readers according to the views they suggest. A sensational statistician has been calculating the date at which the nation will be composed only of lunatics, but I have not met anyone who is seriously scared at the prospect, though one has asked who will then take charge of us, for no nation is likely to desire to annex a population incapable of providing for its sustenance. If the destiny of the race is to disappear as demented, perhaps it will leave some branch which will care for it during its last stages. The figures of the blue book in question do not seem so alarming as the scare-mongers would like us to believe. There were under care in January 123,088 insane persons, a number exceeding that of 1906 by 2,009. This increase may be contrasted with that of 2,150 for 1905, of 2,630 for 1904, and of 3,235 for 1903. The increase for 1906 was really less by 453 than the annual average of the decennium. The total number of the insane stands, according to the figures of this report, in the proportion of 1 to 282 of the estimated population, or 35.48 per 10,000, and this gives an increase on the ratio of the preceding year of 0.48 per cent. But the actual numerical increase equals 1.64 per cent. The increase in the decennium amounts to 12.1 per cent. London and Middlesex show an unenviable increase in pauper lunatics. Grave as the figures appear at first sight, there are factors which, the Commissioners admit, render it impossible to decide whether the proportion of actual occurring insanity is increasing. They again point out that more care is taken to segregate mild cases and that fitness for detention is recognized as showing need for treatment as much for protection for himself as for the community. Moreover, aged persons are more often certified and treated in asylums; these as well as others were left almost entirely outside a generation ago. In fact, every practitioner must be aware that a great number of cases of defectives are now being notified that would not have been sent to asylums a decade or so since. Further, the rise in the numbers of "first attack" encourages the belief that treatment is more successful than formerly—a belief strengthened by a corresponding decrease in cases which are not first attacks. The great majority of the discharged left the asylums within two years of their admission. Altogether the statistics attainable, though they point to increase, are, in the commissioner's view, "too open to qualification to justify such a conclusion."

The Board of Education has lost no time in setting about the duties imposed on it by the new act in regard to the medical inspection of school children. The legislature having decided that such inspection shall be compulsory and given fresh powers to local education authorities, the duties of the central board will, to a great extent, consist in advising and supervising as to the manner and degree in which this medical inspection should be carried out. Directions will have to be given regarding the frequency and methods of inspection in particular areas, and proposals under the act by different authorities as to promoting the physical welfare of the scholars will have to be considered. Further, the board announces that it will collect and collate records and reports made by the authorities and issue an official annual report on the subject. With so full a program it is obvious that the board is well advised in establishing a new medical department, and that on a broad basis of public health, and so to organize its work as to utilize as far as possible the means and methods of sanitary administration already existing, and to develop or supplement them as may prove to be desirable rather than to bring into existence competing agencies when this can be avoided. These decisions will undoubtedly be approved by those who have worked so assiduously to secure medical inspection, and if only the central board will give a free hand to the new medical department we may expect important results. This new department is not yet complete, but as I mentioned last week, two appointments have already been made. Both the gentlemen selected are well known sanitarians and competent to advise the board on all questions of public health. Further appointments are promised, as well as a circular to local educational authorities to guide them in their new duties concerning the medical inspection of the school children. All this looks well on paper, but those who compare it with what has gone before sympathize with the misgivings expressed by those behind

the scenes. The doubt cannot be suppressed that the permanent officials will not, if they can help it, give the free hand to the medical staff which is essential for success. Great disappointment is felt that the chief adviser of the London Education Committee, who has the greatest experience in school hygiene, was not offered the position of chief medical officer. It is even whispered that the permanent secretary had promised it to the friends and admirers of his work, but has added another breach of faith to the long list of this government's record. The public as well as the profession is dissatisfied, though, as I said above, there is no question that both those appointed are well qualified for the work—if only they insist on a free hand.

The official scientific researches "concerning the causes and processes of disease," which I told you in my last have been authorized by the local Government Board, are the following: 1. Further study by Dr. Sidney Martin, F.R.S., of the chemical products of pathogenic bacteria. 2. Bacteriological investigation by Dr. F. W. Andrewes of the air of sewers and drains. 3. Observation by Dr. W. G. Savage of the bacteriology of "garget" and maladies of the udder, or teats of milch cows, and of possible relation of sore throat in the human subject to pathological conditions in those organs. Also investigation by him of paratyphoid fever and its microbic cause. 4. Joint investigation by Drs. M. H. Gordon and T. J. Horder of the life processes of the meningococcus with a view to means of combating cerebrospinal fever.

The investigation of ankylostomiasis, which I announced last week, is entrusted by the Royal Commission on Mines to Dr. A. E. Boycott. The question of whether a standard of ventilation in mines should be laid down has induced the commission to appoint Mr. John Cadman assistant inspector of mines to make a series of observations and tests of the air in mines.

The Sanitary Inspector's conference opened on Tuesday with a trenchant address by Sir J. Crichton-Browne. He urged more severe dealing with adulteration, but even that was not enough, for suicide as well as assassination must be prevented and home-made foods required strict surveillance. The fashionable fads and follies of the hour were in the nature of deprivation, though it was once thought creditable to be a good trencherman. Now dietetic asceticism had gone so far that in dread of being thought gluttons people indulged a healthy appetite in secret. After denouncing various foods he proceeded to the more dangerous drug habit, and instanced specially lozenges, which are manufactured on a large scale and sold ostensibly for coughs, but were found to indulge a vicious taste, leading too often to narcomania. He said two of them contained a minimum and six a maximum narcotic dose.

On the second day Sir Wm. Richmond, R.A., read a paper on smoke abatement on which he had spoken, he said, for so many years that every sentence he now used seemed a platitude. Westminster Abbey and other buildings were fast decaying from the effect of coal smoke, but Parliament let the evil go on. Mr. Nicholson followed with a paper in which he estimated one-third of the coal used in this country might be saved by consuming the smoke. We should not recognize a smokeless London!

An outbreak of a disease, evidently of an infective nature, having carried off several wild animals in the Blackpool menagerie, Professor Annett of the Liverpool University undertook an investigation of the pathology. He found a bacillus of the type recognized in animal diseases, such as swine fever, influenza, pink eye of horses, distemper in dogs and cats, etc. The postmortem appearances were such as are commonly met with in such infections.

On Monday a coroner's jury gave a verdict of accidental death in a very unusual poisoning case. A man was found in an unconscious condition and carried to his home. A doctor was called in to whom the man on regaining consciousness said he was carrying a quart bottle of carbolic acid in his pocket. It broke on the way and he wiped the acid from his body with his handkerchief. He rode some distance in a 'bus and remembered nothing after it. The doctor gave evidence that the man's condition was consistent with his statement. The acid had been absorbed from the surface and he died of carbolic poisoning.

A report has gained currency that a French patent has been obtained or sought for preserving meat by sulphurous acid. Several correspondents say they have used this plan. One says he was shown it forty years ago and has since used it. Another describes his simple process by which he has exposed beef to the air without apparent change since he treated it in 1870. He cut it into strips about 6x2 inches, hung them in a glass jar, attached a small thimble containing sulphur by a wire to the cork, lit the sulphur, closed the jar, and let the sulphur burn until the oxygen in the jar was consumed and so it went out.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

CHOLERA—TROPICAL HEMOPTYSIS—MALARIA—INSANITY—SUPPRESSION OF SMALLPOX BY VACCINATION—THE PURE FOOD ACT IN THE PHILIPPINES.

MANILA, P. I., August 23, 1907.

THE cholera, of which mention has been made, which appeared in Manila during the latter part of July and the beginning of August, seems to have made no progress, the last case having been reported August 9, 1907, and a total of only five cases having occurred in the City of Manila. The outbreak of this disease at Carigara, Leyte, also seems to have been checked, the number of deaths being reduced from three per day to about one death in two days.

During the year there were seventeen cases of *Paragonimus westermanii* infection reported as having occurred in Bilibid prison. Of these cases eight were fatal, the diagnosis having been made at the autopsy. It is generally believed by medical men in the city that many cases which are now diagnosed as tubercle of the lungs, and find their way into the mortality reports under this heading, are, in reality, fluke infections.

During the year twenty-three deaths less from malaria were reported in the City of Manila than for the previous year, the total number being 173. On account of the fact that a great majority of these diagnoses are not confirmed microscopically, it is exceedingly doubtful as to whether there were actually that number of deaths from this disease in the city. The anopheles are not common in Manila, and it is believed that the majority of cases of malaria that are reported are contracted outside of the city. In the provinces, particularly in Albay and the Camarines, the disease has been very much less common than heretofore, which fact can be ascribed, perhaps, to the free distribution of enormous quantities of quinine issued to the indigent poor of these districts.

In connection with insanity statistics, it is interesting to observe that while in the United States 1 out of every 466, and in Great Britain 1 out of every 304 is insane, in the Philippines only one person out of every 1,667 is classified as being insane. These figures are significant in view of the fact that consanguineous marriages are generally thought to be very common in the Philippines, and, since marriages of this kind have been said to be one of the principal causes of insanity, it is noteworthy that it does not appear to be operative to any large extent here. In the entire Philippine Islands there are 3,449 insane persons reported, and of this number less than 300 are cared for in asylums, the others either being at large or kept in private houses by relatives or friends.

Owing to the liberal provision made by the Commission during the past year, it has been possible, by systematic methods, to vaccinate 2,022,380 persons, which is an increase of 1,072,255 over the previous year. In addition, there were 50,000 persons vaccinated by local officials in municipalities where the disease made its appearance. These figures probably represent a greater number of vaccinations, in proportion to the number of inhabitants, than have ever before been done in a similar period of time; in fact, it is questionable whether in any country more than 2,000,000 have been vaccinated in any one year. The complete cessation of deaths from smallpox in provinces where the people have been thoroughly vaccinated affords another striking proof of the efficacy of vaccination, and if any further evidence were required as to its effectiveness in suppressing smallpox, the Philippine Islands could afford instances innumerable. In seven provinces, where heretofore there have been 6,000 deaths annually from smallpox since time immemorial, there has not been a single death reported for over a year, and when it is remembered that the vaccination of these provinces was completed a little over a year ago, the significance of this will be apparent.

Last November the Governor-General of the Philippine Islands called attention to the Pure Food Act, which was passed by Congress, June 30, 1906, in a proclamation, and named the officials who should enforce its provisions. However, on the recommendation of the Attorney-General, who held that on account of the difference between the judiciary systems of the United States and the Philippines the legal machinery for enforcing the act here was not adequate, a new act was drafted, embodying all of the act of Congress and making only such corrections and additions as would adapt it to the Philippines, and was passed May 8, 1907, to go into effect July 1, 1907. The act will be enforced by the Bureau of Health. Some little delay in enforcing the act is experienced on account of the time required to procure chemists who are competent to make the necessary analyses.

Progress of Medical Science.

Boston Medical and Surgical Journal, September 26, 1907.

Separate Nursing and Isolation in Typhoid Fever.—E. P. Joslin and C. L. Overlander believe the time has come when typhoid patients should be treated in separate wards in our hospitals, with their own attendants, who should not mingle with other patients. They note that the present methods of mixing them with other diseases leads to a spread of the infection, quoting Schuder to the effect that three and three-tenths per cent. of all typhoids are the result of hospital infection. Nurses frequently contract the disease. Statistics collected from six Boston institutions over a period of four years and embracing nearly 3,000 cases of typhoid show that for every 114 cases treated one nurse came down with the disease. They declare that, considering the dangers nurses now run, under no circumstances should a "probationer" ever come in contact with a typhoid case. Typhoid nurses should not be overworked and the greatest pains should be paid to the health of night attendants. In all the American hospitals there are enough fever cases to insure the proper training of nurses. They deny that it is in any respect harder to care for several typhoids at once than for both typhoids and nontyphoids. On the contrary, it is far simpler to do strictly typhoid or nontyphoid nursing. The typhoid utensils will all be found in one place, supplies will be made and procured in bulk and thus many duplicate steps saved. The concentration plan of nursing typhoids should easily lessen by one-half the number of days of a nurse's exposure to the disease. Separate nursing eliminates the chief danger to which other patients are exposed, as the "go-betweens" are eliminated. A given case may harm a fellow-typhoid from proximity, but the danger is far less than that of giving the disease to a neighbor weakened by some other malady. Isolation of typhoids was made compulsory in Germany two years ago. The knowledge of a nurse that she is detailed for strictly typhoid duty leads her to be far more careful as to precautions for her own protection.

New York Medical Journal, September 28, 1907.

How Far May the General Practitioner Employ and Benefit from Laboratory Methods of Diagnosis?—R. N. Wilson writes from the standpoint of an internist. There is no condition known in clinical medicine that can be completely and exclusively diagnosticated by means of either old or new devising. Wisdom makes a judicious combination of the two. No graduate of recent date, however, fails to understand the value of modern laboratory methods. Probably no physician to-day really believes that a patient has been properly and thoroughly examined until every excretion and secretion has been studied, also the blood and the combined results of these studies compared and contrasted with the physical examination. The immediate practical question is, To what extent are these methods available to the general practitioner? He himself may not have the time for this work, but there are others who have and their services are easily available. The country physician can easily take a course in methods of laboratory analysis and thus be able himself to solve the crucial problems in the majority of his cases. Every physician should have at least a good microscope and learn to stain for tubercle bacilli. The younger practitioner, working along these lines for an older man, should insist on sending in his own bills for services rendered. The older and the younger man should work in harmony and thus both are stimulated. The work of the one serves as a corrective for the work of the other, and the welfare of the patient is immeasurably subserved by this combination of effort.

Aural Vertigo and Menière's Syndrome.—Three cases are related by W. A. Wells, who says that the term "Menière's" disease ought to be abandoned and Menière's "syndrome" substituted therefor. In his original case, reported in 1805, of a man attacked with intense vertigo, nausea, vomiting, and tinnitus, followed by complete deafness, it was found that a hemorrhagic exudation had occurred in the semicircular canal. But in many cases since reported with the same symptomatology, a variety of lesion has been observed. In one of the author's cases there was present only middle-ear inflammation, with slight secondary labyrinthine inflammation. It illustrated the apoplectiform type of aural vertigo, with the usual prodromal symptoms relieved by the paroxysm, and the occurrence of slight vertigo in the intervals on contracting cold. In a second case the labyrinthine involvement was predominant, and was evidently due to a vasomotor disturbance. Instead, however, of chilly sensations and cold sweat during the attack, there was flushing, feverishness, and an anesthesia of the auricle. In a third case there was a history of trauma (blow on the ear ten years previously), the attack was marked by loss of consciousness, and the trouble seemed wholly labyrinthine, the middle or internal ear not being affected. Wells believes that actual labyrinthine exudate is extremely rare in these cases. He makes some remarks on the general subject of equilibration as related to aural functions.

Chronic Myocardial Disease.—C. Schram presents a general consideration of the clinical aspects of this malady, discussing etiology, symptoms, and treatment, paying especial attention under the second heading to Cheyne-Stokes respiration, the Stokes-Adams syndrome, and angina pectoris. Concerning treatment, the author says that we must proceed along lines suggested by the realization of the following facts: (1) That we have to deal with a chronic disease capable of quiescence, possibly permanent, but ordinarily slowly progressive. (2) That the heart will never be capable of more work than the present state of its parenchyma warrants. (3) That while temporary weakness from overstrain may be amenable to treatment, any call for more work means further degeneration. (4) That it affects all the constituent tissues, the muscular fibrillæ, the circulatory, nervous, and ganglionic apparatus, the last perhaps least. (5) That it may be localized, as, for example, externally from a pericarditis, internally, from bacterial invasion, affecting perhaps the papillary muscles alone, or from an infarct or diffuse as from syphilis, lead, or phosphorus poisoning. (6) That compensatory hypertrophy does not take place as when increased resistance is to be overcome, due to valvular defect within or arteriosclerosis without. (7) That extra organic and vascular complications usually exist.

Journal of the American Medical Association, October 5, 1907.

The Pathology of Exophthalmic Goiter.—W. G. MacCallum describes in detail the anatomical conditions found in sixty cases of exophthalmic goiter of varying degrees of severity. The changes found in the thyroid were practically the same in all cases, varying only in degree and extent according to the severity of the case. They consist essentially in a great proliferation of the epithelial cells by a process of mitosis, and the change is anatomically the same that is produced in compensatory hypertrophy when we excise a portion of the normal gland, but in that case no mass of tissue in excess of the normal is produced and no symptoms result. There cannot, therefore, be a complete analogy between the two conditions, and there must be something more than the mere hypertrophy, either in the thyroid secretion, or in some other factor quite aside from the thyroid. There seem, however, to be no constant pathological conditions elsewhere, in the parathyroids, sympathetic system, central nervous system or other tissues and organs, and as we see the case improved by thyroidectomy and made worse by thyroid extract, we are almost forced to consider the overactivity of the gland at fault. There is, however, no other example of the spontaneous hypertrophy and overactivity of an organ to the damage of the rest of the body, and MacCallum suggests that there is possibly some underlying infection, such as influenza, reaching the thyroid via the pharynx and setting up a nonsuppurative inflammation, ending in hypertrophy and perverted activity. The relation of iodin to the disease is interesting, it being claimed by Brown that it aggravates the symptoms. It may also be possible that a lack of vasoconstrictor action of the sympathetic on the thyroid is a factor. It appears probable that it will be through studies of the thyroid disturbances that we will have to look for the explanation of the disorder and for its rational therapy.

Trigger Finger.—R. F. Weir describes this condition, known also as lock or snapping finger, and gives the history and theories of the disease. It is a rather rare disorder and of comparatively recent description, having been first noticed by Notta and Nelaton in 1850. It is due to tendon changes in a large proportion of all cases, the operative cases collected by Weir showing that the trigger action was due to causes situated in the tendon or its sheath in thirty-five of the forty-two tabled cases. The obstruction, moreover, when recognized was a removable one and restoration to normal function occurred when it was removed. Another important observation was that, even if the obstruction was not found, a free incision of the sheath caused disappearance of the trigger action. This occurred in two cases. As regards the causes, what has been revealed by careful examinations of removed tendon and its sheath, excluding tuberculous deposits and the changes following acute trauma, is a certain amount of circumscribed fibrous hypertrophy (tendinitis callosa circumscripta, Bergmann). The studies of Thorn and Morian strongly suggest the possibility that the larger tendon

changes are due to previous hemorrhages (traumatic) and subsequent degenerative changes in their interiors. Weir is inclined to credit the possibility of gouty or rheumatic tendencies aiding the development of thickening of the tendons from slight repeated injuries and causing interference with motion. He reports his own case, in which, though the exact cause of the trouble was not determined by the operation, complete relief followed division of the tendon sheath. He is inclined to advise simple free incision of the tendon sheath as the curative procedure for this condition. The suture of the sheath after removal of whatever obstruction may be found need not be resorted to. Care must be taken to preserve the arch of the digital sheath at the base of the first phalanx.

Spontaneous Arterial Degeneration in Rabbits.—The arterial degeneration claimed to be produced by the administration of adrenalin to rabbits has been investigated by Amy B. Miles in the Pathological Laboratory of the University of Colorado. Her experiments were performed on 61 rabbits, to which doses from 0.5 m. to 15 m. were given by hypodermic injection three times a day for periods varying from one to forty or more days. There was no constant relation apparent between the extent and frequency of the lesions found and the size and frequency of the dose or the duration of the treatment. The extensive lesions were found in a rabbit that had received only 150 m. altogether in 5 m. doses, while others receiving from four to eight times as much showed no lesions whatever. Arterial lesions were found in 17 rabbits out of the 61, a percentage of 27.86. Similar tests were made on 49 assumedly normal rabbits, with like results, lesions being found in 17 out of the 49, or in a percentage of 34.77. Allowing for some possible differences of environment, food, etc., in these latter, which were obtained from dealers, they still show that spontaneous degeneration in the vascular system of rabbits supposed to be normal is not uncommon, and suggest the possibility of a large proportion of the lesions reported in previous literature having not been due to the drugs used, but present before the experiment began. The pathological findings in the rabbits are described, and in an added note by O. P. Johnstone similar results obtained by examination of apparently normal rabbits at the University of Chicago are reported.

The Specific Nature of Opsonins.—J. McFarland and E. M. L'Engle report experiments made to test the specificity of opsonins, which would seem to be inferred from their close resemblance in nature to agglutinins, precipitins, etc. A first experiment made with staphylococcus vaccine seemed to show that its injection caused a marked alteration of the phagocytic activity toward staphylococci, though it failed to influence the activity toward tubercle bacilli, thus confirming the specific action. A second experiment, however, brought out the contradictory result that the blood of rabbits inoculated respectively with yeast and human red corpuscles became phagocytic not only to the substances with which they had been inoculated, but also exhibited a striking change in their activity toward the staphylococcus. The only explanation that suggests itself to the authors of the article is that offered by Hektoen in his study of the hemopsonins that some are specific and some only partially specific. It seems to them that what is true of the hemopsonins may also be true of bacterio-opsonins, and that the injection of yeast cells is followed by the development of a small quantity of specific opsonin for yeast cells and a considerable quantity of non-specific opsonin that acts on the staphylococcus. There are still some things to be accounted for, however, in the paradoxical reaction, such as the permanence of the staphylococcus opsonin in the case of the yeast rabbit and its decline in the case of the blood rabbit. The estimations of opsonic power were made in these experiments by both Wright's and Simon's methods. They consider that it makes little difference which is chosen, but observations that are to be compared with each other should be made by the same method.

The Lancet, September 21, 1907.

A Case of Land Scurvy.—The case reported by J. B. Dawson was that of a woman in whom the malady occurred after she had been for a prolonged period, an inpatient of a hospital and as a complication of fistula in ano. She was admitted to hospital with an unhealed fistula wound with a copious purulent discharge. A first operative attempt was made to clear the wound but its progress toward healing was unsatisfactory and in a few weeks she began to have sore mouth, swollen gums, intermittent fever, bleeding from the gums, and from the rectal wound, purpuric rash, etc. She was at once put on an anti scorbutic diet (in addition to indicated medical measures) and began to improve in every way. Associated with this general betterment, the wound condition improved, the separative power of the tissues increased, and in the course of a few weeks she was able to leave the hospital, if not cured, at least very considerably improved. The author notes three points of interest in the case. (1) The occurrence of scurvy in a patient whose food had been the same as customary among people of her class, for on special inquiry she stated that she was in the habit of taking plenty of good and fresh food. Moreover, she had been in hospital a month, where her diet was a plentiful one of milk, beef-tea, custard, jelly, and so on, before the onset of the scorbutic symptoms. (2) The possibility of the retardation of healing seen in certain forms of long-standing "callous" wounds being due to a scorbutic diathesis. (3) The possibility of the long-continued suppuration and mental distress being the cause of this diathesis, a vicious circle thus being produced.

Relation of Polymastia to Multiparous Birth.—T. Iwai has made a statistical study of this subject as affecting his countrywomen and reaches the following conclusions: (1) It is probable that there is a relation between polymastia and multiparous birth. (2) It is probable that those who have supernumerary mammary glands have a tendency to become more frequently pregnant than those who have not. (3) The fact that the instances of multiparous birth increase in women with the number of their conceptions and the development of their age coincides well with the opinions given hitherto by several eminent scholars. (4) According to my own observation the instances of multiparous birth are found more among people of the lower class, and especially among those of a low order of intelligence. A bibliography of the topic is appended.

Bombay Spirillum Fever.—A preliminary note on disease is made by F. P. Mackie, who considers the morphology of the organism, its cultivation, results of inoculation experiments, etc. It appears to be transmitted by the common bedbug, and it has been found that an immunizing serum may be prepared by passing the toxic element through the blood of monkeys. There seem to be morphological differences between the spirilla from cases of relapsing fever in America and the organism found in the Bombay cases. From the former an immunizing rat-blood serum has been prepared, and the examination of the latter confirms the dissimilarity of the two organisms. The author takes up certain details of an epidemic recently occurring in one of the Bombay hospitals.

British Medical Journal, September 21, 1907.

Bradycardia With Epileptoid Attacks.—A. E. Remmett Weaver reports the case of a woman of seventy-four years, who two or three years previously after a healthy life noted that she was losing weight and having increasing attacks of breathlessness with sinking feelings at the epigastrium. Later she was told that her heart was affected and began to have attacks of bronchitis. Still later she began to have epileptoid seizures. On examination she was found to have a pulse rate of from 26 to 33, with feeble pulse of more volume, but no thickening of the vessels. The author regards the bradycardia as due to cardiac degenerations. The veins of the neck did not show a frequency of auricular pulsation greater than the heart beat, such as are described as proofs of heart-block in Stokes-Adams disease. There was evidence of kidney disease, but absence of high vascular tension, which probably accounted for the thinness of the vessels. Cyanosis preceded the tonic epileptiform stage (which was succeeded by the clonic in the usual form), and this fact supports the view the author claims, that such epileptiform seizures are due to disturbed cerebral circulation.

An Operation for Embolus.—W. Sampson Handley reports an attempted removal by operation of an embolus lodged at the bifurcation of the abdominal aorta. There was a temporary restoration of the blood current in the femoral artery. The author regards the case as one of those pioneer failures on which ultimate success so often rests. His patient was a man of sixty-five years, in whom the embolism followed an operation for hernia. He had but little atheroma, but was emphysematous and extremely gouty. Thirty-six hours after operation the whole left lower limb was cold and no pulse could be found in the common femoral artery. A vertical incision three inches long was made over the left common femoral artery with its center at the origin of the profunda femoris. The external circumflex branch of the profunda was exposed, ligatured, and divided transversely on the proximal side of the ligature. No bleeding occurred—a fact of ill omen, since it showed that secondary thrombosis of the arteries of the limb had occurred below the point of obstruction. A flexible tube about the size of a No. 4 catheter was passed upwards through the divided proximal end of the circumflex artery into the common femoral artery. The

end of the tube was connected to an aspirator, and some soft blood clot was sucked up into the tube. No blood flowed, and the tube was withdrawn. It was decided to attempt to dislodge the obstruction by a stream of saline solution. In order to obtain better access and a freer reflux, it seemed necessary to divide as large an artery as was compatible with the subsequent maintenance of nutrition in the limb. The profunda femoris was, therefore, divided at its origin and its distal end ligatured. The abdominal aorta was compressed at the level of the umbilicus through the abdominal wall, so as to safeguard the right common iliac from obstruction. A Kelly's ureteral catheter was now introduced through the divided proximal end of the profunda artery. It was cautiously passed upwards along the common femoral, the external iliac, and the common iliac artery until, as judged by previous measurements on the skin, it had reached the bifurcation of the abdominal aorta. A forcible stream of saline was sent through the catheter, and returned freely through the divided end of the profunda. The point of the catheter was moved about within the artery, so as to detach the clot within it. Some fragments of recent clot escaped, but relaxation of the pressure on the abdominal aorta was not followed by a jet of blood. The aorta was again compressed, and the washing-out process was continued. Relaxation of the pressure on the aorta was now followed by the escape through the divided profunda of a forcible, pulsating stream of bright-red blood. An attempt was next made to clean the lumen of the superficial femoral artery. The common femoral artery was compressed. A small incision was made over the popliteal artery, and one of its branches was divided so as to provide a point of outflow for the saline solution with which the operator proposed to flush out the artery from above. The catheter was passed easily in from the divided end of the profunda downwards along the whole length of the superficial femoral artery, and almost as far as the bifurcation of the popliteal. Unfortunately, the general condition of the patient, desperate to begin with, forbade further persistence. The catheter was withdrawn, and the divided branch of the popliteal was ligatured. On removal of compression from the common femoral no blood flowed, and it was evident that the obstruction higher up had only been partially and temporarily displaced. Had the patient's condition allowed the surgeon should have attempted to pass long crocodile forceps up to the bifurcation of the aorta, to seize the clot, and to drag it out, a proceeding which is certainly practicable. Under the circumstances, the divided ends of the profunda were tied off, and the skin incisions sutured. The patient died twenty-four hours later in a typhoid condition, with commencing gangrene of the limb. At the necropsy, the left auricle contained a shred of ante-mortem clot in one of its recesses. The orifice of the left common iliac artery was blocked by a decolorized and adherent mass of clot which exhibited transverse markings apparently corresponding to the musculi pectinati of the auricular appendix. The clot projected some little distance into the abdominal aorta. Below it the arteries were filled by soft, non adherent clot. The rest of the post mortem appearances need not be detailed. The herniated intestine had retained its vitality, but the lower part of the large intestine was intensely congested and its vessels were filled by ante-mortem thrombus. Evidently one or more emboli had lodged in the arteries of this portion of the gut.

A Case of Cerebellar Hemorrhage.—The patient of H. M. Ingalis and P. C. Fenwick was a woman of twenty-two years admitted to hospital in a semi conscious condition. She had had a recent numbness over the left lower face, slight headaches, and occasional giddiness. She improved, but a few days later became semi-conscious and was sent to hospital. Speech was then unintelligible. She swallowed slowly, had no fever, aural discharge, was not deaf, could protrude her tongue, and had normal pupils. The right patellar reflex was exaggerated, the left normal. There was no ankle clonus and no rigidity of the head. The left arm and leg were partially paralyzed, but there were no twitchings or convulsions. Urine was normal. Three days later, slight left ptosis was noted, the pupils became widely dilated, insensitive in the left, and sluggish in the right. Left arm could not be moved. A curious habit of shaking the bed as if in play came on. On the fifth day after admission she was in the same semi-conscious condition. Babinski's sign was well marked and everything was symmetrorous. The head and eyes were turned to the right. Three days later Cheyne-Stokes respiration, anuria, rising temperature, and rapid pulse were noted. She died eight days after admission. Autopsy showed that the surface of the brain was deeply congested, but that there were no adhesions between the pia and dura mater. The dura mater was adherent to the skull-cap. At the base of the skull the meninges were densely adherent, especially in the middle fossa. On removing the brain a small clear cyst, the size of a split pea, was seen lying at the posterior extremity of the pons on the right side, overlapped by the cerebellum. This had no apparent connection with any deeper structure, as it was removed at a touch. The brain was normal except for general congestion, but in the right side of the cerebellum a cavity about one inch in length, which would just admit the tip of the little finger, was found. This cavity was filled with old blood clot adherent to the walls of the cavity. The brain tissue over this area was extremely friable. No thrombosis or embolism was found, and we could not detect any disease of the vessels. The authors summarize some of the previously reported cases similar to their own.

Deutsche medizinische Wochenschrift, September 19, 1907.

The Use of Curare in Frog Experiments.—Jacobi says that as it is growing increasingly difficult to obtain reliable specimens of this drug, it is advisable to use economy in its employment. Inasmuch as solutions of the poison decompose quickly, and lose their efficacy comparatively soon, he proposes the following method of preservation. The solution is made and filtered, and is then poured on to a piece of filter ruled with a lead pencil into square centimeters. This piece of saturated paper is dried in vacuo over sulphuric acid, and is then cut into portions measuring one-half or one square centimeter each. If 25 mg. of the drug is used in the solution and 200 sq. cm. of paper is saturated, each sq. cm. will contain one-eighth mg. of curare. One square of this size placed in the abdominal lymph sac suffices to curarize completely a frog of medium size. The method enables accurate dosage without the necessity of preparing fresh solutions, and is economical of material since the thoroughly dried slips of paper keep as well as the crude curare.

The Treatment of Malignant Growths With Organ Extracts.—Bergell and Sticker speak of the results that have already been obtained in cases of experimental new growths by injecting substances extracted from normal livers. In this way it has been possible to produce necrosis and liquefaction of carcinomas and sarcomas, and the theory has been suggested that the unrestrained growth of malignant neoplasms is due to the absence or insufficient quantity of similar ferment like bodies. These results have not as yet been susceptible of clinical application, however, since it has so far not been found possible to produce the local effect without also giving rise to toxic symptoms. In experiments on mice it was also found impossible to cause complete disintegration of the tumor without endangering the life of the animal through the toxic action of the organ extracts. In the present communication the authors describe a similar effect which was produced on advanced experimental sarcoma of the dog. The injection of the specific liver ferments caused regressive changes in the growth leading to its complete disappearance after it had already reached a stage of development that excluded the possibility of spontaneous cure. In this instance also the authors warn against a too sanguine attitude in regard to the application of the method to similar conditions in man, though they consider that the results obtained will be found of great theoretical value.

Action of Morphine Upon the Genital Apparatus of the Woman.—Lutaud has found, in the course of several years of treatment of drug *habitués* that the effect of the morphine habit on women is to stop menstruation and to take away all sexual desire. Others give the same experiences with men. The author thinks that we may make use of these facts in the treatment of gynecological diseases in which there is metrorrhagia with benefit to the patient. Such conditions are menorrhagia without lesions, menorrhagia and metrorrhagia due to fibromata, and that due to the destruction of tissue by cancer. In the first class of cases there are women whose profuse menstruation menaces life and here morphine may save life, and yet the patient need not become a morphine *habitué* if the drug is withdrawn skillfully. In fibromata its use may serve to tide over a few years until the menopause changes put an end to the growth of the fibroid and atrophy takes place. In cases of uterine cancer it is the duty of the physician to make of his patient a morphine taker, since only thus can she be comfortable for the rest of her existence. The author has seen cases in which the use of morphine has not only made the patient comfortable for years, but has actually prolonged life. It retards vital exchanges, lessens secretions, and retards the evolution of the neoplasm, and life is longer.—*Journal de Médecine de Paris.*

Book Reviews.

THE DIAGNOSIS AND MODERN TREATMENT OF PULMONARY CONSUMPTION, with special reference to the early recognition and the permanent arrest of the disease. By ARTHUR LATHAM, M.A., M.D. Oxon., M.A. Cantab., F.R.C.P. Lond.; author of the prize essay on the erection of the King Edward VII. Sanatorium; physician and lecturer of medicine at St. George's Hospital; senior assistant physician at the Brompton Hospital for Consumption and Diseases of the Chest; advisory physician to the Throat Hospital, Golden Square; advisory physician to the York Road Lying-In Hospital. New York: William Wood & Company, 1907.

THE third edition of Dr. Latham's little book follows in general character and largely in text the former editions of this work. As the title page indicates, the work is confined to a treatise on the diagnosis and modern treatment of phthisis, and the author has refrained from any considerable discussion of the pathological aspects of the disease. In the present edition the author has added much of recent interest, especially touching the later developments in the therapeutic use of tuberculin and a somewhat too brief review of the subject of the opsonic index in its relation to the diagnosis and treatment of tuberculosis. The principles governing the open-air method of treatment as carried out in Sanatoria are quite fully discussed in chapter 5, while chapter 6 is devoted to a discussion of the same method applied to the home. In these chapters it is clear that the author has been very largely influenced by Walther of Nordrach Sanatorium, whose ideas, while undoubtedly sound for the most part, are far from being universally applicable. The appendix contains brief but very clear instructions for staining tubercle bacilli, for determining the opsonic index, and for disinfection by means of formaldehyde gas. The book is very readable and presents in a most interesting form much that is essential to the equipment of the modern general practitioner of medicine. Besides a very full index, marginal notes make the work particularly convenient for quick reference.

KITTY DIXON, BELLE OF THE SOUTH ANNA. A WEE BIT OF LOVE AND WAR. By C. A. BRYCE, M.D. A Jamestown Year Souvenir of "Old Virginia."

THIS is a charming little story, well written, and attractively bound in blue and gray. It will form a welcome addition to the literature of the waiting-room; and there is no one, physician or patient, who will not enjoy reading it and also be the better for so doing.

ELEMENTS OF HUMAN PHYSIOLOGY. By ERNEST H. STARLING, M.D., Lond., F.R.C.P., F.R.S., Jodrell Professor of Physiology, University College, London. Eighth Edition. Chicago: W. T. Keener & Co., 1907.

IN the present volume the author has endeavored to give in the smallest possible compass what he believes to be the essentials of physiology, such as every medical student should be more or less acquainted with. These absolute essentials fill over 700 pages; and as the histological references are but few the bulk of the book consists of physiology. The work is divided into eighteen chapters; one hundred pages are devoted to muscles and nerves, about the same number to the circulatory system, digestion and metabolism, and the brain and nervous system each take up another hundred pages. The book is written from the point of view of the professor and laboratory worker, and is characterized by accuracy of statement and clearness of diction. In spite of the title, the book is by no means elementary, although it will appeal to the student rather than to the practising physician.

A MANUAL OF PERSONAL HYGIENE: Proper Living Upon a Physiologic Basis. By American Authors. Edited by WALTER L. PYLE, M.D., Assistant Surgeon to the Wills Eye Hospital, Philadelphia. Third Revised Edition. Philadelphia and London: W. B. Saunders Company, 1907.

DR. PYLE'S very practical manual of hygiene was among the first of the works, whose name is now legion, dealing in a popular way with practical suggestions regarding the preservation of health by means of proper living. It is in a way a system (as the term is now understood) of popular hygiene, being written by a number of specialists. These are Drs. Charles G. Stockton, on the digestive apparatus; George Howard Fox, on the skin and its appendages; E. Fletcher Ingals, on the vocal and respiratory apparatus; B. Alexander Randall, on the ear; Walter L. Pyle, on the eye; J. W. Courtney, on the brain and nervous system; G. N. Stewart, on physical exercise, and D. H. Bergey, on domestic hygiene. To the medical man those names offer a guarantee that the subjects on which they write are treated of by men who know what they are writing about; and no one can therefore hesitate to recommend the book to his clients, who, if they follow the advice here given, will be apt to need his services less frequently. In the present edition there is an appendix dealing with the significance of pulse, temperature, and respiration, with directions for carrying out the simplest procedures of hydrotherapy, thermotherapy, and mechanotherapy and with first aid in medical and surgical accidents and emergencies. The book can be warmly commended to the laity as a safe guide to health, and one which does not transgress by trying to impart the little strictly medical knowledge which is such a dangerous thing.

DAS DEUTSCHE BAEDERBUCH, An Encyclopædia of German Balneology Compiled by the Most Eminent Scientists with the Cooperation of the Imperial German Board of Health. 648 pages in large 4to, with 13 colored plates showing the graphic comparison of spring water analyses, a general map, and Hellmann's rain map. Leipzig: J. J. Weber, 1907.

THIS is an official scientific guide to the German health resorts, comprising a full description of all the German medicinal springs, watering places, etc. It has been composed by a large number of balneological specialists with the aid of other authorities. The introduction forms a survey on the present state of German balneology (geology, chemistry, pharmacology, therapeutics, climatology, political economy, etc.). The analyses are computed not only in the older way, according to the actual quantities of the various salts, but also in the new way, according to the metallic (kation) and the acid (anion) equivalents. The places are arranged alphabetically in the body of the work, but there is an index in which the various resorts are grouped according to their nature, whether spas, seaside, or climatic resorts, and the spas according to the chemical composition of the waters; there is also an index according to the different States of the German Empire. The book is a mine of valuable information to all seeking knowledge of any of the German health resorts.

AMERICAN MEDICAL DIRECTORY. Volume I. A Register of Legally Qualified Physicians of the United States and Canada. Chicago: American Medical Association, 1906.

THIS book contains a general directory of the physicians of the United States and Canada, arranged by States and towns, a general alphabetical directory of physicians, with present address, a directory of medical officers of the United States Army, United States Navy, and United States Public Health and Marine Hospital Service; a list of United States Pension Examiners, and a directory of physicians engaged in special lines of practice. It also contains, under each State, the medical practice laws, a list of the members of the State Board of Health and of the Board of Medical Examiners, medical colleges in the State with information concerning each, principal hospitals, sanatoria, and health resorts, and the officers of State medical associations with roster of component county society officers. The work is dated 1906, but it was not issued until late in the spring of 1907, and the date of the copyright is 1907. The earlier date of the title page may be offered as an excuse for the fact that the information contained in the book is in many cases a year or more behind the time. For example, Dr. Joseph D. Bryant is said to be the president of the Medical Society of the State of New York, although he ceased to hold that office several months before the directory was issued. The editor of the work had the assistance of the secretaries of the State and county medical societies in preparing his list of legally qualified physicians, and the information in the directory is therefore presumably correct and absolutely reliable. Unfortunately it is not. We have looked for the names of a hundred physicians selected at random, and have found errors in the way of omissions and incorrect addresses in over ten per cent. This is a poor showing for an official directory. The New York City list is jumbled badly as regards the arrangements of the boroughs. One feature of the directory is what purports to be a list of members of special societies. This is absurdly incomplete and worse than useless. Membership in such purely local societies as the Kansas City Medical Club and the Philadelphia Academy of Surgery is noted, yet such important societies as the Association of American Physicians, the American Academy of Medicine, the American Climatological Association, the American Laryngological Association, and numbers of others are ignored.

Altogether, although the directory is useful in a way, it is incomplete and unreliable, and we are disappointed in its arrangement and in finding it so weak, where, with all its advantages of official information, it should have been strong if not perfect.

Society Reports.

SIXTH INTERNATIONAL DERMATOLOGICAL CONGRESS.

Held at the Academy of Medicine, New York City, September 9 to 14, 1907.

(Special Report to the MEDICAL RECORD.)

(*Concluded from page 584.*)

Thursday, September 12—Fourth Day.

DR. ANDREW R. ROBINSON OF NEW YORK AND PROF. E. GAUCHER OF PARIS, VICE-PRESIDENTS, IN THE CHAIR.

THE first two hours of the morning session were devoted to the exhibition of patients and formal discussion on the same.

Further Experience with the White Light and Blue Light of the Quartz Lamp.—Prof. E. KROMAYER of Berlin, Germany, in this paper presented the following conclusions: 1. Light treatment with the quartz lamp was simple, and might be conveniently carried out by any physician having electric connections at his disposal. 2. The white light of the quartz lamp surpassed all other sources of light employed in therapeutics up to the present day in ultraviolet rays. It was indicated in all those cases where the object was to produce a superficial inflammation, such as alopecia areata, eczema, acne, furuncle, lupus erythematosus, and ulcers. 3. The blue light of the quartz lamp surpassed the Finsen light in its deep action. It was indicated in lupus vulgaris, lupus erythematosus, cancroid, vascular nævi, telangiectases, acne rosacea, and ulcers.

The Specific Action of Radium as a Unique Force in Therapeutics.—By Dr. ROBERT ABBE of New York. (See page 589.)

Dr. JAY F. SCHAMBERG of Philadelphia said he could confirm Dr. Abbe's results in the treatment of cutaneous growths, particularly superficial epitheliomata, warts, and similar affections. The question arose, however, did radium do any more in these conditions than the *x*-ray? Unless it could be shown to be more efficient, there would be no advantage in preferring the use of radium to the *x*-ray. The advantages of radium lay in the simplicity of its application, and the fact that it could be used in inaccessible cavities where the *x*-ray could not be applied.

Dr. HERMAN LAWRENCE of Melbourne, Australia, said that in cases of rodent ulcer of the eyelid he regarded radium as the best method of treatment, particularly as it removed the lesion without leaving a scar. Also in seborrheal keratosis senilis, in which cases there was a great tendency to atrophy of the skin after the use of the *x*-ray. He had also used it to advantage in the treatment of pigmented moles, and in seborrheal eczema of the eyebrow.

The discussion was continued by Dr. H. Radcliffe-Crocker of London, and was closed by Dr. Abbe.

The Therapeutic Effect of Radium in Dermatology.—By Dr. L. WICKHAM of Paris, France.

The Effect of Roentgen Rays on Paget's Disease of the Breast.—By Dr. TERZAGLII and Prof. R. CAMPANA of Rome, Italy. The authors stated that some forms of eczema of the breast and nipple frequently were neglected and at times assumed a chronic and malignant form, as of epithelial tumor, a form which had been named from the author first describing it as "Paget's disease." The authors then reported in detail the history of a case that threatened to assume the above form of disease in which the affected tissues apparently resumed their normal condition under the application of the Roentgen rays. The method was repeated in another case, with the same favorable results. These two experiments, Prof. Campana said, did not seem to him to be without interest when we reflected on the extremely malignant course of Paget's disease.

Progress in Radiotherapeutics.—By Dr. H. STREBEL of Munich, Germany.

X-Ray Baths and Dermametropathism.—Dr. HERMAN LAWRENCE of Melbourne, Australia, termed the *x*-ray bath as one in which the *x*-ray was applied to the skin of the entire body at one time, and he described in detail its method of application. The speaker said he had treated some 500 cases of skin disease by radiotherapy, and he believed that he secured better results by the method of giving several mild exposures as compared with the method of giving a heavy dose and then waiting to see the result on the patient's skin. He had used the bath successfully in mycosis fungoides, generalized eczema, psoriasis, obstinate urticaria, and pruritus; also in children in very troublesome cases of lichen urticatus. Dermametropathism was a word he had coined; it was meant to express a system of measuring disease of the skin, and it was based upon the result produced upon the skin by pressure with a smooth instrument, such as a penhandle. The author contended that by this method of clinical observation, which he called "skin marking," certain markings indicated the chronicity of certain diseases, and in some cases in adults the near onset of a relapse; also, that it explained the exaggeration of symptoms in some cases.

A Report of the Results in a Series of Epitheliomata Treated with X-Rays More Than Three Years Ago.—Dr. WILLIAM ALLEN PUSEY of Chicago read this paper, in which he gave the following summary: Of the thirty-one cases which were classed as not entirely successful, twenty-eight were cases which had failed of relief under other forms of treatment; only three were primary cases. These three were included in the group of failures, and they were all carcinomata involving the orbit. They were inoperable and occurred in patients who had abandoned treatment before any result might have been expected. In this entire list of twenty-nine unsuccessful cases, there were only five in which, in the author's opinion, there was any hope of cure by other methods of treatment. All of these five cases had previously been treated surgically, and all had been referred to him by surgeons. One case in the practically successful group was an epithelioma involving the external auditory canal. The other four cases were among the failures; in three of these there had been good grounds for expecting successful results from operation, but the patients would neither submit to operation nor complete their *x*-ray treatment. Among the entire list of 111 cases treated there were only three failures in which there was any reasonable hope of success. Twenty-eight of the 111 cases were either hopeless or most unpromising so far as any other method of treatment was concerned; of the eighty-three remaining cases eighty were successful. Counting thirty-one cases as failures, there were eighty successful cases in a list of 111 successive cases of epithelioma treated more than three years ago, a showing of 72.5 per cent. of successful results in 111 unselected cases.

Report of 800 Dermatological Cases With X-Ray and High Frequency Currents at the Mount Sinai Hospital (Dr. Lustgarten's Clinic).—By Dr. SAMUEL STERN of New York. The author stated that the respective standing of radiotherapy in dermatology could only be established by continued experiments and by collecting statistics of results accomplished. The method in which the *x*-ray did its work was probably by cell destruction, which led to the degeneration of the elastic and connective tissues. In epithelioma the results accomplished depended upon the proper choice of cases. The most favorable were those situated on the surface of the epidermis. The best results were achieved by a combination of *x*-ray and high frequency spark. In deep-seated carcinoma there was very little to be expected. It was more encouraging in the various forms of sarcoma. In acne vulgaris the results were very gratifying, while in acne rosacea there was little to be accomplished. In psoriasis the value of the *x*-ray was

well established; also in different forms of eczema. Lichen chronicus, lichen planus, and lichenoid eczema were conditions that were more stubborn, but they generally yielded to *x*-ray treatment. Lupus erythematosus did well with the high frequency spark treatment, but it often recurred. Lupus vulgaris affecting the mucous membrane was best treated with the *x*-ray, and other parts of the skin with the high frequency spark. Various types of verrucæ and nævi could be readily destroyed with the high frequency spark. In keloid, to expect permanent results, we must persist with the *x*-ray until a fair degree of dermatitis was produced. Folliculitis decalvans yielded well to *x*-ray treatment. Pruritus was benefited by both the *x*-ray and the high frequency current. Mycosis fungoides could be indefinitely controlled by the *x*-ray, but not cured. Unless the treatment was kept up, the lesions returned. In rhinoscleroma we could probably get a definite cure. In sycosis, favus, and trichophytosis capitis the results accomplished with the *x*-ray were very satisfactory, but in the two latter conditions other treatment was necessary. Hypertrichosis could be cured with the *x*-ray, but this required very careful technique. Hyperidrosis might be benefited, but only after a long series of treatments.

Dr. Neuberger of Nuremberg, Germany, referred to a case of Paget's disease of the penis in which the effect of the *x*-ray treatment in the beginning was very marked, the affection apparently being cured. It subsequently recurred, however, and then the *x*-rays had seemingly lost their effect. The ureteral orifice became narrowed, so that micturition was impossible, and amputation finally became imperative.

Dr. M. B. Hartzell of Philadelphia said that while he was willing to admit that the proper treatment of epithelioma of the lower lip was excision, with removal of the adjacent glands, there were certain cases in which resort to the *x*-rays was entirely proper and sometimes necessary. In acne he believed the *x*-ray treatment should be reserved for the cases which failed to improve under other methods. We were beginning to learn that the application of the *x*-rays to the face was apt to be followed by distinct atrophy of the skin, which was very disfiguring.

Dr. Burnside Foster of St. Paul said he had seen deplorable results follow the *x*-ray treatment in cases of psoriasis, eczema, favus, and ringworm, and they were largely due to the method in which the treatment was applied by inexperienced operators.

Dr. Francis J. Shepherd of Montreal said that in certain cases of epithelioma, notably in lesions about the eyelids, the *x*-ray was probably the best method of treatment; but when it came to lesions of the lower lip and of the mucocutaneous surfaces the speaker said he would strongly object to the use of the rays, especially where there was early involvement of the glands. Under those conditions, surgical treatment was strongly indicated.

Dr. William A. Pusey of Chicago said he was willing to treat any epithelium with the *x*-rays in which a conservative surgeon did not consider it feasible or necessary to remove the contiguous glands. This at once eliminated all cases of epithelioma about the mucocutaneous junction where an operation was at all possible. It did not eliminate those in very old people, or those rare cases where an operation was not tolerated. Still, the *x*-ray should not be restricted to any particular field. If it was not as reliable in one case as in another, it was not worth while considering.

Prof. E. Gaucher of Paris, France, and Dr. Veiel of Cannstatt, Württemberg, both spoke in favor of conservatism in the use of the *x*-rays. The latter said he could recall many cases that were kept too long in the hands of the radiotherapists, and came too late to the surgeon.

Dr. Herman Lawrence of Melbourne, Australia, said he did not expect the *x*-ray baths described in his paper to be used by anyone who had not the proper experience with this agent. Otherwise the treatment might lead to even fatal results.

Dr. Samuel Stern of New York said that in dealing with deep-seated epitheliomata, or with old cases of keratosis where the skin was thick and hardened, it would take a long time to produce a reaction with the *x*-rays, and other methods of treatment were preferable.

AFTERNOON SESSION.

Dr. J. Nevins Hyde of Chicago, Prof. Robert Campana of Rome, Italy, and Dr. Samuel Sherwell of Brooklyn, Vice-Presidents, in the Chair.

Tropical Diseases of the Skin: The Relation of the Navy to the Study of Tropical Diseases.—By Dr. P. M. Rixey, Surgeon-General United States Navy, Washington, D. C. In this paper, which was read by Dr. G. E. H. Harmon, Medical Director, U. S. Navy, Dr. Rixey made the statement that, taking a period of ten years, he had found that diseases of the skin had practically caused twice as great damage to the health of the Navy as was caused by all other diseases of a quarantinable nature. When it was considered that he included such diseases as diphtheria, smallpox, scarlet fever, rötheln, etc., in this category, the basis for his statement could be appreciated. The actual proportion was as 1 to 1.8. Had he also included syphilitic affections of the skin, this disproportion would be greatly increased. Dr. Rixey said that when he was appointed Surgeon-General of the Navy in 1902, his first aim was to establish a school where the young officers of the Medical Corps of the Navy could be grounded in the essentials of medical research. Of the many tropical diseases due to animal parasites, and of the many which might hereafter be found to be of such etiology, it was his belief that for a proper appreciation of such conditions a sound working foundation in medical zoology was not only desirable, but essential. For honest and capable work in any branch of tropical medicine it was necessary that the worker be grounded not only in clinical observation, but he must possess a fair degree of proficiency in bacteriology, a good working knowledge of animal parasitology, and, besides, have enthusiasm for his work. The medical officers of the Navy were, while in tropical waters, constantly required to study or treat such affections as ringworm, and the peculiarly virulent manifestations of syphilis. Also such diseases as yaws, leprosy, ground itch, elephantiasis, tropical ulcer, and the like. The speaker also referred to gangosa, or rhinopharyngitis mutilans, which was studied by Daniels in the Fiji Islands, and was unfortunately very prevalent in the island of Guam. Those who had studied it most carefully were positive that it was not syphilis, and absolutely sure that it was not leprosy. Another puzzling affection was what was generally termed "climatic bubo." Here we had the picture of a prolonged, continued fever following more or less the increase or decrease of the glandular swellings.

Report on Tropical Diseases of the Skin.—By Dr. William Dubreuilh of Bordeaux, France. (Read by title.)

Tropical Diseases of the Skin.—Dr. H. Radcliffe-Crocker of London, England, exhibited a number of tables which showed that practically all exclusively tropical diseases of the skin were due to parasites of various kinds, and although there was still much room for further investigation, they also showed that much of our knowledge of their pathology had been worked out quite recently. Now that so many of those who were going to practice in the tropics were undergoing a course of training in modern pathological methods, we might well expect that in the near future still greater additions to our exact knowledge would be made. It was only exact knowledge which

would enable us, not perhaps to treat the diseases themselves better than we did now, but, still better, to adopt the most efficient means for the prevention and spread of affections of which the disabling effects and mortality were so great. How much could be done in this direction the results of the discovery of the relation of the mosquito to filaria, malaria, and yellow fever were known to all. The first of the tropical skin diseases mentioned by Dr. Crocker was tropical ringworm, which he said was probably universal in all tropical countries. Among other tropical skin affections discussed by the writer was erythrasma, which was due to the *Microsporon minutissimum* and developed in the form of patches in the groins and axillæ; these lesions were dull red in cold weather, while in hot weather they became bright red and itching, and extended to neighboring parts. He also referred to the vitiliginous squamous dermatosis which had been observed by Jeanselme on the coast of Annam and other parts of Indo-China; also to furunculosis orientalis and yaws, which he regarded as one of the most serious of tropical diseases on account of the severity of the lesions and of the enormous number of its victims in the countries in which it was endemic, which comprised, practically, the whole tropical zone. The main question was whether yaws and syphilis were identical or only analogous diseases. The clinical fact that the manifestations of yaws yielded to mercury and iodide of potassium, judiciously given, no doubt lent more color to the theory of identity, but it by no means proved it. He had met with one case of granuloma inguinale tropicum in a full-blooded negro, and with two cases of craw-craw from the west coast of Africa.

Some American Parasites of the Skin.—Dr. Charles Wardell Stiles of the United States Public Health and Marine Hospital Service, Washington, D. C., discussed the frequency of "ground itch" in the Southern States, in connection with uncinariasis, and gave a demonstration of preparations showing the larval hookworms passing through the skin. He also gave a presentation and description of specimens of a parasite new to the United States. This parasite was a branching, proliferating, bothriocephid, larval tapeworm, which occurred by hundreds in the subcutaneous connective tissue of man in Florida, and produced a swollen condition, with spots of acne-like appearance. The only similar case on record was published by Ijima (1905) of Tokio, Japan. The American parasite was very similar to and possibly identical with the Japanese form (*Sparganum proliferum*). He also gave a demonstration of original specimens of *Agamofilaria georgiana*, a thread worm recently described as a parasite in the kin of man in Georgia. Also, a demonstration of various stages in the life-history of some of the North American ticks (particularly *Dermacentor*) which attacked man.

The Clinical Groupings of Tropical Ulcers of the Philippines, with Some Negative Notes as to the Etiology and Treatment.—By Dr. E. R. Stitt of the United States Navy. The author stated that after observing in the natives many chronic ulcerations, which clinically did not differ from ulcerations which might be expected from badly infected and neglected wounds or from the infective granulomata, and that from a standpoint of history there was the single common note of long duration, the conclusion was arrived at that tropical ulcer, as described by the authorities, did not exist in the Philippines. Subsequently, the same thing was observed in Guam in studying an ulcerating disease known as gangosa. Among the natives affected with leprosy and gangosa there were a certain number called by the Spaniards the Llagosos, in whom there were frightful lesions of the lower extremity, possibly tuberculous, possibly tropical ulcer. Later on, among sailors at the Naval Hospital, Caracao, two distinct types of chronic ulcer were observed, the first conforming to Fayrer's description of Delhi boil, the second resembling Jeanselme's tropical phagedena. Smears from ulcers of the first type showed scarcely any polymorphonuclears; only cells of lymphocyte characteristics. There was nothing indicative of protozoa (Giemsa's stain). Smears from ulcerations of the second type showed the presence in abundance of a single organism, morphologically a corynebacterium. Polymorphonuclears were present in great profusion; no cocci. Among the methods of treatment reported negatively were mentioned the following: (a) artificial gastric juice; (b) excision of lesion; (c) cauterization with pure carbolic acid; (d) Bier's passive congestion; (e) massive doses of potassium iodide.

Gangosa, with Additional Notes.—By Drs. O. J. Mink and N. T. McLean, Passed Assistant Surgeons, U. S. Navy, Washington, D. C. The authors stated that since the publication of their original paper on this subject in 1906 additional literature, not available at Guam, had been studied, and a few further facts regarding certain phases of the disease had been obtained. The disease had existed in Guam for at least 150 years. Although only 125 cases had been examined at Guam, there were probably between 200 and 250 on the island, the population of which was about 11,000. The youngest ages at invasion were three and nine years; the oldest were fifty-four and fifty-nine years. In a series of 80 cases, 49 were in females and 31 in males. The natives of the various parts of the island were intimately associated by religious, marital, and commercial relations, but there was no evidence to show that heredity played any part in the transmission of the disease. The native theory, and that held by the Spaniards, gave food a prominent place in the causation of the disease. They believed that such foods as decomposed or very salty fish, especially if eaten raw, uncooked taro, and native pepper, were the direct causes of the disease. This theory seemed improbable. The disease had been considered a late manifestation of syphilis, but the authors stated that during eighteen months spent in Guam they did not see syphilis in any type among the native population, and they did not believe that it existed there. Their observations led them to believe that if there was a specific infecting agency the nature of it was yet undetermined. The majority of the cases occurred in pure blood natives. As the disease was not fatal, autopsy was possible only when death occurred from intercurrent disease. To those who had seen a case of gangosa, the diagnosis offered no difficulty. In a number of cases observed, the initial symptoms led to a diagnosis of tonsilitis, pharyngitis, and laryngitis of a mild degree. All showed a slight rise of temperature, and complained of soreness in the posterior nares and pharynx, with stiffness in the muscles of deglutition. The throat symptoms became localized, and on the third day a patch of yellowish gray membrane was observed on the soft palate in the first case, the uvula in the second, and on the right pillar in the third case. The membrane was elevated, thick and tenacious. On removal, the denuded surface bled freely. Within twenty-four hours of the appearance of the membrane the typical ulceration was established. On the area covered by the membrane a number of small depressions appeared. The ulcer which was formed had a punched-out appearance, with undermined edges, and a deep, uneven floor, covered with a yellowish-white, very offensive discharge. The depth of the ulcer rapidly increased, until, in the cases of the uvula and soft palate, the tissues were perforated by the seventh day. These cases were still under observation. Fulminating gangosa was differentiated from diphtheria by the absence of Klebs-Loeffler bacilli, and by the typical mutilation in those cases which survived. Excepting in the fulminating type, the disease, *per se*, was never fatal. The mutilations and complications were permanent, and caused corresponding disability. The treatment was essentially local and should aim to destroy the infected area.

Dr. W. F. Arnold, Lieutenant-Commander and Surgeon (retired), U. S. Navy, said that in order to correct a possible misapprehension that syphilis did not exist on the island of Guam he wished to state that during his short service there he saw a hospital attendant with distinct mucous patches, and subsequently he found the woman who had caused the infection. He also saw a Eurasian of some sort in one of the shops there who had syphilis. The speaker thought there was no doubt that syphilis could be introduced in the island, and that it would spread.

Notes on Chronic Ulcers of the Philippines.—By Dr. George C. Shattuck of Boston, Mass. (This paper was read by title.)

Filariasis.—By Dr. T. Tanaka of Tokio, Japan.

(*a*) **Tropical Forms of Pityriasis Versicolor.** (*b*) **Framboesia Tropica (Yaws); Its Etiology, Clinical Symptoms and Treatment.** (*c*) **Observations on Tinea Imbricata.** (*d*) **Observations on a Peculiar Dermatomycosis.**—By Dr. Aldo Castellani of Colombo, Ceylon. (This paper was read by title).

Demonstration of the Uses of Liquid Air in Dermatology.—By Dr. Charles T. Dade of New York.

Friday, September 13—Fifth Day.

Dr. Herman G. Klotz of New York, Dr. Robert W. Taylor of New York, and Prof. Wolff of Strasburg, Germany, Vice-Presidents, in the Chair.

Report on the Present Status of Our Knowledge of the Parasitology of Syphilis.—By Prof. Erich Hoffmann of Berlin, Germany. The author stated that the *Spirochæta pallida* had been demonstrated with great regularity in acquired syphilis, where it appeared in almost all the pathological products of the early stage, and frequently in late affections as well (papules, gummata, aortitis). It was sometimes found in the internal organs (spleen, suprarenal body, liver, lung, cerebral arteries) of patients who had died during the secondary stage. In the child or the fetus affected with congenital syphilis the internal organs in addition to the skin were often flooded with spirochetes, as it were. The *Spirochæta pallida* was best shown in smear preparations with Giemsa's solution, or in sections treated with silver; however, it was equally feasible to employ Giemsa's solution in tissue sections, and silver impregnation in smear preparations. Besides the rapid staining of Giemsa's method, the direct examination of fresh specimens under the darkened-field-illumination was most advisable for diagnostic purposes. The *Spirochæta pallida* had a predilection for the connective tissue, the lymph vessels, the walls of blood-vessels and the interepithelial interstices, but it was sometimes met with in the interior of certain cells; for instance, the hepatic and suprarenal cells, and leucocytes (phagocytosis). Its manner of distribution in the pathological products was often irregular. It found no favorable conditions for its existence in the circulating blood, probably because it was anaërobic. The fact that it occurred not infrequently in unchanged tissues was accounted for by the reaction on the part of the organism being very slow to follow its entrance. The *Spirochæta pallida* was characterized by the delicacy and weak refractive power of the thread; great length in proportion to depth; abruptness and regularity of the convolutions; common occurrence of long terminal threads. Thus as a rule it could be readily destinguished from other forms. Its multiplication, according to certain authors whose views Dr. Hoffman accepted, took place by longitudinal division, as in the trypanosomes. Others assumed transverse division, as in bacteria. A regular cycle of evolution and resting forms had not as yet been demonstrated. All culture experiments had failed, and only their increase in tissue segments seemed to have been successful. The *Spirochæta pallida* was undoubtedly the producer of syphilis, and was possessed of the same importance for the diagnosis of this disease as was the tubercle bacillus for the recognition of tuberculosis.

Dr. A. Buschke of Berlin, Germany, sent a paper which was read by title.

Dr. Oscar T. Schultz of Cleveland, O., read a paper on the same subject in which he stated that at the present time only *Cytoryctes luis* and *Spirochæta pallida* needed to be considered in a discussion of the parasitology of syphilis. The weight of evidence was against *Cytoryctes luis*, firstly as to its being a protozoon, and secondly as to its having anything to do with syphilis. The chief factors in favor of an etiological relationship between *Spirochæta pallida* and syphilis might be briefly summarized as follows: 1. *Spirochæta pallida* had characteristics sufficiently marked to permit the experienced observer to distinguish between it and other spiral organisms. 2. The organism was present in all the various manifestations of the disease. 3. It was found only in syphilis; not in any other condition. 4. It bore a definite relationship to those histopathological changes which were considered characteristic of syphilis. 5. After the use of mercury the amelioration of the cutaneous lesions and the disappearance of the spirochetes went fairly well hand in hand. 6. In the lesions of experimental syphilis in lower animals *Spirochæta pallida* was present and had the same characteristics as in the human disease. The protozoan nature of the parasite appeared more than probable. While the majority of cases of syphilis were easily recognized by the experienced dermatologist, the finding of *Spirochæta pallida* in a doubtful case was of the greatest value, and must be considered conclusive proof of the syphilitic nature of the case. Because it had thus far been impossible to obtain and grow the organism in pure culture, Koch's laws were not susceptible of proof. However, the constant presence of the parasite in the lesions of syphilis, its presence only in syphilis and not in other diseases, its definite relationship to the pathological changes, its morphological characteristics and its presence in the lesions of experimental syphilis in the lower animals furnished sufficient evidence to establish the etiological relationship of the *Spirochæta pallida* to syphilis.

Observations in Regard to the Spirochæta Pallida.—By Dr. Albert Dryer of Cologne, Germany.

Systematized Localizations of the Treponema Pallidum.—Dr. H. Hallopeau and Dr. Gastou of Paris, France. The authors stated that instead of being irregularly scattered without any apparent plan, syphilomata were often found to affect certain organs or certain regions exclusively. These systematized localizations were referable solely to those of the *Spirochæta* or *Treponema*. They might be divided into nine groups: 1. Organic systematizations. 2. Symmetrical systematizations. 3. Systematizations localized in areas of nerve distribution. 4. Systematizations by autoinoculation, either intra- or extra. 5. Systematizations dependent upon prior localizations of some other infectious disease. 6. Systematizations in congenital syphilis. 7. Systematizations through culture medium of microbic origin: (a) through microbes of indifferent character; (b) through association of the treponema with other specific microbes. 8. Systematizations through recurrent toxic irritation. 9. Systematizations through lack of elimination and treatment.

Dr. Ch. Wardell Stiles of Washington, D. C., said he thought too much stress had been laid upon the question of whether this organism reproduced by longitudinal or transverse division in its bearing upon the character of the organism itself. If it is reproduced by longitudinal division, the probabilities were in favor of the organism being a protozoon, but even if its mode of reproduction was by transverse division it might be either a protozoon or a bacterium.

Dr. Bolesaw Lapowski of New York said that while he did not wish to make the assertion that the *Spirochæta pallida* was not the causative factor of syphilis, he did

not believe that all the conclusions to that effect drawn by the readers of the papers were justified by the facts; in other words, that they had not proven their point, and that further investigations were necessary.

Thed iscussion was continued by Prof. Alex Renault of Paris, Dr. T. Tanaka of Tokio, Japan, and was closed by Prof. Hoffman.

The Dangers of Syphilitic Infection in Massage.—By Dr. Robert W. Taylor of New York. (See page 601.)

A Contribution to Heredo-Syphilology.—Dr. Robert W. Taylor of New York said it was evident that our early concepts concerning hereditary syphilis were largely erroneous and inadequate, and that the following summary of conclusions was warranted by up-to-date observations, studies, and results: 1. The absence of very early manifestations in heredo-syphilis was no criterion that the infant was not infected. Spontaneous involution of the diathesis was most rare, and could never be asserted. It was not a haphazard accident. 2. In many cases the early exanthematic manifestations might be wanting, but later on specific or dystrophic lesions might show themselves. 3. Treatment of the infected infant should always be promptly begun and persisted in as sedulously as in the adult acquired disease. 4. Age and treatment tended to cure the child. 5. The view that inherited syphilis was at first superficial and later became deep and visceral was false, since the whole organism was involved from very early life. 6. Syphilis hereditaria tarda was not exceptional. It might occur at about the eighth and twelfth years, and even earlier, and frequently was encountered at all periods up to the thirtieth year of life, and perhaps later.

Afternoon Session.

Dr. Veiel of Württemberg, Germany, and Dr. Abner Post of Boston, Mass., Vice-Presidents, in the Chair.

Quaternary or Attenuated Hereditary Syphilis of Reticular Tissues (Appendicitis, Adenoid Vegetations and Scrofula).—By Prof. E. Gaucher of Paris, France. According to the author, appendicitis might be the result of a syphilitic heredity in the second generation. His designation of the quatenary syphilis in acquired as well as hereditary cases corresponded to the parasyphilis of Fournier. This syphilitic or congenitally specific origin of appendicitis, which had been maintained by him since 1904, had given rise to a good deal of contradiction and was far from being generally conceded. The paucity, or rather the absence of accurate statistics, was referred by him to the fact that about 50 per cent. of all trained observers, namely, physicians, were themselves affected with syphilis. In the history of his appendicitis cases, the author almost invariably found syphilis, either acquired or congenital. Accurately speaking, among 32 cases of appendicitis there were 8 old syphilitics and 21 children of syphilitic parents. A very striking feature in the history of appendicitis was its frequent occurrence as a family disease. Instead of holding the grippe responsible, as was commonly done, this family appendicitis should be laid to the score of syphilis rather than any other cause of an infectious character. Syphilis, congenital or acquired, did not give rise to appendicitis directly; it was merely a predisposing factor, favoring the hypertrophy and chronic inflammation of the reticular tissue of the appendix, which thus became a suitable soil for the action of irritative, infectious or suppurative agents of all kinds. In other words, while appendicitis might possibly occur in the absence of syphilis, the lesion of the reticular tissue, which in the majority of cases constituted the preliminary or presuppurative stage of appendicitis, was almost invariably a manifestation of quaternary or attenuated syphilis. Specific heredity, either direct or in the second generation, was also the cause of hypertrophy of the reticular tissue of the antrum, terminating in the formation of adenoids. Congenital syphilis was found by the author in the majority of the children coming under observation for adenoid vegetations. In those cases where syphilis was not found in the parents, there was reason to suspect it in the grandparents, as in appendicitis. There was an interesting observation on record by Van Huysen showing the existence of appendicitis, adenoids, and convergent strabismus in the same heredosyphilitic children of the second generation. If it were more often sought for and more readily recognized, this specific heredity in the second generation would certainly furnish the etiological explanation of many a case of adenoids or appendicitis which was not at present referred to the true cause for lack of sufficient information. The recognition of the heredito-specific origin of adenoids was so much the more important, as the anatomical basis of scrofula must be referred to the existence of the vegetations, and the resulting suppuration of the antrum. Scrofula was a chronic intoxication of microbic origin, with its starting point in the antrum. The microbic toxins formed by the local suppuration were absorbed by the mucosa of the rhinopharynx, taken up by the lymphatics, and distributed by the circulation throughout the organism. Scrofula thus being derived from the chronic inflammation of the rhinopharynx, and the causative adenoids being of more or less remote syphilitic origin, it followed that scrofula was a sequel to quaternary hereditary syphilis. In other words, the primary and essential condition of scrofula consisted in hereditary syphilization. Disease of the cervical lymph glands, so commonly observed in these cases, did not invariably develop upon the soil of tuberculosis, but was sometimes dependent upon congenital syphilis.

Dr. Frederick R. Sturgis of New York said that while the remote effects of syphilis, directly transmitted, were frequently observed, he frankly confessed his disbelief in the theory of Prof. Gaucher that appendicitis, in the majority of cases, should be looked upon as a parasyphilitic manifestation. There were probably few persons who could not claim the honor of having had a syphilitic ancestor, and it was very doubtful that the effects of the disease were carried to the fourth generation, nor was he willing to concede the fact that because certain persons had been unfortunate enough to contract syphilis, therefore they would be syphilitic for all time.

Prof. Gaucher's paper was further discussed by Dr. DeKeyser of Brussels.

Syphilis in the Rabbit, Produced by Pure Cultures of the Syphilis Bacillus.—By Dr. Max von Niessen of Wiesbaden, Germany. (Read by title.)

The Pathology of Tropical Ulcer (Delhi Sore) and Mycetoma (Madura Foot).—By Dr. James Homer Wright of Boston, Mass. (Read by title.)

Endarteritis of the Peripheral Blood-Vessels of the Skin. A New Arterial Symptom of Syphilis and Its Relation to Cutis Marmorata, to Large Syphiloderma Maculosum, and to the Spirocheta.—By Prof. S. Ehrmann of Vienna, Austria. (Read by title.)

The Osteopathies of Hereditary-Quaternary Syphilis.—By Prof. E. Gaucher and Dr. A. Levy-Bing of Paris, France.

Radiograms of Syphilis of the Long Bones.—By Dr. Martin W. Ware of New York. The author stated that syphilitic affections of the bones had been the last of the bone diseases to be subjected to x-ray examinations. Whereas, it could not be claimed that a pathognomonic picture might be obtained in every instance, yet a succession of these radiograms showed a uniformity in the type of the findings which corresponded in a striking manner with the picture of the gross pathological appearances of syphilis of the bones. It was therefore justifiable to speak of "characteristic findings" in syphilis of the bones.

which, taken in conjunction with the data of the anamnesis, materially added to the certainty of the diagnosis. Furthermore, a prognosis might be based on the findings and the efficacy of treatment estimated by the regressive changes of the bones visible in the radiograms. Most characteristic was the periosteal involvement in syphilis of the bones, and the differentiation of syphilitic dactylitis from tuberculous dactylitis was very marked. Osteomyelitis of a chronic nature dependent on pus organisms might at times give *x*-ray pictures which were difficult to differentiate from those of syphilitic origin; the latter, however, were singled out by facts in the history of the case. On the whole, the productive character of the syphilitic inflammation of the bone manifested itself in the dense shadows of the radiogram. Gummatous deposits which caused absorption were discernible by the lighter shadows, but most commonly surrounded by the denser shadows of areas of bone consolidation. The atrophy of bone peculiar to tuberculosis was wanting in the radiograms of syphilitic bone disease.

Hutchinsonian Teeth; Their Variation and Their Value.—Dr. ABNER POST of Boston, Mass., in his paper, said that in order to appreciate the full value of Hutchinsonian teeth one must know their life history and their relation to other symptoms. They were formed before birth. They were often associated with keratitis and deafness (Hutchinsonian triad). The typical Hutchinsonian teeth were peg-shaped, notched, beveled from front to back, and often assumed an unnatural position toward each other. Many teeth were found which presented some but not all of these characteristics. These imperfect Hutchinsonian teeth were of value, when alone, in awakening suspicions; when connected with the other symptoms, in confirming a diagnosis of syphilis.

Peripheral Syphilitic Arteritis.—Dr. HERMANN G. KLOTZ of New York said that since the publication of Huebner in 1874 it had been known and generally accepted that syphilis might directly cause pathological processes in the arteries of the brain. It would seem obvious that arteries in other parts of the body might become similarly affected. A number of observations, showing arteritis of peripheral arteries due to syphilis had been published, but generally not much attention had been paid to them. Quite a number of such cases had been classed as Raynaud's disease, and syphilis was usually mentioned as one of the causes of that disease. What were really the essential features of Raynaud's disease? Could they be directly caused by syphilis? The writer then discussed the symptoms of peripheral syphilitic arteritis, and referred to his former publications on the subject. He emphasized the practical importance of distinguishing the cases of syphilitic arteritis from those of Raynaud's disease and of calling them by their proper name.

Dr. G. HOWARD FOX of New York said he felt convinced that the symptoms of Raynaud's disease, including local asphyxia and gangrene, could be caused by syphilis. Many cases of peripheral syphilitic endarteritis probably had gone unrecognized, and had been wrongly called Raynaud's disease. The true character of these cases should be recognized and proper treatment instituted.

Dr. A. RAVOGLI of Cincinnati said he considered Raynaud's disease and gangrene due to syphilitic endarteritis as two entirely distinct affections. He did not believe that Raynaud's disease was even a parasyphilitic affection. This disease remained unaffected by the use of mercury and potassium iodide, whereas in the gangrene of syphilitic endarteritis the antisyphilitic injections gave brilliant results.

A Simple and Rapid Micro-Chemical Method for the Detection of Mercury in the Urine.—By Dr. C. LOMBARDO of Modena, Italy.

Treatment of Syphilis.—By Dr. GEORGE K. SWINBURNE of New York. This was a plea for the avoidance of giving mercury in any form by the mouth, at least as the main reliance in the treatment of syphilis.

Clinical Reports on (*a*) Syphilitic Reinfection; (*b*) Syphilis Insontium.—By Dr. GEORGE K. SWINBURNE of New York. This paper gave the reports of three cases of chancre of the tonsil.

The Use of Mineral Waters in the Treatment of Syphilis.—By Dr. JEAN DARDEL of Aix-les-Bains, France. The author stated that the specific treatment of syphilis was, of course, mercury and the iodides, but very often physical and hygienic agents, such as the old treatment with mineral waters, etc., were needed in addition. These auxiliary agents had a complex end in view. They tended to strengthen the organism and aid it in its fight against the disease. They also increased the absorption of the mercury and its assimilation, so that an intensive or rapid effect could be obtained. There were three kinds of mineral waters that were useful in the treatment of syphilis —the sulphur, the common salt or muriated, and the arsenical waters. The therapeutic indications for each of these waters depended upon the condition of the patient and the state of the disease at the time.

The Treatment of Syphilis by the Products of the Brazilian Flora.—By Prof. EGAS MONIZ BARRETO DE ARAGAO of Bahia, Brazil.

Verrucæ Plantares; Their Prevalence in Boys and Young Men, and Their Pathology.—By Dr. JOHN T. BOWEN of Boston, Mass.

Saturday, September 14—Sixth Day.

DR. HENRY W. STELWAGON OF PHILADELPHIA IN THE CHAIR.

Zoster Arsenicalis.—By Dr. JOSEPH ZEISLER of Chicago, Ill. In this paper the author submitted brief notes of his own observations of eleven cases of arsenical zoster recorded in a period of twelve years. The main point in all of these cases was that arsenic was the chief internal medication, and in all of them there developed, after a variable period and usually when a maximum dosage had been reached, a clinically unmistakable zoster. In these eleven cases the underlying original trouble was psoriasis in five, lichen planus in three, pseudo-leukemia, alopecia areata, and erythema, each one case. The time interval required for the development of zoster varied from four and a half weeks as the shortest period to three months as the longest. It always occurred while the patient was still taking his arsenic, and usually when a high dosage had been reached. It seemed to the writer that the direct connection between the medication and the subsequent eruption of zoster in all these cases was easily established. To consider the appearance of zoster in all of them as a casual occurrence would mean to wilfully ignore the chronological development of clinical phenomena.

Dr. M. B. HARTZELL of Philadelphia said that considering the large number of cases in which arsenic was administered the occurrence of zoster arsenicalis must be regarded as comparatively rare. It seemed to depend not so much on the dose as the length of time during which the drug was administered.

Dr. JOSEPH GRINDON of St. Louis, in discussing the question raised by the reader of the paper whether the vesicular eruption following the use of arsenic was a true zoster or a medicinal rash, as Lewin would have it, said that in order to decide that point we must first agree as to what true zoster was. Clinically arsenical zoster was much the same as true zoster, but if one chose to limit that term to the zymotic disease, as taught by Erb, then arsenical zoster was not true zoster.

Dr. J. NEVINS HYDE of Chicago referred to the rarity of symmetrical zoster. He recently saw a case which was believed to be of that type, but which proved to be one of true zoster on the right side of the body, and arsenical dermatitis on the left.

The discussion was continued by Dr. [illegible] of Zwicau, Germany, Dr. C. F. Jappe of Davenport, Ia.; Prof. Erich Hoffmann of Berlin, Germany, and was closed by Dr. Zeisler.

Failure in Proteid Metabolism and Its Relation to the Production of Certain Types of Dermatitis. Dr. James C. Johnston and Dr. Hans J. Schwartz of New York read a paper on this subject. The cases in which urinary examinations were made included urticaria, erythema multiforme, eczema, psoriasis, dermatitis herpetiformis, prurigo, rosacea, and pruritis. The amount and percentage of the nitrogen bodies were determined, together with any abnormality that might appear, such as the presence of acetone and increase of indican. A definite relationship was often observed between disturbance of the normal ratios and outbreaks in the skin. In subacute and chronic cases there seemed to be a pathological level in the percentages indistinguishable from the normal slight variations. In cases of indigestion, gastric or intestinal, great changes in the nitrogen partition were rarely found. On the other hand, patients might have acute dermatitis of one sort or another with high rest percentage and low urea, and no perceptible indigestion. The conclusion seemed justified that the fault lay chiefly in the intermediary metabolism, a view possibly supported by the effect of thyroid treatment. There was no discernible effect of the toxemia on the kidney structure. Since the changes in the partition resulted chiefly from failure of urea synthesis, and as the members of the series were nontoxic in any ordinary dosage, probably the variations were to be viewed as results of the toxemia, like the lymphocytosis of squamous disease and the eosinophilia of bullous. The autointoxication itself seemed a result, not a cause of disturbed metabolism. Indicanuria indicated an accidental accession to the toxemia which had no relationship to disturbance in the nitrogen partition.

This paper was discussed by Dr. Martin F. Engman of St. Louis, Dr. Thomas C. Gilchrist of Baltimore, Prof. E. Gaucher of Paris, France, and the discussion was closed by Dr. Johnston.

Some Experimental Observations on Urticaria Factitia.—By Dr. T. Caspar Gilchrist of Baltimore, Md. This consisted of a lantern slide demonstration of the changes observed in the skin in urticaria factitia.

Dr. Gilchrist's paper was discussed by Dr. Herman Lawrence of Melbourne, Australia, and Dr. [illegible] of Zwicau, Germany.

A Case of Sarcoid.—Dr. S. Pollitzer of New York reported the case of a married woman, 35 years old, with tuberculosis pulmonum and a large cavity in the right lung, but well nourished and healthy looking. Her cutaneous affection began about five years ago with the sudden appearance of bright and dull red, round, or oval slightly elevated areas from five to twenty mm. in diameter, flat, with a perfectly normal surface and sharply defined border, without subjective sensation. When the patient was first seen two and a half years ago the lesions then present had not changed noticeably since their first appearance. They were located on the forehead, cheeks, neck, the shoulders, arms, and forearms, and one near the umbilicus; in all about fifteen lesions, which had appeared in succession at varying intervals. Two years later the patient was seen again. All the old lesions persisted almost unchanged; a few seemed less infiltrated and less red; no atrophy, no scarring. But in the meanwhile new lesions had appeared; a group of five on the tip and sides of the nose, one on each forearm, and one on the right leg above the angle. The latter, which had appeared four months before, was excised. One half of the lesion, used for histological study, showed sharply defined areas of infiltration, made up of epithelioid and a few giant cells, strongly resembling tubercle; no tubercle bacilli. The other half of the lesion in fine suspension was injected intraperitoneally into three guinea pigs, which, killed after six weeks, showed no sign of tuberculosis.

At the completion of the scientific portion of the program, the Secretary General, Dr. John A. Fordyce of New York, made a supplementary report, which was accepted. He stated that letters had been received from Prof. Unna of Hamburg and others expressing regret at their inability to be present and wishing the Congress every success.

Upon motion of Dr. M. B. Hartzell of Philadelphia, a unanimous vote of thanks was extended to the New York Academy of Medicine for its generosity in giving the use of its building to the Congress.

Dr. Stafford Taylor of Liverpool, England, moved that a vote of thanks be extended to the Organization Committee and all the officers and members who had done so much to make this Congress a success. The motion was seconded by Prof. Bertarelli and Prof. E. Gaucher of Paris, France, and was unanimously carried.

The President, Dr. James C. White of Boston, in his valedictory remarks, stated that the members of the Congress might well claim that the interests of dermatology had been advanced by this meeting, and that their mutual respect and attachment had been enlarged and strengthened. Might all find in its spirit and accomplishment fresh inspiration for future labors and progress. He thanked the members for the kind consideration they had shown the President and for the happily expressed appreciation of their efforts, and then declared the sixth International Dermatological Congress dissolved.

Function of the Glomeruli of the Kidney in Diuresis.—Vittorio de Bonis has demonstrated that the glomerular epithelium is not a simple filter, but a semipermeable membrane through which may pass a large amount of water or isotonic solution, carrying with it substances that are selected by the kidney epithelium themselves from the blood plasma in contact with them. The author then made experiments as to what substances would pass in this way, making use of various diuretics that stimulate the renal epithelium. The ones used were chloride of sodium, sulphate of sodium, glucose, lactose, and urea. His conclusions are given thus: The glomeruli are permeable to chloride of sodium, sulphate of sodium, glucose, lactose, and urea, and the elimination of these substances is through a glomerular filtration, while the epithelia of the canaliculi have a part in the extraction of these substances. The diuresis produced by these substances is the result of action on the glomeruli principally; the glomeruli are the first parts of the organ to feel an increase of osmotic pressure of the blood and respond immediately to this stimulus.—*Giornale Internazionale delle Scienze Mediche.*

Metrorrhagia Myopathica.—Brooke M. Anspach presents the following conclusions: Metrorrhagia myopathica stands for a distinct class of cases, which have heretofore been variously and incorrectly grouped under apoplexia uteri, endometritis senilis, and preclimacteric bleeding. Metrorrhagia myopathica is a symptom immediately dependent upon an anatomical or a physiological lesion of the uterine muscle. No anatomical lesion has as yet been demonstrated, but it will probably be found in the elastic-tissue constituents of the vessel walls and the subserous and supravascular layers. The physiological lesion is most likely an insufficient contractile power of the uterus. It is possible that the condition is purely functional, and there is no anatomical change which can be recognized. In cases of metrorrhagia myopathica the uterus is enlarged and softened; the os is patulous. Metrorrhagia myopathica does not occur in nulliparous women, and therefore it must have some connection with the child-bearing process. The diagnosis of metrorrhagia myopathica is justified only when all other possible causes for uterine hemorrhage have been excluded. This cannot be too strongly urged, especially in reference to carcinoma. The terms apoplexia uteri, senile endometritis, and preclimacteric bleeding as applied to these cases are incorrect and unscientific. While curettement, atmokausis, and so on, have little effect in cases of metrorrhagia myopathica, palliative measures should always be tried before adopting hysterectomy. Obliteration of the endometrial cavity by means of destructive atmokausis is the alternative of hysterectomy in these cases. It is, however, harder to perform correctly and more dangerous than hysterectomy, which is the operation of choice.—*University of Pennsylvania Medical Bulletin.*

Surgical Suggestions.

Mercury by Hypodermic.—According to Hale White, when it is desirable to get a syphilitic patient under the influence of mercury quickly, as in syphilis of the nervous system, it can be done by the deep gluteal injection of one-eighth of a grain of perchloride of mercury dissolved in five minims of water. This may be done once a day. No trouble will result locally if the needle and syringe are clean.—*Clinical Review.*

The High Operation for Varicocele.—D. D. Lewis says that the high operation for varicocele has certain advantages. The operation is performed in a field which can be readily sterilized, thus reducing the dangers of infection, and the scar is removed from the irritating secretions about the scrotum. The operation is readily performed under local anesthesia and through a small transverse incision. The center of the incision of three-fourths to one inch in length corresponds to the external abdominal ring, and is slightly above it. The skin and the fascia are incised, and the structures composing the spermatic card are lifted up on a Kocher's director. The intercolumnar, cremasteric, and transversalis fasciæ are next incised parallel to the cord. This permits of the separation of the veins of the pampiniform plexus, from the vas deferens and its accompanying veins. The veins of the plexus are next ligated and resected, the extent of the resection depending upon the size of the varicocele. The veins accompanying the vas deferens are undistributed. The ligatures applied to the veins to be resected are left long and tied later. This elevates the testicle. The spermatic artery is sacrificed in this operation, but the artery accompanying the vas deferens provides for the nutrition of the testicle. The fascia is next sutured with fine catgut, and the skin with horsehair. A triangle bandage is applied to support the scrotum and testicle. It is advisable to keep these patients in bed from eight to ten days, until the organization of the thrombus is complete. Unfortunate accidents, such as pulmonary embolism, have resulted from early activity on the part of the patient.—*Surgery, Gynecology and Obstetrics.*

Black Eyes.—Harman says that it is wiser never to apply lead lotions to contused eyelids, as there is always danger of permanent staining of the cornea being caused through unrecognized abrasions. There is at hand in every household the material for an ideal pack—the netted dish-cloth. Take a clean specimen, cut off a portion about 4 inches by 6 inches, fold it once, soak in the lotion to be chosen and apply to the face. It is so limp it will fit the part accurately; it is so loose that it only holds the lotion on the face, and allows the most free evaporation, and therefore cooling. The double layer forms a thickness of nearly a quarter of an inch, and as the lotion is evaporated fresh cold lotion can be dropped upon the pack, and it will diffuse through the network without requiring any change of position or reversing. For a lotion nothing is better than a 5 per cent. spirit lotion, scented with eau-de-Cologne or lavender water if elegance be required. Weak spirit applied to the conjunctiva causes a stinging sensation, so it is well to put some vaselin between the eyelids before using such a lotion: the grease will fill the palpebral fissure, clog the lashes, and prevent the entrance of the fluid to the conjunctiva. So, also, if the skin about the eye be broken it can be protected from the spirit by the grease. Astringent lotions are of doubtful utility—they scarcely act through unbroken skin. Hamamelis is a favorite application; it is quite harmless. Arnica is often employed, but it is not always harmless; it occasionally produces severe skin irritation and symptoms not unlike erysipelas.—*Clinical Journal.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

SOUTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS.

June 11, 12, and 13, 1907.

GENERAL ANATOMY.

1. How many bones of the cranium? Name them. How many bones of the face? Name them.
2. What are tendons? Aponeuroses? Fasciæ?
3. Name the superficial muscles of the abdomen. Name the deep muscles of the abdomen.
4. Where does the brachial artery commence and terminate? Name its branches.
5. Give the origin and distribution of the third cranial nerve. Is it a sensory or a motor nerve?

SURGICAL OR REGIONAL ANATOMY.

1. For purposes of spinal anesthesia, or tapping the dural sac for diagnostic purposes, where would you make your puncture, and why?
2. What arteries are in danger in the operation of "paracentesis thoracis," and how would you guard against this?
3. In gunshot wounds of the intestines or bladder, rupture of an abscess or any organ in the abdominal cavity, what position would you place your patient in, and why?
4. Give surface marking of femoral artery. Most favorable point for ligature? Why? Most effectual point of compression in operations on thigh? Why?
5. Give surface marking of common carotid artery. Most favorable point for ligature. Most effectual point of compression in an injury to the external carotid.
6. What is the chief function of the great omentum? In what position would you place your patient to remove the omentum from your field of operation?
7. How would you determine the portion of small intestines in your hand in operations on same?
8. In fracture of neck of femur, internal to the capsular ligament, what are the characteristic symptoms and their causes? In fracture just below trochanter, what are the symptoms and causes?
9. What cranial nerve is most frequently paralyzed? Name three causes from its origin to distribution and symptoms.
10. What arteries would you tie in pylorectomy?

PHYSIOLOGY.

1. Describe in detail the events that occur during a single cardiac cycle, and the theories of the cause of the heart beat.
2. What are the physical and chemical properties of muscular tissue? What changes take place during muscular action?
3. Classify foods. Define digestion and describe digestion in the stomach and intestines, and state substances absorbed in each.
4. What would be the effect of a transverse section of the anterior root of a spinal nerve? The posterior root? An efferent nerve? An afferent nerve?
5. Enumerate the special centers contained in the medulla, and state over what function or structure each presides.

HYGIENE.

1. Mention some of the diseases induced by industrial pursuits, and give the special cause in each disease, and how prevented.
2. What are the effects of too much shade around a dwelling house, and why?
3. What abnormal conditions of the eyes are most common in school children, and how caused?
4. What derangements are liable to result from improperly constructed desks and seats in schoolrooms?
5. What is "State Medicine?" Discuss its vital importance to promoting a successful nation.
6. What is trachoma, and how should it be handled when occurring in a school child?
7. Define ptomains, give sources of origin and describe their agency in inducing disease, and give the symptoms produced by them.
8. What are the common impurities of drinking water, and how may such impurities be removed?
9. Mention in order of merit the best means of fumigating by formaldehyde gas. How is the gas formed, and what is the necessary temperature of the room?
10. Mention the preventable epidemic diseases, and state how you would stop spread of each.

[Juniors answer all of Physiology questions and Nos.

1, 3, 7, 9, 10 of Hygiene. Seniors answer all of Hygiene questions.]

MATERIA MEDICA.

1. Give names of two vasodilators.
2. Give names of two vasoconstrictors.
3. GGive names of two hydragogue carthartics.
4. Give names of two cholagogue carthartics.
5. Give dose and therapeutics of each.

THERAPEUTICS.

In treating the following diseases, give dose, frequency of administration, and physiological effect of drugs used; also other remedial measures used, giving the physiological effect and mode of use: 1. Typhoid fever. 2. Bronchitis. 3. Pneumonia. 4. Dysentery. 5. Cholera infantum. 6. Acute nephritis. 7. Acute rheumatism. 8. Acute neuritis. 9. Enterocolitis of infants.

10. Give symptoms of poisoning by lead, opium, strychnine, and arsenic. Also antidotal treatment for each.

CHEMISTRY AND MEDICAL PHYSICS.

1. Give chemical formula for argentic nitrate. How is it used in medicine?
2. Give chemical formula for sodium chloride, and state its chief function in the economy.
3. What is $CaSO_4$, and what property makes it useful in surgery?
4. What is the difference between the galvanic and faradic currents?
5. What instruments are used to measure electricity with?

PRACTICAL URANALYSIS, MICROSCOPY, AND TOXICOLOGY.

1. What is a urinometer, and what diseases does it help to diagnose?
2. What constituents help to render the urine acid?
3. Mention the essential parts of a microscope.
4. Give morphological difference between blood and pus corpuscles.
5. Mention some of the most frequent pathological constituents found in the urine under the microscope.
6. What does continuous low specific gravity indicate?
7. When may the specific gravity be below 1010 in health?
8. How are uric acid crystals deposited in test tubes? Give morphology.
9. Define toxicology.
10. Give symptoms of, and antidotes for, poisoning from cocaine, carbolic acid, and strychnine.

SURGERY.

1. What are general indications in treatment of wounds?
2. Erysipelas. (a) Definition. (b) Prognosis. (c) Treatment.
3. Inflammation. (a) Definition. (b) Varieties. (c) Causes. (d) Treatment.
4. Locate the fissure of Rolando.
5. Abscess of prostate gland. (a) Causes. (b) Symptoms. (c) Treatment.
6. Differential diagnosis and treatment between omental and complete inguinal hernia.
7. Give the several steps in the amputation of the ring finger at the junction of the metacarpophalangeal articulation.
8. Give symptoms and method of reducing backward dislocation of hip.
9. Man forty-five years of age found on street in coma, what is the matter with him, and what is your method of examination?
10. Give differential diagnosis between gumma and epithelioma

PRACTICE AND DISEASES OF CHILDREN

1. (a) Etiology, diagnosis, and treatment of cerebral hemorrhage. (b) Differentiate between locomotor ataxia and multiple neuritis.
2. Which of the valvular lesions of the heart is most likely to cause sudden death? Why? (b) What symptoms constitute the Adams-Stokes syndrome? What is the pathology?
3. Commence with the chill and give symptoms and signs of a lobar pneumonia in a man twenty five years old. Treatment you would use.
4. Give etiology, symptoms, and treatment of acute gastroduodenitis.
5. What are the causes of peritonitis?
6. (a) In the third week of typhoid fever, what complication may arise? (b) What measures would you use to reduce temperature in typhoid?
7. Make a diagnosis and give your reasons, from the following history and symptoms: A married women, age thirty-four, large and fat in person. She has had two children and three miscarriages, the last six weeks ago. Otherwise she says her health has always been good until within three or four months; has been in the habit of drinking beer freely. For two weeks there has been pronounced jaundice, anorexia, and bilious vomiting after eating; dizziness, flatulence, occasional diarrhea with pain in the epigastrium, slight edema of the feet and ankles. These symptoms have been increasing. There has been no headache, no hemorrhage, or chills. The tongue was clean, pulse 80, temperature 97.8°. The heart and lungs normal. The liver was much enlarged and smooth. The spleen was felt below the ribs. There was no ascites. Urine sp. gr. 1017, deep yellow color, and containing a trace of albumin and much bile. Sediment normal. Blood examination negative.
8. Pathology and symptoms of primary laryngeal diphtheria. How much antitoxin would you give at a dose, and how often would you repeat it?
9. Give the clinical history of a case of tuberculous meningitis.
10. Clinical evidences and treatment of rickets.

OBSTETRICS AND DISEASES OF WOMEN.

1. What is post-partum hemorrhage, and how would you treat it?
2. (a) What symptoms would cause you to fear the development of eclampsia? (b) What would you do to prevent it? (c) How would you treat it should it occur?
3. (a) What is septicemia? (b) What is sapremia? (c) How would you treat them?
4. (a) What would you do to prevent mastitis? (b) How would you treat it?
5. What are the objections to the use of ergot during labor?
6. What are the dangers to mother and child in a case of breech presentation?
7. What is meant by version, and what are the methods of performing it?
8. Give causes and treatment of dysmenorrhea.
9. (a) When and how would you repair a lacerated perineum? (b) What is the principal muscle torn in this condition?
10. Give treatment (palliative and curative) of a case of retroversion of the uterus.

BACTERIOLOGY AND PATHOLOGY.

1. (a) What is the most effective method of sterilization? (b) How would you sterilize culture media, and why?
2. Give serum test (Widal reaction) for typhoid fever.
3. Give method of staining cover-glass preparations.
4. Give condition of intestines in acute enterocolitis.
5. Give changes in liver in chronic alcoholism.

MEDICAL JURISPRUDENCE.

1. Give in detail method of examining a body before testifying as an expert at an inquest.
2. (a) Give difference in entrance and exit in gunshot wounds by (a) soft lead, (b) hard lead, or steel bullet.
3. How would you distinguish between an incised or punctured wound received before death and immediately after death?
4. Where death is due to violence, how would you tell whether it was an accident, a homicide, or a suicide? Give an example of each.
5. Where an abortion has been produced, how would you tell whether it was criminal or accidental?
6. Has a physician the right to destroy a new-born monster?
7. Explain the difference between expert and ordinary testimony.
8. Under what circumstances is a physician excused from obeying a subpœna?
9. How would you distinguish between feigned and real insanity?
10. Distinguish between iron rust and blood stain.

[Juniors will answer Nos. 1, 2, 3, 4, 7 questions on Medical Jurisprudence.]

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

SOUTH CAROLINA STATE BOARD OF MEDICAL EXAMINERS.

June 11, 12, *and* 13, 1907.

SURGICAL OR REGIONAL ANATOMY.

1. For spinal anesthesia the puncture may be made in any intervertebral space below the second lumbar vertebra; the space generally chosen is that between the third and fourth lumbar vertebræ, or the lumbosacral space. The

reason is to avoid injury to the spinal cord, which terminates at the level of the lower border of the first lumbar vertebra. In the child, the spinal cord terminates opposite the body of the third lumbar vertebra; hence in children the puncture should be made below the fourth lumbar vertebra.

2. The intercostals. By inserting the needle nearer the upper than the lower border of the ribs bounding the selected interspace.

3. In all operations in the pelvic and lower part of the abdominal cavities, the patient should be placed in the Trendelenburg position. This causes the intestines and viscera to be displaced away from the field of operation.

4. The surface marking of the femoral artery is a line drawn from a point midway between the anterior superior spine of the ilium and the symphysis pubis to the adductor tubercle just above the internal condyle of the femur.

The most favorable point for ligature is at the apex of Scarpa's triangle, because here the vessel is more superficial, there are no large branches, and fewer important structures.

The most effectual point for compression in operations on the thigh is just below Poupart's ligament, because here the vessel is very superficial, and is separated only by the psoas muscle from the ascending ramus of the pubic bone; hence compression against that bone is easy and effectual.

5. The surface marking of the common carotid artery is a line drawn from the sternoclavicular articulation to the lobule of the ear, but the artery only extends as high up as the upper border of the thyroid cartilage.

The most favorable point for ligature is at the level of the cricoid cartilage in the superior carotid triangle, above the omohyoid muscle.

The most effectual point for compression is against the anterior tubercle of the transverse process of the sixth cervical vertebra (on a level with the cricoid cartilage).

6. The chief function of the great omentum is to afford protection to the small intestine.

In the Trendelenburg position.

7. "The jejunum is wider than the ileum (its diameter being a quarter of an inch greater than that of the ileum), and its coats are thicker and more vascular. If the gut be empty, and can be rendered translucent by being held against the light, the lines of the valvulæ conniventes can be well seen. These folds are large and numerous in the jejunum, but become small and scanty in the upper ileum, and are wanting in the lower third of that bowel." (Treves, *Surgical Applied Anatomy.*)

8. In intracapsular fracture: Swelling in front, just below Poupart's ligament, due to effusion of blood or to projection of the fragments. Shortening brought about by muscular contraction. Eversion or rotation outward, due to the weight of the limb, or the fact that the neck is often more extensively fractured behind, or it may be due to muscular action. In fracture below the trochanter the lower fragment is drawn up behind the upper one by the hamstrings, aided by the rectus, gracilis, sartorius, tensor vaginæ, and adductors, and is carried a little to its inner side under the influence of the last-named muscles. The lower end of the upper fragment usually projects forward and a little outward. This is produced by the agency of the lower fragment, which tilts the upper piece of bone in the direction named. In the fracture of the upper third of the shaft the projection forward of the upper fragment is aided by the ilio-psoas muscle." (Treves' *Surgical Applied Anatomy.*)

9. "The paralysis may depend either upon (1) central causes—*i.e.* blood-clots or intracranial tumors pressing on the nerve before its entrance into the internal auditory meatus. It is also one of the nerves involved in *bulbar paralysis;* or (2) it may be paralyzed in its passage through the petrous bone by damage due to *middle-ear disease* or by *fractures of the base;* or (3) it may be affected at or after its exit from the stylo-mastoid foramen. This is commonly known as *Bell's paralysis.* It may be due to exposure to cold or injury of the nerve either from accidental wounds of the face or during some surgical operation, as removal of parotid tumors, opening of abscesses, or operations on the lower jaw." (Gray's *Anatomy.*)

10. The arteries to be tied in pylorectomy are: The gastric, the pyloric branch of the hepatic, the right and left gastroepiploics, the gastroduodenal.

PHYSIOLOGY.

2. The *physical properties* of muscular tissue are: Elasticity, cohesion, tonicity, irritability (to mechanical, chemical, electrical, or thermic stimuli), contractility, and conductivity.

The *chemical properties* include: Power of consuming oxygen and of excreting carbon dioxide and sarcolactic acid; acid reaction; the plasma can also coagulate.

During contraction the following changes take place in a muscle: (1) It becomes shorter and thicker, but (2) there is no change in volume; (3) there is an increased consumption of oxygen; (4) more carbon dioxide is set free; (5) sarcolactic acid is produced; and hence (6) the muscle becomes acid in reaction; (7) it becomes more extensible, and (8) less elastic; (9) there is an increase in heat production and consequently a rise of temperature; (10) the electrical reaction becomes relatively negative, and (11) a sound is produced.

3. Foods are classified as follows:

- I. Inorganic { Water. Salts.
- II. Organic { Non-nitrogenous { Carbohydrates. Fats. Nitrogenous—Proteids.

Digestion is the process by which the food is converted into material suitable for absorption and assimilation.

Substances that may be absorbed in the *stomach* are: Water, alcohol, salts, sugars, and dextrins that may have been converted from starch by the ptyalin of the saliva, and proteoses and peptones resulting from peptic digestion of proteids.

Substances that may be absorbed in the *intestines* are: Water, sugars, proteoses, peptones, and fats.

4. Transverse section of the *anterior root* of a spinal nerve causes loss of motion and degeneration of the peripheral portion of the anterior root fibers; the sensory fibers of the posterior root are not affected.

Transverse section of the *posterior root* of a spinal nerve causes loss of sensation and degeneration, which latter differs according as the section is made on the proximal or peripheral side of the ganglion. If the section is made between the cord and the ganglion, degeneration only occurs in the piece severed from the ganglion, but connected with the cord. If the section is made beyond the ganglion, degeneration occurs in the fibers peripheral to the lesion.

If an *efferent* nerve is severed, it will no longer convey impulses from the brain or cord.

If an *afferent* nerve is severed, it will no longer convey impulses to the brain or cord.

5. The special centers contained in the medulla are those for the following functions or actions: Respiration, salivary secretion, mastication, sucking, deglutition, speech production, facial expression; it also contains the cardiac and vasomotor centers.

HYGIENE.

1. "Pulmonary phthisis: Accountants, bookkeepers, clerks, compositors, pressmen, marble and stone-cutters. Fibroid phthisis from dust: Grinders, file-cutters, potters, glass polishers, wool and cotton spinners, millers. Anthrax: Skin handlers. Internal anthrax: Wool and rag sorters. Glanders and tetanus: Hostlers. Anemia, gastric ulcer, eczema, erythema nodosum: Domestic servants (female). Varicose veins: Coachmen, shop girls, and others accustomed to long maintenance of the standing or part standing position. Writers' cramp (scriveners' palsy): Clerks and writers. Septic infection: Butchers and slaughter-house employees. Conjunctivitis: Electric light workers (probably caused by actinic rays). Nystagmus: Miners. Emphysema: Players upon wind instruments. Insomnia, dyspepsia, disease of liver and kidneys, neurasthenia, irritable heart, apoplexy, and paralysis: Brain workers. Typhoid fever, pneumonia, cardiovascular, and renal diseases, morphine and cocaine habits: Physicians. Lead poisoning: Lead miners and smelters, painters, gilders, makers of white and red lead, seamstresses (from silk thread loaded with acetate of lead), makers of artificial flowers. Mercurial poisoning: Cinnabar miners, makers of cheap looking-glasses or mirrors, and makers of felt hats. Arsenical poisoning: Wall-paper workers (formerly), workers on artificial flowers and fancy glazed-paper boxes. Phosphorus poisoning: Matchmakers. Chromium and zinc poisoning: "Founders' ague" in brass foundries. Disease of hair follicles: Operatives in oil refineries and paraffin works." (Butler's *Diagnostics of Internal Medicine.*)

2. Too much shade favors dampness, and the multiplication of molds and bacteria, which are readily conveyed into the house. Insects, mosquitos, etc., are also harbored. Further, absence of sunlight is an etiological factor of anemia and debility.

3. Myopia, hypermetropia, astigmatism, strabismus, and trachoma are the abnormal conditions of the eyes most common in school children.

4. Improperly constructed desks and seats are liable to cause spinal curvature, round shoulders, compression of the thorax, and defective vision.

5. "State medicine" comprises all those branches of

medical science which are concerned with public health, vital statistics, registration of diseases, quarantine, etc.

6. Trachoma is a contagious conjunctivitis, accompanied with granulations on the eyelids, and later on with cicatricial contraction or other deformity of the eyelids. Constant inspection and isolation of all cases are essential, in addition to the general treatment.

8. The common impurities of drinking water are: Calcium and magnesium salts, decayed animal or vegetable matter, sewage, disease germs, animalculæ, dust, and dirt. The best way to remove the impurities is by distilling or by boiling and filtering.

10. Probably all the epidemic diseases are preventable; certainly smallpox, typhoid, diphtheria, malaria, and yellow fever can be prevented. The spread of any epidemic can be prevented by proper isolation, quarantine, and hygiene; and by the use of special precautions such as vaccination (for smallpox), immunizing doses of antitoxin (in diphtheria), keeping out or destroying mosquitos (in malaria and yellow fever), etc.

MATERIA MEDICA.

1. Two vasodilators: Spirit of clonoin (nitroglycerin), dose ♏j; liquor ammonii acetatis, dose ʒiv.

2. Two vasoconstrictors: Ergot, dose of fluid extract, ♏xxx; adrenalin, dose of the chloride in solution of 1:1000, ♏v-x.

3. Two hydragogue cathartics: Croton oil, dose ♏j; elaterin, dose gr. 1/10.

4. Two cholagogue cathartics: Podophyllum, dose gr. x; massa hydrargyri, dose gr. j-x.

5. For doses, see questions 1 to 4 above.

THERAPEUTICS.

10. The *symptoms of acute lead poisoning* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions, and tetanic spasms."

The antidotal treatment consists in administering "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube."

The *symptoms of poisoning by opium* are as follows: "At first there is usually a period of excitation, marked by restlessness, great physical activity, loquacity, and hallucinations. The patient then becomes weary, dull, and drowsy; he yields to the desire for sleep, from which at first he may be roused. The lips are livid, the face pale, the pupils contracted, and the surface bathed in perspiration. The condition of somnolence rapidly passes into narcosis. The patient cannot be roused, and lies motionless and senseless, with completely relaxed muscles. The pulse, at first full and strong, becomes feeble, slow, irregular, and easily compressible; the respiration slow, shallow, stertorous, and accompanied by mucous râles. The patient rapidly becomes comatose, and, in fatal cases, dies in from forty-five minutes to fifty-six hours, usually in from twelve to eighteen hours. In cases of recovery after the stage of narcosis, the pulse and respiration gradually return to the normal, and the condition of coma passes into one of deep sleep, lasting twenty-four to thirty-six hours."

Treatment: "Wash out the stomach with a dilute solution of potassium permanganate, leaving about 500 c.c. in the stomach, and in maintaining the respiration. In the first or second stage the 'ambulatory treatment' should be adopted to prevent, if possible, the establishment of the third stage. If this stage develop, the main reliance is to be placed in maintaining the respiration by artificial methods, until the poison has been eliminated. Strong coffee, or caffein, by the mouth or rectum, are of benefit. The same cannot be said of atropin. The urine should be drawn by the catheter."

The *symptoms of poisoning by strychnine* are as follows: "Strychnine produces a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours."

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible."

In *poisoning by arsenic*: *Symptoms*: "In acute cases the symptoms usually begin in from twenty to forty-five minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green). Purging. More or less severe cramps in the lower extremities."

In *chronic cases*: "Inflammation of the conjunctivæ, with intolerance of light. Irritation of the skin, accompanied by an eruption (eczema arsenicale). Local paralyses. Great weakness and emaciation. Exfoliation of the cuticle and falling out of the hair."

The *antidote* is freshly prepared ferric hydroxide.—(From Witthaus' *Essentials of Chemistry*.)

CHEMISTRY AND MEDICAL PHYSICS.

1. The formula for argentic nitrate is: $AgNO_3$. It is used in medicine, *locally* as a stimulant, an astringent, a caustic, an escharotic, and an antiphlogistic. *Internally* it is used for ulcer and inflammation of the stomach and intestines; also in some forms of nervous diseases.

2. The chemical formula for sodium chloride is: NaCl. Its chief function in the economy is to aid in the process of osmosis, to aid in holding certain proteins in solution, and it is probably the source from which the hydrochloric acid of the stomach is derived.

3. $CaSo_4$ is calcium sulphate, called also plaster-of-Paris. It has the property of being able to take up water, when mixed with it, to form a hard and solid mass.

4. The galvanic current is constant and continuous; it always flows in the same direction; it has pronounced chemical and thermal effects.

The faradic current is a rapid succession of momentary impulses; the direction is not constant; the chemical and thermal effects are almost imperceptible.

5. The galvanometer, voltmeter, amperemeter, ohmmeter, coulombmeter, joulemeter, miliammeter.

PRACTICAL URANALYSIS, MICROSCOPY, AND TOXICOLOGY.

1. A urinometer is a form of hydrometer used for determining the specific gravity of the urine. It may be a help in the diagnosis of diabetes mellitus, diabetes insipidus, some diseases of the kidneys, chronic wasting diseases.

2. The acidity of the urine is chiefly due to the presence of acid sodium phosphate; also to some slight extent to uric acid and to carbonic acid.

3. The essential parts of a microscope are: The objective lenses, the eyepiece, the base, pillar, body, draw tube, coarse and fine adjustments, stage, mirror, diaphragm, condenser, and nosepiece.

4. Pus corpuscles are readily distinguished from blood corpuscles by being larger, distinctly granular, with an irregular outline.

5. Some of the most frequent pathological constituents found in the urine under the microscope are: Blood, pus cells, casts, cylindroids, epithelium, clap-threads, crystals, pathogenic bacteria, and foreign matter.

6. Continuous low specific gravity of the urine may indicate: Diabetes insipidus, chronic interstitial nephritis, or contracted kidney.

7. The specific gravity may be below 1010 in health:—when the person ingests a large quantity of fluid or voids more urine than normal.

8. Uric acid crystals may be deposited as a brick-dust sediment. They are found as rhombic plates with rounded edges, as tube shaped or pointed crystals, as lozenge shaped, and arranged in bundles or as crosses; they are generally more or less colored by the urinary pigments.

9. By *toxicology* is meant that branch of medical science which appertains to poisons; it includes their character, origin, actions, symptoms produced, antidotes, treatment, and detection.

10. In *cocaine poisoning* there will be found pain and fullness in the head, pulse first quick, later feeble and slow, extremities cold. The symptoms are not constant.

The *antidote* is said to be amyl nitrite.

Symptoms in carbolic acid poisoning: Buccal mucous membrane is whitened and hardened; vomiting; burning pain in mouth, esophagus, and stomach; pulse and body temperature are lowered; the pupils are contracted; collapse, and finally death. The urine may become dark.

The *antidote* is said to be alcohol.

For *strychnine poisoning*, see above, THERAPEUTICS, question 10.

SURGERY.

1. The general indications in the treatment of wounds are: To stop the bleeding, combat shock, remove foreign bodies and dead tissue, make aseptic, put the edges in apposition, drain (if necessary), dress, secure rest to the part, allay undue pain, and combat inflammation.

4. Draw a straight line over the top of the scalp from

the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the fissure of Rolando.

6. An *omental hernia* is dull on percussion, does not yield a gurgle on manipulation, is firm and lobulated on palpation; whereas an *enterocele* is tympanitic on percussion, yields a gurgle on manipulation, and is smooth and elastic on palpation.

7. "The incision begins just above the head of the metacarpal, on its dorsal aspect—passes down the median dorsal aspect over the prominence of the knuckle, to just beyond the base of the first phalanx; at this point the hitherto median incision diverges into two symmetrical limbs—each sweeping across the dorso-lateral aspect of the finger to just below the junction of the finger with the web—and thence transversely across the palmar surface in the line of the crease, on a level with the free border of the web, coming to the opposite side just below the junction of the web with the finger. This rather extensive incision is best made with three strokes—from commencement to web of one side—from point of divergence of median line to web of opposite side—and across palmar surface connecting the two limbs. The above incision through skin and fascia is now deepened. The palmar portion is cut to the bone while the finger is forcibly extended. The lateral portions are carried to the bone, cutting the lumbricales and interossei. The soft parts are retracted to the joint line. The extensor tendons are then cut and the joint thus entered from the dorsum—the lateral ligaments and glenoid ligament being cut from within and the disarticulation completed. The two digital arteries are tied and the synovial sheath closed. The edges of the sides of the oval are sutured in one vertical, anteroposterior line, in continuation with the queue of the incision. The splint applied should include the wrist-joint." (Bickham's *Operative Surgery.*)

10.—

GUMMA.	EPITHELIOMA.
1. May occur in early or middle life.	1. Occurs late in life.
2. More rapid growth.	2. Slower growth.
3. History and signs of syphilis.	3. No such history or signs.
4. Follows secondary stage of syphilis.	4. Usually begins as a pimple or a wart.
5. Responds to mercury and potassium iodide.	5. Does not respond to medicines.
6. Not very painful.	6. Is attended by lancinating pain.
7. Ulceration generally multiple.	7. Ulceration single.
8. Edges not everted.	8. Edges everted and raised.
9. But little enlargement of lymph nodes.	9. Lymph nodes enlarged
10. Induration less marked.	10. Induration more pronounced.

PRACTICE AND DISEASES OF CHILDREN.

1. (*b*)

LOCOMOTOR ATAXIA	MULTIPLE NEURITIS.
1. Slow onset.	1. More rapid onset.
2. Lightning pains.	2. No lightning pains, but the muscles are tender to pressure.
3. Argyll-Robertson pupil.	3. No Argyll-Robertson pupil.
4. Girdle sensation.	4. No girdle sensation.
5. No actual loss of power.	5. Actual loss of power.
6. No paralysis or wasting of muscles.	6. Paralysis and wasting of muscles are present.

2. Aortic regurgitation is the valvular lesion of the heart most likely to cause sudden death. The suddenness of the death is due to paralysis of the left ventricle during diastole.

The *Adams-Stokes syndrome* is a pulse permanently slow, and accompanied by attacks of vertigo or syncope. It is supposed to be the "result of changes in the pneumogastric centers due to disease of the arteries of the medulla."

7. "Gallstone in the common duct is possible but unlikely, owing to the presence of splenic tumor, the lack of any intermission in the symptoms and the absence of pain, fever, or chills. Catarrhal jaundice cannot be excluded, though it rarely leads to much enlargement of the liver or spleen. The points against cancer are the [illegible] of pain, cachexia, or irregularities on the liver surface. Syphilis might produce all these symptoms and can be positively excluded only by the therapeutic test. *Cirrhosis, or the combination of cirrhosis and fatty infiltration, is the most likely diagnosis.* This accounts better than any other hypothesis for the splenic enlargement, the large, smooth liver, and the jaundice. The gastric symptoms would then result from passive congestion of the stomach." (Cabot's *Case Teaching in Medicine,* from which the question also is taken.)

8. In laryngeal diphtheria the dose of antitoxin is from 2,500 to 4,000 units, according to the age of the patient. The dose can be repeated in twelve hours if there is no marked improvement in the patient's condition.

OBSTETRICS AND DISEASES OF WOMEN.

5. The objections to the use of ergot during labor are: (1) That it may produce tetanic contractions of the uterus and so cause rupture of the uterus, death of the mother, or asphyxiation of the child; (2) that it increases the chances of lacerations of the cervix and perineum; (3) that it tends to cause retention of clots and membranes, etc.; and (4) that it retards the secretion of milk.

6. The dangers to mother and child in a case of breech presentation are: (1) Compression of the umbilical cord; (2) premature respiration; (3) asphyxiation of the child; (4) the child may suffer from fractures, dislocation, hemorrhage, or paralysis; (5) extension of the head, or of the arms over the head; (6) increased tendency to rupture of the perineum.

9. (*a*) The perineum should be repaired, if possible, immediately after labor, or within twenty-four hours.

(*b*) The principal muscle torn is the Transversus perinei.

10. The *palliative* treatment of retroversion of the uterus consists in: (1) Removing the cause, if possible; (2) replacing the uterus; (3) keeping the uterus in position by means of pessaries, tampons, and knee-chest position; (4) tampons, ichthyol, pelvic massage, and vaginal douches; (5) the enforcing of proper hygiene, particular attention being paid to the bowels, clothing, and exercise.

Curative treatment is operative, and the choice lies between ventral suspension of the uterus and shortening of the round ligament.

BACTERIOLOGY AND PATHOLOGY.

1. (*a*) The most effective method of sterilization is, for objects capable of withstanding it, *dry heat.*

(*b*) Culture media are best sterilized by streaming steam, because hot air sterilization would cause the water in the culture media to evaporate.

2. The Widal serum reaction "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

MEDICAL JURISPRUDENCE.

2. (*a*) In gunshot wounds by *soft lead bullets,* the *wound of entrance* is often smaller than the ball (skin stretched at the moment of impact and contracted after perforation); it is depressed, and the edges are contused and inverted, and if the weapon is fired within ten feet usually are blackened from powder and contain powder grains. If the wound is much larger than the bullet, it means that some foreign body has been carried in.

The *wound of exit* is everted, "triangular, linear, or stellate," and much larger than the wound of entrance.

(*b*) In gunshot wounds by *hard lead, or steel bullets,* the *wound of entrance* is usually as large as the ball, the skin may be split or may be perforated, and foreign bodies are not carried by the ball into the tissue.

The *wound of exit,* if not in the region of explosive action, may be a little larger or a little smaller than the bullet, but is not noticeably larger than the wound of entrance. If within the area of explosive action, the wound of exit is much larger than the wound of entrance, and is irregular and everted. (From Da Costa's *Modern Surgery.*)

3. It is impossible to distinguish between an incised or punctured wound received *before* death and *immediately after* death.

6. One has no right to destroy a new born monster.

7. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can only be done by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony, the witness testifies only to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

8. A physician would probably be excused from obeying a subpœna under the following circumstances, accompanied by an affidavit in proper form: (1) If the physician himself were ill in bed; (2) if he were in actual attendance upon a patient, where his presence was absolutely requisite, and, he could not leave without endangering the patient; (3) if he were in attendance upon a very contagious case, such as smallpox or erysipelas, in which case his presence in court would be dangerous.

9. In *feigned insanity*: There is generally a very obvious motive for the claim of insanity; it is not urged until after the committal of some crime, or until there is some benefit to be derived from the plea of insanity; the person is generally very desirous of being considered insane, and urges his claims in this direction. It is often impossible to distinguish feigned from real insanity.

10. Some of the material from the suspected stain is thoroughly mixed with a few drops of a saturated solution of sodium chloride, and then allowed to evaporate to dryness on a slide covered with a cover-glass. Now add a drop of glacial acetic acid to the slide, and allow it to enter under the cover slip; then apply gentle warmth. If the suspected stain is *blood*, crystals of hemin will form later, and can be seen under the microscope; this will not be the case with *iron rust*.

BULLETIN OF APPROACHING EXAMINATIONS †

STATE	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.		
Alabama*	W. H Sanders, Montgomery	Montgomery		
Arizona*	Ancil Martin, Phœnix	Phoenix	Jan	6
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan	14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec.	3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan.	7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov.	12
Delaware	J. H. Wilson, Dover	Dover	Dec.	10
Dis. of Col'bia	W. C. Woodward, Washington	Washington	Jan.	9
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov.	20
Georgia	E. R. Anthony, Griffin	Atlanta		
Idaho	J. L. Conant, Jr., Genesee	Boise	April	7
Illinois	J. A. Egan, Springfield	Chicago	Oct.	23
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	Oct.	22
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec	—
Kansas	T. E. Raines, Concordia	Topeka	Feb.	11
Kentucky*	J. N. McCormack, Bowling Green	Louisville	Oct.	22
Louisiana	P. A. LaRue, 211 Camp Street, New Orleans	New Orleans	Oct.	15
Maine	Wm. J. Maybury, Saco	Portland	Nov.	12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec.	3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov.	12
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Ann Arbor	June	9
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan	7
Mississippi	J. F. Hunter, Jackson	Jackson	May	12
Missouri	J. A. B Adcock, Warrensburg	St. Louis	Nov.	19
Montana*	Wm. C. Riddell, Helena	Helena	April	7
Nebraska	Geo. H. Brash, Beatrice	Lincoln		
Nevada	S. L. Lee, Carson City	Carson City	Nov.	4
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Jan	14
New Jersey	J. W. Bennett, Long Branch	Trenton	Oct.	22
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec.	2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York Albany Syracuse Buffalo	Feb.	4
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May,	
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan	7
Ohio	Geo. H. Matsan, Columbus	Columbus	Dec	10
Oklahoma*	J. W. Baker, Enid	Guthrie		
Oregon	B. E. Miller Portland	Portland	Jan.	8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia Pittsburg	Dec.	
Rhode Island	G. T. Swartz, Providence	Providence	Jan.	2
S. Carolina	W. M. Lester, Columbia	Columbia	June	9
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	Jan.	8
Tennessee*	T. J. Happel, Trenton	Memphis Nashville Knoxville	May	
Texas	G. B. Foster, Waco	Fort Worth	Oct.	21
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan.	6
Vermont	W. Scott Nay, Underhill	Montpelier	Jan.	14
Virginia	R. S. Martin, Stuart	Staunton	Dec.	10
Washington*	C. W. Shingles, Seattle	Spokane	Jan	7
W. Virginia	H. A. Barber, Point Pleasant	Clarksburg	Nov.	12
Wisconsin	J. V. S. Jones, Jefferson	Milwaukee	Jan	14
Wyoming	S. B. Miller, Laramie	Laramie		

* No Reciprocity recognized by these States.

† Applicant should in every case write to the secretary for latest details regarding the examination in any particular State

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending October 5, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	350	146
Diphtheria	146	18
Measles	113	6
Scarlet Fever	..	..
Smallpox	16	..
Varicella	161	19
Typhoid Fever	25	6
Whooping Cough	12	9
Cerebrospinal Meningitis	..	..
Malarial Fever	..	..
Totals	954	213

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended October 4, 1907:

SMALLPOX—UNITED STATES.

		CASES	DEATHS
California, San Francisco	Sept. 8–14	1	..
Illinois, Chicago	Sept. 15–21	1	..
Kentucky, Louisville	Sept. 20–26	1	..
Louisiana, New Orleans	Sept. 15–21	1	..
Massachusetts, Boston	Sept. 22–28	1	Imported
Michigan, Saginaw	Sept. 15–21	1	1
Ohio, Dayton	Sept. 15–21	1	..
Nebraska, Lincoln	Aug. 1–31	3	..
New Jersey, Carlstadt	Sept. 6	1	..
Texas, San Antonio	Sept. 8–14	1	..
Washington, Seattle	Aug. 1–31	18	..
Wisconsin, Milwaukee	Sept. 18–24	2	..
SMALLPOX—FOREIGN.			
Africa, Algeria-Algeirs	Aug. 1–31	..	6
British South Africa—Cape Town	Aug. 11–17	1	..
Argentine Republic, Rosario	July 1–31	..	6
Brazil, Manaos	Aug. 24–31	..	1
Rio de Janeiro	Aug. 12–24	16	2
Pera	Sept. 1–14	39	23
Canada, Halifax	Sept. 15–21	2	..
Chile, Iquique	Aug. 8	..	Present
China, Cheefoo	Aug. 11–17	1	..
Hongkong	July 8–Aug. 24	9	5
France, Marseille	Aug. 1–31	..	35
Paris	Sept. 1–7	4	..
India, Calcutta	Aug. 11–17	..	2
Madras	Aug. 1–27	..	2
Java, Batavia	Aug. 11–17	3	..
Madeira, Funchal	Sept. 2–8	4	1
Malta, Valetta	Sept. 1–7	2	1
Mexico, Aguas Calientes	Sept. 8–14	..	2
Mexico City	Aug. 18–24	..	2
Portugal, Lisbon	Sept. 11–17	3	..
Russia, Riga	Sept. 1–7	1	..
St. Petersburg	Aug. 18–31	4	1
Spain, Barcelona	Sept. 1–10	..	2
Cadiz	Aug. 1–31	..	5
Denia	Sept. 1–7	2	..
Seville	Aug. 1–31	..	3
Valencia	Sept. 2–8	15	1
Panama, Colon	Sept. 9	1	On S. S. *Atrato*, from Vigo, Spain
Turkey in Europe, Constantinople	Sept. 2 8	..	1
Turkey in Asia, Bassorah	Aug. 11–24	..	Present
CHOLERA.			
Algeirs, Algeria	Aug. 1–31	..	2
China, Tientsin	Aug. 15–17	Quarantined without the city limits 3	
		From S. S. from Shanghai	
India, Bombay	Aug. 21–27	..	52
Calcutta	Aug. 11–17	..	27
Madras	Aug. 17–23	..	7
Rangoon	Aug. 11–17	..	1
Japan, Kobe	Aug. 24–Sept. 7	7	2
Moji	Aug. 19–Sept 4	300	114
Nagatsu	Aug. 31	14	cases daily
Nara	Sept. 1	1	Present
Osaka	Sept. 14	..	Present
Saseho	Sept. 1	..	Present
Yokahama	Sept. 1–2	1	1
		From S. S. *Takasago Maru*.	
Philippine Islands, Manila	Aug. 4–10	3	2
Russia, Astrachan	July 14–Sept. 4	1,231	574
Jaroslaw	July 14–Aug. 20	2	2
Jarino	Aug. 26	2	..
Moskow	Aug. 31	1	Imported from Saratov.
Nizhni-Novgorod	Aug. 26–Sept. 3	60	26
Perm	Aug. 24–30	6	..
St. Petersburg	Aug. 18–31	12	7
Samara Govt. Dist	July 16–Sept. 3	344	237
Saratov	July 16–Sept. 3	147	60
Simbirsk	July 7–Aug. 5	7	3
Stavropol	Sept. 1	Present at Baiochna, Busulusk, Kastroma dist., Nikolajwesk, Novoouzensk, Sysran, and Zarizyn.	
YELLOW FEVER.			
Brazil, Manaos	Aug. 24–31	..	1
Para	Sept 1–14	6	1
Rio de Janeiro	Aug. 12–25	2	..
Costa Rica, San Mateo	To Aug 31	1	1

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Original Articles.

ON THE ASYMMETRY OF THE CYCLE OF LIFE, BEING "THE END OF THE THREAD."

By JOHN BEARD, D.Sc.,

EDINBURGH.

"I have, in fact, set up a theory of molecular asymmetry, one of the most important and wholly surprising chapters of science, which opens up a new, distant, but definite horizon for physiology." *Louis Pasteur* 1860).

"I regard as necessary the extension of Van't Hoff's theory, to tentavalent nitrogen, as a completely justified amplification of our chemical views."—*J. Wislicenus* 1877

With the opening of the winter semester of the University of Würzburg, about October 21, 1907, twenty-five years will have elapsed since the writer of these lines first entered the Research Institute of the late Professor Carl Semper. Nineteen years have passed since a certain thread of research was picked up, years of work, absorbing, entrancing, and arduous. As the hill was ascended slowly, new and ravishing prospects were ever revealing themselves, the view widened constantly, but the summit seemed unattainable. Indeed, hope had been abandoned of viewing from it the Promised Land.

"Ich steige schon dreihundert Jahr,
Und kann den Gipfel nicht erreichen.
Ich wäre gern bei meines Gleichen."
—Goethe's *Faust.*

Every new unraveling of the thread led to new problems. But no matter how many side branches or collateral issues came up, the main course of the thread was continuous, and the observer's senses were concentrated upon it to the exclusion of all else. Among other things the thread passed through the problems of heredity and genetic variation, the determination of sex, the continuity of germ cells, the problems of identical twins, and by reason of these, as well as from the nature of the cycle of life, through the embryology of neoplasms, and of cancer itself. For a long time I had imagined the cancer studies to have been an interlude in the work, but no, the thread of research passed directly through the problems of cancer. And now, quite unexpectedly, the end of the thread has been reached, because portions of it had been unraveled by some of the greatest workers in science, because Louis Pasteur, one of the greatest investigators who ever lived, van't Hoff, Le Bel, and Wislicenus had lived and labored, because their researches had founded stereo-chemistry.

The present writing is simply "The End of the Thread." Like my fellow workers, I had been taught to regard the development of any of the higher animals as "direct." That is to say, from the fertilized egg a new sexual organism, a worm or a fish, a bird or a man, arose directly. From the tissues or soma of this sexual organism new reproductive products, eggs or sperms, sprang. In this way the simple cycle of "egg-sexual organism, egg-sexual organism" repeated itself *ad infinitum.* Under this, still generally accepted, conception of development the germ cells were somatic in origin, and the gradual building up (epigenesis) of a new sexual organism happened directly, when such an egg had been fertilized. Such, briefly, was the simple embryological creed, which my teachers, Milnes, Marshall, Huxley, and Carl Semper, taught. During some eight or ten of the early years of my original work this was my embryological faith, if an investigator may have any scientific creed.

Epigenesis, direct development, and a somatic origin of germ cells have now long been associated with another embryological dogma, the recapitulation theory, according to which any higher animal "climbs its own genealogical tree in the course of its development." To what lengths and depths of scientific error this latter doctrine can lead, see the fifth revised edition of Haeckel's "Evolution of Man."

My embryological faith was perfectly orthodox, when on June 14, 1888, I left the shores of Black Lake, New York, with an extensive assortment of preserved material of fish development. One of the earliest finds made after the return to the Anatomical Institute of the University of Freiburg in Breisgau was of the existence of *two* distinct and separate nervous systems in the life history of the bill-fish, *Lepidosteus osseus.* About a year later the like find of a twofold nervous apparatus was made in some other fishes and amphibians, and especially in the smooth skate, *Raja batis.*[1-2] The transient nervous apparatus of ganglion cells and nerve fibers in the skate development functioned for a time for about three months from the start out the total of *circa* seventeen, and then, quite suddenly, began to fade away, and to undergo a slow but sure degeneration.

The two nervous systems crop up again and again in my published writings since 1888, and, as indicating the import long attached to this antithesis, I find myself writing in 1905 a paper, "The Cancer Problem,"[7] opening with a recital of some of the facts in the history of the transient ganglion cells. All my original work, from 1888 down to to-day, is impregnated with facts concerning the two nervous systems, and the antithesis underlying them. The discovery of that antithesis has impelled and influenced all my work since that time.[1-7]

With the termination of the period of research marked by the publication of "The Interlude of Cancer," I recognized that my original work was approaching and tending to converge to the work of Pasteur. My researches had led finally into problems of the chemistry of the ferments, and especially of the extracellular enzymes, trypsin, and amylopsin. It is not too much to say that Pasteur had founded a science of the ferments. True, he labored for many years at the problems of intracellular enzymes, such as the yeast organism, the mould, *penicillium,* etc., and the enzymes, trypsin, and amylopsin, for a knowledge of which the world is so greatly indebted

to Corvisart[14] and Kühne[15] never entered into the sphere of Pasteur's researches.

The interesting thing is, according to his own testimony,[27] that Pasteur's work, like mine since 1888, centered in the fundamental discovery of an antithesis. Some medical investigators of Pasteur's day denied the truth of his conclusions, either on flimsy evidences or on none at all; just as happens to-day. Equally they sought to deny the scientific investigator the right to any opinion on a question regarded by them as medical, but which was really scientific. "What," cried Pasteur, "I have been engaged for twenty years in research on a subject and have no right to an opinion! And the right of verifying, controlling, discussing, and questioning belongs more especially to him, who has done nothing to clear up the matter, to one, who has just read more or less attentively my works with his feet on the mantelpiece! You say, my dear colleague, that in the actual state of science it is better to have no opinion. Ah! well! I, even I, have one, and not of sentiment, but of reason, for I have acquired the right by twenty years of assiduous work. My opinion, or better, my conviction is that in the actual state of science of which you speak spontaneous generation is a chimera, for my experiences are complete, and they all prove that spontaneous generation *is* a chimera. As to my opponents, proof in hand I have contradicted every one of their assertions, and they have never dared seriously contradict one of mine." In passing, let it be remarked that every word of this passage might be applied to happenings at the present time regarding the problems of cancer. Pasteur further explained how the whole series of his marvelous discoveries, chemical, bacteriological, or medical, hung together and formed a complete chain, *e.g.* anthrax, the pure fermentation of beer, the acetification of vinegar, the diseases of vines, the means of preventing them, and lastly, going back seventeen years, the first link in the chain of discoveries, that of the double tartrate crystals, and the facts concerning their dimorphism.[22] "The best proof that an observer is right is the uninterrupted fruitfulness of his work."

Pasteur worked for seventeen years at his chain of discoveries, and it is now nineteen years since the first link of my chain was forged. The thread each of us obtained at the start was the discovery of *the antithesis of two things*: he, the two kinds of tartrate crystals; I, the two distinct and separate nervous systems in the life cycle of a fish.

Why should all this be? What connection was there between the two facts, which, apparently, were as wide apart as the poles? The evident fact has already been referred to that in 1904 the two independent lines of work were converging, but it was more than this. It was a union. The thing which impelled Pasteur's work incited mine also. The antithesis he discovered was in reality that also found by me. The asymmetry of the naturally occurring organic compounds, like that of the tartrate crystals, was the same asymmetry as that of the two nervous systems, and the facts of both observers were based in the fundamental verity of the asymmetry of the carbon atom, first stated by van't Hoff and Le Bel.[25] Therefore, the researches and discoveries of Pasteur and the writer as fundamentally classified are chapters, long or short, in the science of stereo-chemistry. Behind the work, which culminated in and formed the real scientific basis for my recent publication on "The Interlude of Cancer," there are the researches in stereochemistry of Pasteur, van't Hoff, Le Bel, and Wislicenus, and the eternal truth of the asymmetry of the carbon atom.

It is not fitting on this occasion to write a treatise on the science of stereo-chemistry or the chemistry of space. It has long been recognized by chemists, though this fundamental scientific truth would appear to have had as little influence on physiology as upon medicine, that because the carbon atom is asymmetrical, like the pentavalent nitrogen one,[25-28] isomeric compounds may be built up in more than one direction. To take a comparatively simple instance of these isomeric compounds, the tartrate crystals of Pasteur's researches, the one is the looking glass image in crystalline form of the other. The one in solution turns the plane of polarized light to the right, is dextro-rotatory, the other to the left is levo-rotatory. The ferment of the yeast organism acts upon the levo-tartrate, that of the mould, *penicillium*, upon the dextro-tartrate. On the other hand, the yeast organism is without action on the dextro-tartrate, the *penicillium* leaves the levo-tartrate untouched. This, as Pasteur demonstrated, is one method of separating the two in a mixture. Now, it is a remarkable fact that, when any of these isomeric compounds are manufactured in the laboratory, equal amounts of the dextro- and of the levo-compounds make their appearance in the mixture. Pasteur first noted the fact that all the artificial products of the laboratories and all the sorts of minerals encountered in nature are without action on polarized light, unlike all the naturally occurring organic compounds. This has only altered since 1860, according to Duclaux,[15] in that, while chemists can manufacture certain of these compounds in mixtures of equal amounts of the isomers, they can also be separated by the action of ferments, which are specific in this direction. For other alterations see Pope,[23] and of Van't Hoff.[16] As in the two lectures Pasteur demonstrated that naturally occurring organic compounds rotate the plane of polarized light to the right or to the left, and as such are dextro- or levo-rotatory. As Duclaux writes (p. 45), "nature alone knows how to manufacture the one isomer without producing the other." "A living cell is a laboratory of dissymmetrical forces, or a dissymmetrical protoplasm, acting under the influence of the sun."

In his "Chemical Static and Dynamics," Dr. J. W. Mellor writes as follows: "It is interesting to observe that only the dextro-sugars occur in nature (?), and that these are the only sugars which can be assimilated as foodstuffs by the yeast plant. No organism capable of digesting artificially synthesized levo-sugars is known." He then quotes from Professor W. J. Pope:[23] "It would seem to follow, as a legitimate conclusion, that while d-glucose is a valuable foodstuff, we should be incapable of digesting its enantiomorphously related isomeride l-glucose. Humanity is, therefore, composed of dextro-men and dextro-women. And just as we ourselves would probably starve if provided with food enantiomorphously related to that to which we are accustomed, so, if our enantiomorphously related isomerides, the levo-men, were to come among us now, at a time when we have not yet succeeded in preparing synthetically the more important foodstuffs, we should be unable to provide them with the food necessary to keep them alive." The term "enantiomorphism" to describe the properties of the isomeric compounds was coined by Pasteur.

In Richardson's translation[25] of Pasteur's two lectures one may read (p. 27): "Perhaps this will disclose a new world to us. Who can foresee the organization that living matter would assume, if cel-

lulose were levo-rotatory, instead of being dextro-rotatory, or if the levo-rotatory albumins of the blood were to be replaced by dextro-rotatory bodies?" With the exception of this last passage the citation from Professor Pope is the sole chemical one I have encountered, in which the possible existence of an antithetic generation is indicated. One may put his words differently, that in order to exist the "levo-men" would need to be able, by means of ferments, to pull down all our food substances and to rebuild in the opposite, or enantiomorphously related, or antithetic direction. As will appear presently, unfortunately, the hypothetical "levo-men" do exist among us, and they do pull down and build up again in the opposite direction, for the "levo-men" are the cancers.

In the light of the antithetic alternation of generations and of the natural antithesis of the compounds arising in the two generations, the following passage from Professor Pope's address (p. 283) is of interest. It is also instructive, because of the generally accepted, but false views of the question: "Again, suppose that at its origin life were carried on non-enantiomorphously, and that it involved the consumption and the production only of non-enantiomorphous substances and of compensated mixtures, it may well be foreseen that a stage in development might arise when each individual, in view of the increasing complexity of his vital processes, would have to decide to use only the one enantiomorphous component of his compensated food, and so evade an otherwise necessary duplication of his digestive apparatus. Acting intelligently or fortuitously, one-half of the individuals would become dextro-beings, while the other half would become levo-individuals; the succeeding generations would thus be of two enantiomorphously related configurations." He then goes on to express his own opinion that in course of time one configuration, the weaker one, would permanently disappear. But in this opinion the facts of botanical and embryological science are not taken into account. It is, however, only necessary to make the "succeeding generations" spoken of, alternate in order to meet the scientific requirements of nature, and so to make the passage absolutely true as a statement of scientific fact. This is done by inserting in the closing passage the word "alternating," when it would read: "the succeeding generations alternating would thus be of two enantiomorphously related configurations."

Pasteur did indeed foresee that in his finds there was given the basis of a science of comparative physiology. It is sad to reflect that in 1860 he wrote as follows, and that in all the intervening years his weighty words have been ignored by physiologists and physicians alike: "I have, in fact, set up a theory of molecular asymmetry, one of the most important and wholly surprising chapters of science, which opens up a new, distant, but definite horizon for physiology." Before the present writing was penned, this horizon for physiology seemed as distant as in 1860, for, as a general rule, the facts concerning the asymmetry of the carbon atom and of the naturally occurring organic compounds find no mention in current textbooks of modern physiology.

"Who can foresee the organization that living matter would assume, if cellulose were levo-rotatory, instead of being dextro-rotatory?" Pasteur was "a mere chemist," and "not even a medical man." He was not a biologist, though most of his researches were biological, and he was not an embryologist. Had he been well versed in the biology of his own day, the suggestion of a hypothetical levo-cellulose might have opened up an immense field to his further researches. At the time he wrote Hofmeister's researches[17] on the life histories of various plants, with the main facts concerning the alternation of generations therein observed, were already the possession of science.* If there be a dextro-cellulose, or a levo-albumin, or a dextro-sugar, or a dextro-glycogen, stereochemistry asserts the possibility or the necessity of the occurrence of a levo-cellulose, a dextro-albumin, a levo-sugar, a levo-glycogen. This the reader will find laid down on page 14 of Meyerhoffer's German translation of van't Hoff's work. Duclaux[15] rightly observes that to obtain the change from the one direction of asymmetry to the other, it is necessary to go back to the "germ." Like the cellulose of a flowering plant, a rose, or an oak tree, that of the fern-plant is dextro-cellulose. But in the life-cycle of the fern, as in that of the flowering plant, there are two generations, the asexual one, or fern-plant, and the sexual one, the small and insignificant prothallus. As the cellulose of the fern is dextro-cellulose, so that of the latter must be levo-cellulose, and so with the other naturally occurring organic compounds. None such found naturally in an asexual generation of a plant, or in a sexual generation of an animal, will be met with in the corresponding sexual generation of a plant or asexual generation of an animal, but, if occurring at all, it will be represented by a compound with the opposite rotation. The reason is because the carbon atom (like the pentavalent nitrogen one) is asymmetrical.

The cycle of life, animal or vegetable, is asymmetrical, because the antithetic alternation of generations underlying it is founded on the asymmetry of these atoms. The generations, sexual or asexual, alternate according as the compounds are built up in the one direction or the other, for at its basis development is the building up of naturally occurring compounds. In both animals and plants enzymes or ferments are the chief actors in this. The new organism, whether animal or plant, destroys that upon which it arose, and builds up in the opposite direction. The birth of the new fern-plant implies the destruction of the prothallus. The embryo or sexual generation of a mammal, or a man, destroys the asexual generation, the trophoblast, or chorion, upon which it arose, and builds up its compounds in the opposite direction to that employed by the latter. So also the cancer. This irresponsible trophoblast or asexual generation destroys the naturally occurring organic compounds and the organism upon which it arose, and builds up in the opposite direction.

The action of a ferment is always a specific one. It fits the substance upon which it acts, "as a key fits a lock" (Emil Fischer). Other substances it leaves untouched, even isomeric or compounds having an opposite rotation. Dr. Margaret A. Cleaves[13] wrote in the MEDICAL RECORD of June 1, 1907, "It is probable that enzymes are

*In his History of Botany the late Professor Julius von Sachs writes in terms of eloquence and admiration of Hofmeister's researches. "The result of these 'Comparative Investigations, 1851,' was of such grandeur as in the realm of descriptive botany has not since happened a second time." He speaks of "the brilliance of the grand sum total, 'alternation of generations' had proved itself to be the highest law of development in plants, governing the whole long series." He dilates on "the grand picture which Hofmeister had drawn of the genetic connections of the members of the Plant Kingdom." What the zoologists were to experience fifty years later, viz., an antithetic alternation of generations in animals as *the law* of their developmental cycles, was unraveled for plants by Wilhelm Hofmeister, nine years before Pasteur gave the two lectures "On the Asymmetry of the Naturally Occurring Organic Compounds," and before he uttered the prophetic words, "Who can foresee the organization that living matter would assume if cellulose were levorotatory instead of being dextrorotary?"

of stereo-chemical configuration in their construction; that is, that they are built upon a central element having a definite valence, and hence, that all enzymes are capable of entering into chemical action with only those substances that attract and have an opposite isomeric form." Confining one's attention to cancer, the cancer-ferment, malignin, acts upon and pulls down the levo-albumins of the living human body. I have stated with von Leyden,[20] Blumenthal,[12] and Bergell,[10] more recently confirmed by Neuberg and Ascher, that the action of trypsin on the living albumin of cancer is specific. Quoting further from Dr. Cleaves, "the only possible explanation of the effect of trypsin on pathological conditions capable of giving a tryptic reaction must be that certain proteid molecules, *e.g.* in cancerous conditions, are capable of being attacked by trypsin, because of their special configuration." In other words, the conclusion (foreseen by Dr. Cleaves also) may be drawn that the albumin or albumins of cancer are dextro-rotatory. All this has been denied—without evidences beyond bald assertion—by various "authorities," official researchers, and medical journalists. As the levo-albumins of the living human body are not acted upon by trypsin, whereas the albumins of a living cancer are, it follows, as day succeeds night, that the latter must be dextro-albumins. No amount of contradiction in official reports or in medical newspapers can ever alter the truth of this fact, for "all enzymes are capable of entering into chemical action with only those substances which attract and have the opposite isomeric form."

Much has been written about glycogen in tumors. Brault thought that the malignancy of a tumor varied directly as its richness in glycogen. Another investigator, impressed with this view, sought some substance which would "break up" this glycogen of a tumor, and hit upon trypsin. But the curious thing is that not only, of course, has trypsin no action upon the glycogen of a cancer, but the like is true of amylopsin. The latter at once converts the dextro-glycogen of the liver, but, as Dr. Cleaves has shown in her paper already cited, amylopsin has no action upon the glycogen occurring naturally in a cancer. The reason is because the latter glycogen is a levo- one. The interpretation to be placed upon the leucocytic phenomena of the Cleaves "trypto-glycogenic reaction" (the enormous increase of the eosinophile leucocytes under the enzyme treatment of cancer and their attraction by the glycogen of the tumor) is that amylopsin leaves the glycogen of a cancer untouched, but that it stimulates the leucocytes to seize it and to invert it. Just as isomeric compounds in the form of starches occur in both generations of plants, so also isomeric compounds of glycogen or animal starch are found in sexual and asexual generations of animals, including cancer. But if the dextro-compound occurs naturally in the one generation, the levo- one will obtain in the other. Mellor remarks (p. 364) that only the dextro-sugars or glucoses are known to occur naturally. This is because the chemical composition of the sexual generation of any plant, a fern prothallus for example, has never yet been determined in the laboratory. It is not true of animal life, for as long ago as 1855, Claude Bernard[11] found levulose or levo sugar in "the allantois." According to him (p. 398) it disappears towards the fifth or sixth month of intrauterine life of the calf, a fact which goes to show this levo-sugar to be formed in the trophoblast, and not in the allantois. Doubtless, its disappearance coincides with the development of large numbers of leucocytes in the fetus. To my knowledge this levo-sugar has more recently been rediscovered "in the placenta," but I am not aware that the fact has been republished. Of course, the "allantois" and the "placenta" are synonymous, but the real source of the levulose in both instances was asexual generation or trophoblast.

The asymmetrical carbon atom, like its colleague, the pentavalent nitrogen one, has hitherto found as little place or mention in medicine or in physiology, as has an antithetic alternation of generations. Man has thus found it possible to dispense with things and phenomena, indispensable to Nature, and but for which he would have no existence! Whatever matter may be, whatever the nature of what we term "living matter," at the basis of life lies the fundamental facts of the asymmetrical carbon atom and the isomeric compounds. At the base of all animal or plant life, too, because of these facts, there rests the antithetic alternation of generations. With the start of the asexual or the sexual phase of the cycle, the naturally occurring compounds are built up in the one direction or in the other. With the beginning of the next phase of the cycle, the alternate one, sexual or asexual, the swing of the pendulum about the asymmetrical carbon atom is on the other side, and the naturally occurring organic compounds are built up in the opposite direction. In animal life, that of the higher animals, the compounds are built up after the fertilization of the egg, and in the life-period of the asexual generation in the direction of levo-sugar, levo-glycogen, and dextro-albumins. This evolution of compounds is the antithesis of that which obtains with the unfolding of the sexual generation, "the embryo" or individual. Here the naturally occurring organic compounds are evolved in the direction of dextro-sugars, dextro-glycogen, and levo-albumins. It is of great interest to compare together animals and plants in this connection. As I wrote some years ago,[6] "the plan carried out in animals has been such as to favor the ever greater and greater amplification of the sexual generation. In plants, as elsewhere already insisted, the reverse is the case. Here the asexual generation has undergone increased amplification without ever being able to attain to any very high degree of histological differentiation. The sexual generation of plants is at the best a miserable failure from the morphological point of view, and this must be set down to the factors indicated, and still more to others to be yet described. The higher one ascends, the smaller it becomes, until, in the highest flowering plants, it has almost reached the vanishing point, without, however, being able to disappear entirely. In animals it is the phorozoon or asexual generation which makes the bravest show in the lower metazoa; but even here it is usually overshadowed in degree of morphological differentiation by the embryo or sexual generation. In the higher forms it becomes reduced; but, like the rudimentary sexual generation of the higher plants, *it cannot vanish, for it also has its assigned task in the reproductive round.*" The scientific investigator does not, of course, deal in *a priori* arguments. Were he to do so he would expect to find the conditions exactly the same in plants as in animals. For is it not "generally held," and for this reason scientifically correct, that animals and plants have a common ancestry? Do not zoologists and botanists agree that at the bottom of the scale animals and plants merge together, and that some of the lower organisms may be described equally well as animals or as plants? The scientific truth of the matter is *that there is no merging together of the two kingdoms.* Such a blending is impossible, because the carbon atom is asymmetrical. None the

less, the asymmetrical carbon atom vouches the unity of organic Nature.

It is clear that, if in any group of organisms, animals, plants, bacteria, fungi, etc., there be two phases of the life-cycle, asexual and sexual, there are for any given case two directions in which the naturally occurring organic compounds can be built up. But it should not be forgotten that the number of possible isomeric compounds increases with their complexity. The sexual generation of animals is characterized by dextro-sugars, dextro-glycogen, and levo-albumins. In the corresponding sexual generation of plants, such as the fern-prothallus, these are absent, being replaced by enantiomorphous compounds with the opposite rotations. It is the asexual generation of plants, the flowering plant, and not the sexual generation, which possesses dextro-sugar, dextro-starch, and levo-albumins. The harmony of this is twofold. It realizes the apparent possibilities, and from the point of view of animal life it is of overwhelming importance that it should be so. Ultimately, of course, all animals are dependent on plants for their food-stuffs. Were the sexual generations of plants the producers of the food-stuffs of animals, the latter, owing to the insignificance of the former, would find existence a very serious problem. The sexual generations of plants form substances resembling those fabricated by the asexual generations of animals, trophoblast, or cancer. Even if obtainable in sufficiently large quantities, the substances found naturally in a cancer would not be suitable as the food-stuffs of an animal, a man for example. But, as the asexual mode of reproduction, whether of a plant or of a cancer, is the more prolific one, there has been hitherto, at all events, no failure on the parts of the asexual generations of plants to furnish ultimately the food-stuffs of the animals. The conditions met with in animals are reversed in plants. Here a levo-cellulose, a levo-sugar, a levo-starch, and one or more dextro-albumins must be sought for, *not* in the asexual generation as in animals, but in the sexual one, as represented by, for example, the fern-prothallus. "Science is prevision," said Pasteur. Because of the truth of this one is able to set up the following table of comparisons.

ANIMAL.	
Sexual generation or individual.	Asexual generation, trophoblast, or cancer.
Levo-albumins, not acted upon when living by trypsin and amylopsin, but attacked in life and pulled down by the cancer-ferment, malignin.	Dextro-albumins, not acted upon when living by their own intracellular ferment, malignin, but attacked in life by trypsin and amylopsin.
Dextro-sugars.	Levo-sugar.
Dextro-glycogen.	Levo-glycogen.
Pigment melanin.	Pigment not melanin (in melanosarcoma, Blumenthal).
PLANT.	
Asexual generation (flowering plant or fern).	Sexual generation (fern-prothallus).
Levo-albumins.	Dextro-albumin.
Dextro-starch.	Levo-starch.
Dextro-sugars.	Levo-sugars.

It would be interesting, were sufficient information available, to inquire into the conditions met with in bacteria and fungi. These are fundamentally neither animals nor plants. So far as the facts are known regarding their compounds and their ferments, some of them seem to resemble the asexual generation of animals, rather than that of plants. In given circumstances many of them can attack the compounds of the sexual generations of animals, or of the asexual generation of plants, pulling them down and building up in an opposite direction. As the plants and the animals are not genetically connected, so also, in all probability, the bacteria and the fungi have no genetic relationships with each other, or with the animals or the plants. Like the two latter they are separate evolutions.

In 1889, in his study of the placentation of the hedgehog, *Erinaceus europæus*, Professor A. A. W. Hubrecht[18] set up the term "trophoblast" (p. 298), at the same time assigning to it, as the name implies, a nutritive significance. The nutritive import of the trophoblast of normal mammalian gestation has since that time been confirmed by many other embryologists, notably by Professors E. van Beneden and M. Duval, and it has been "generally accepted." In the light of our present knowledge a significance different from that seen in it by Professor Hubrecht must be recognized in "trophoblast." Trophoblast has, and can have, no nutritive import for the developing embryo. This is quite obvious, once it is noted that the natural compounds formed in it are built up in the wrong direction to be useful as food for the developing sexual organism. The term, therefore, cannot be employed in future in a physiological sense. As Duclaux said: "Nature alone knows how to manufacture the one isomer without producing the other." The chemist in the laboratory manufactures equal amounts of both isomers. May one deny Nature the power to do the like on occasion? Certainly not. It must be concluded that in the fertilized egg she can build up in both directions. By the first few cleavages of the egg, usually the first three to five, she can separate off portions as cells, endowed solely with the powers of producing the isomeric compounds of trophoblast, while retaining for the cell in the line of heredity the property of forming both. With the start of the evolution of an embryonic body, again by cell-division, she can separate off one or more original embryonic cells with powers the opposites of those possesesd by trophoblast, all this taking place before any extracellular enzymes, such as trypsin and amylopsin, are formed. Full agreement, therefore (in a sense), may be expressed with the conclusion of Duclaux, that "to introduce in a cell principles immediately different, and the inverse of those which existed there, it is necessary to act upon it at the moment when it is most plastic, to take the cell of the germ, and try to modify it" (p. 66). But, as Duclaux also observes, this cell has a heredity, and this determines not only its being, but what it shall become.

As may be gathered from the foregoing, the enzyme treatment of cancer professes to be, and is, a scientific one. Mankind in general and surgeons in particular, have long looked for a cure for cancer. Presumably, this was to replace the knife. Now, at last, science and scientific research have offered not *a cure*, but the scientific treatment of and *the cure* for cancer.* At once the surgical demand was altered into the request for a cure after the fact of operation on the living cancer. Scientifically, this demand cannot be met. Cancer is a natural phenomenon, not a disease. To "operate" upon living asexual generation is unnatural. As a scientific remedy the enzyme treatment of cancer

*This statement might seem to be at variance with a report from Copenhagen on page 490 of the MEDICAL RECORD of September 21. Here in seven lines there were compressed the adverse results of the treatment by "trypsin" of not fewer than ten cases of cancer. The cases were not described, but, waiving the point of absence of the histories of the cases, another matter must be mentioned. Preparations of "trypsin" for injection have been made up and placed on the market by chemists. These injections are prepared from trypsin in powder, which contain diastase, derived from grain, not from pancreas-gland. Preparations, made up from trypsin in powder, or containing plant-diastase, instead of amylopsin, are not suitable for the treatment of cancer by enzymes. No such injections have yet cured one of the published cases. Indeed, all these have been treated with injections prepared from the fresh gland direct.

makes no claim to be the cure for cancer after it has been interfered with operatively once or oftener. As a natural treatment, it is not intended for post-operative "inoperable" recurrent cases. Did surgeons know that cancer was in its nature asexual generation, *they would never touch a living cancer with the knife.* For it is the property of asexual generation, animal or vegetable, that it can be subdivided indefinitely. In evidence of this fact one need only refer to all the inoculations of cancer which, starting from one original mouse-tumor, have been made into other mice. But one may also cite the very numerous observations made in recent years in what has been termed "experimental embryology, but which would be designated more correctly "experimental pathology." Very numerous observations in this unnatural subject will be found in the twenty-four volumes of the *Archiv für Entwicklungsmechanik,* in the *Journal of Experimental Zoology,* and elsewhere. Many of the observations were made upon fertilized eggs in cleavage, and they were almost as successful in subdividing the asexual generation represented by an egg in cleavage, as are the gardener's proceedings in making and rooting cuttings from a chrysanthemum plant. The student of all these published experiments will notice that the organisms experimented upon never reverted to the normal. These experiments proclaim the truth of the statement that by operation a living cancer may be, and usually is, subdivided indefinitely. Moreover, let the words of the Professor of Medicine in the University of Berlin be recalled: "A cancer reacts by increased growth to any injury, mechanical, chemical, or thermal." As a rule, not free from exceptions, in my experience, while absolutely unoperated cases, if not too advanced, invariably do well under the treatment, cases where there was previously operative interference cannot be guaranteed, and by me *are not indorsed as likely to be successful.* Nature does not "operate" upon living asexual generation, and perhaps for this reason she has not evolved an infallible mode of treating scientifically the failures of surgical operation. Dr. Rice's case[24] of laryngeal cancer may be cited as an instance of the successful treatment of an unoperated tumor, as also the Naples case of inoperable cancer of the tongue.[8] Within the past few days another case of the like kind has been reported privately as cured. Here in October, 1906, on operation a leading London surgeon found an inoperable cancer of the cecum. He made no attempt to remove it. In December the enzyme treatment was commenced, and continued until April, when on examination this surgeon pronounced it "almost a cure." Now, in August, the cancer has quite disappeared. This unreported case is paralleled by one in the *British Medical Journal* of August 31, 1907, p. 541. The like history is true of many other cases. But with post-operative recurrent cases, while there may be success, as in Dr. Wiggin's case,[20] since certified as cured, the cancer is more likely to "run its parabola" than to yield to a scientific treatment.

When authorized investigators are heard proclaiming to mankind that the enzymes, trypsin, and amylopsin have no action upon living cancer-cells, this is not merely a denial of the truth and validity of all my embryological work of the past nineteen years. (That is nothing new. Were it to-day a new scientific discovery, that "two and two make four," its truth would be challenged!) But by such negations the fundamental truths of the science of stereochemistry are also impugned, as well as the asymmetry of carbon atom. In short, when the efficacy of the enzyme treatment of cancer is questioned or denied, the constitution of the visible universe is condemned.

"Sooner or later a conviction may dawn upon investigators that the laws governing animal development lie deep, and that to discover them we must also take wider and more comprehensive views of our problems. Moreover, it should not be forgotten that little things, like a few stray ganglion cells, may hide an all-important story, and that here, as elsewhere, in the apparent exception itself the key to the mystery often lies concealed."

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PTOSIS OF THE ABDOMINAL VISCERA SURGICALLY CONSIDERED.

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Heredity has frequently been considered as a predisposing cause for ptosis of the abdominal viscera, and this opinion has been upheld by a number of French and German authorities, who explain it by a congenital inferiority of the tissues, the organs of nutrition, and the nervous system. Alcoholism, syphilis, overwork, venereal excess, and physiological misery in the parents are considered as the principal causes predisposing children to ptoses. In 1896 Stiller established a rather peculiar relationship between abdominal ptoses and an abnormal mobility of the anterior tip of the tenth rib, and according to his way of thinking it is due to a congenital ligamentous insufficiency. At the same time the skeleton will be found gracile, the intercostal spaces very broad, muscular development poor, likewise that of the cellular tissue; in other words, the patient represents a generalized congenital asthenia. In 1901 Cseri pointed out that patients afflicted with abdominal ptosis presented a tendency to the development of lordosis, which resulted in a diminution of pressure from below upwards. Glenard does not deny hereditary predisposition, but he believes that it is rare, and in 11 per cent. of the cases under his observation it appeared to him rather more due to poor hepatic functioning than to a defective condition of the nervous system.

Traumatism alone rarely produces ptosis, but in a person predisposed an injury may be the productive cause. Horsemanship, dancing, vomiting, and other violent efforts may give rise to it. In Glenard's statistics limited to cases where gastroptosis coexisted with nephroptosis and hepatoptosis, we note that a traumatism in the form of a fall or a violent effort was incriminated twenty-two times in women getting up from their labors, and only twice was it found without this predisposing cause.

All these causes are consequently not exclusive, but rather more of an accessory nature, one becoming combined with the other in order to produce a condition which either one alone could not. But, beside these accessory causes there is still another which is far more important and more general, namely this badly defined disturbance of the nutrition showing itself by a particular condition of the fibrous tissue allowing itself to become distended, to poorly resist constant fatigue and prolonged efforts. It is this predisposition which in the male results in the production of hernia and in the female to eventration, and in both sexes to varices, movable kidney, and hepatoptosis. In a word, heredity plays the principal part, and traumatism, no matter of what nature, only acts secondarily, just as it frequently does in the production of a tuberculous arthritis in a predisposed subject.

As an occasional cause in the female, pregnancy and labor play a large part. The former acts either by the infections which may succeed it, but more especially by the changes that it produces in the abdominal walls by modifying their previous tonicity and producing ulterior distention. Opinions vary as to whether or not pregnancy has any real influence on the production of visceral ptosis and numerous authorities, among whom we may mention Glénard, Faure, and Landau, recognize that frequently the ptosis declares itself after a normal pregnancy, while upon other occasions the first symptoms show themselves during labor. On the other hand, Brault, Linder, and Kuttner have pointed out that movable kidney is found in the nulliparous and in men quite as much, if not more so, than in multiparous females, and consequently deny any influence in the production of this condition arising from pregnancy. Linder has published the following statistics relative to nephroptosis: 24 nulliparous, 10 primiparous, and 30 multiparous females, while Kuttner found 40 nulliparous, 10 primiparous and 44 multiparous females. This same authority found that out of 39 cases of gastroptosis there were 10 nulliparous, 12 primiparous, and 17 multiparous females. I believe, however, that, although these two authorities have not admitted the pathogenic action of pregnancy, it may, however, be supposed that the support given by the abdominal walls must have been insufficient, and if this insufficiency can arise without pregnancy coming into play, it does not at all imply that the latter, by its dystrophic action, cannot be the cause of ptoses which would not have occurred without this adjuvant cause. I would also point out that here predisposition plays an important part, and that, if one meets with patients who, after their first pregnancy, have a lax abdominal wall, there are, on the contrary, many others who have been many times pregnant without any change taking place in this structure.

Eventration results from a diastasis of the recti, so that pregnancy, or large pelvic tumors, which considerably distend the abdomen, or a laparotomy incision, which has weakened the anatomical structures uniting the recti and their aponeuroses, are frequently causative factors.

Now, in point of fact, what is the true influence of eventration on the production of prolapsus of the various abdominal viscera? Landau admits that nine times out of ten one is dealing with women who have had several confinements. Their abdominal wall is lax, thin, the abdomen falls forward and downward, and this pendulous abdomen is one of the most important causative factors in the production of ptoses. It is evident that tension of the abdominal muscles must play a very great part in the statics of the intestine, because in the normal condition, that is to say, tense and resistant, the abdominal wall opposes falling of the intestine, holding them up, and the former acts like a cushion on which the liver, kidneys, and spleen lie. If the abdominal walls become relaxed, especially if the pelvic floor is also defective, the weight of the contents will be more greatly felt, and will produce an elongation of the supporting ligaments of the various organs.

Now, can the law of gravity alone suffice to produce this elongation? I believe that this is to be doubted, and I would say that this elongation is only really possible if we admit an inherent weakness of the tissues, a disturbance of the general nutrition, acting at the same time on the abdominal wall and the ligamentous folds. Schwerdt also attributes a great part to the decrease of intraabdominal pressure, and he points out that in a normal abdomen there exists a certain tension, which, according to his observations, is equal to a column of water eleven centimeters high, and which he terms the tension pressure. Beside this there is also a surcharge pressure, due to the fact that the abdominal organs obey the law of gravity, and from his manometric experiments he proved that the tension pressure and the surcharge pressure are inverse to each other.

Glénard has criticised this theory and only attributes a secondary part to this abdominal hypostasis. He places intestinal ptosis foremost and only con-

siders hypostasis as a predisposing cause, or when once the ptosis has occurred he considers it as merely a complicating cause. Then considering feminine etiology more particularly and especially the puerperal origin of enteroptosis and the predisposing condition created by a decrease of the abdominal tension, he shows that it is far more to a sudden decrease of the abdominal contents than to an increase of its absolute capacity that the dangers of this diminution of tension are to be attributed. He, however, does not recognize the importance of a defective tonicity of the anterior abdominal wall, which, following acute infectious diseases or large abdominal tumors, becomes thin and weak, so that they may easily become distended. In discussing Landau's theory, Faure, without, however, discarding the influence of eventration, says that the German authority has given a too exclusive importance to eventration and that it would be more exact to say that, if a pendulous abdomen often accompanies ptoses, or favors their production, it is quite incapable of giving rise to them. In other terms there is not a relation of cause and effect between the displacement of various organs, but both these accidents are under the dependence of a more general cause which is quite sufficient in itself to produce them, either at the same time or independently one from the other.

Large abdominal tumors, such as an ovarian cyst, fibroid, or ascites, act in the same way as pregnancy, because they overdistend the recti and consequently may produce ptoses in predisposed subjects. As to laparotomy incisions they only give rise to ptoses when the abdominal wall has been badly approximated when closed after an operation, or the patients have been allowed to get up too soon, which has resulted in distention of the cicatrix, with the resulting thinning.

Ptoses are met with in men quite as much as in the female, but the latter are more predisposed to this condition on account of pregnancy, sedentary life, a weaker muscular system, and a more irritable nervous system, and women certainly offer the greater number of cases of enteroptoses. Glénard found 70 women and 30 men out of a total of 100 cases of coecal prolapse and in 100 cases of gastroptosis the proportion was the same. Nephroptosis is probably still more frequent in the female than in the male. According to Landau, there were 275 renal ectopias in the female against 41 in the male, while Kuttner found 584 cases in women and 82 in men. Uniting these and other statistics, Bruhl found 1,028 ectopias in the female and only 148 in the male. As far as splenoptosis is concerned, Glénard collected 14 cases, 11 being female and 3 men. The same may be said of hepatoptosis, which is represented by 2 per cent. in the male and 13 per cent. in the female and out of 100 cases Glénard found 86 women and 14 men. According to Landau the proportion of hepatoptoses in the male to that found in the female is as 1 is to 23.

Corsets as a causative factor of ptoses has given rise to lengthy discussions, and it has been questioned whether or not by the constriction that they produce on the costal wall and the resulting deformity to which it gives rise, by pushing the abdominal viscera from their anatomical situations, they might give rise to ptoses. It is quite evident that the results from constriction must be very variable because they will naturally depend on the conformation of the thorax and the shape of the apparatus itself and the way that it is worn.

Havem and Lion have divided the cases of ptosis into three classes. In the first there is suprahepatic or inframammary constriction, with ptosis, the organs being pushed downwards. This variety sets up static disorders and produces the ptoses, exercising as it does its action over the diaphragmatic vault, the compression produced by the corsets is more marked on the convex aspect of the liver, which is pushed downwards and, at the same time, all the abdominal viscera as well and, according to Hayem, this represents the classical "corset disease." In the second type there is hepatic constriction as well as of the other organs, which are elongated and deformed, although ptosis need not necessarily be present. The third variety represents infrahepatic constriction in which the viscera are pushed upwards. Hertz, Voeglsang and others uphold that, by immoderate constriction a very marked narrowing of the supraumbilical region of the abdomen is produced, with an exaggerated development of the infraumbilical region which forms a pocket, so to speak, into which the stomach, intestine and colon are pushed.

As far back as 1853 Bouvier pointed out that the corset was not always to blame, and he says: "Le corset moderne peut bien, il est vrai, lorsqu'il est serré outre mesure ou que les parties rigides qu'il contient exercent des pressions exagérées, provoquer accidents nombreux, mais n'est-on pas entraîné par les anciennes préventions à lui attribuer bien des déviations à type normal dont il n'est pas responsable?" A number of authorities continued his work and Faure says that he would be inclined to say that corsets have been unjustly incriminated, because physicians in general have never thoroughly examined their shape and the way they are applied, and speaking of the pathogenesis of movable liver, especially as far as the action of corsets is concerned, he says: "Les corsets de tout genre et de tout mode s'appliquent par leur point le plus rétréci très exactement à la taille, immédiatemment au-dessus de la hanche c'est-à-dire de la crête iliaque, en dessous du rebord costal. La constriction de l'abdomen, lorsque le corset est serré, se fait donc en avant et tout au-dessous des côtes et par conséquent au-dessous du foie. Il tend donc à soutenir le foie, à le soulever même et non à l'abaisser. Il ne peut avoir cette dernière influence que lorsque le foie est déjà descendu et c'est dans ce cas qu'on rencontre surtout sur la surface l'empreinte du corset, empreinte qui ne saurait évidemment se transmettre à travers la cuirasse costale. Il est donc très probable que les cas assez nombreux où l'on a signalé une déformation de foie sous l'influence du corset étaient eux aussi des cas d'hépatoptose qui ont été mal observés."

We may consequently conclude that the deformity of the liver explains its ptosis, but the many causes which may produce its deformity and ptosis are particularly decreased in the abdominal tension and intrahepatic tension. Corsets act especially by constriction when the liver has already become displaced and the special deformity found should merely be considered as a simple modality of a general process. And still corsets push the liver down, since they deform it, and according to Glénard the deformity cannot arise without prolapsus. But in this prolapsus produced by corsets the lower border of the liver does not reach below the costal border and this is due to the fact that the deformity and ptosis of the liver are produced by the deformity and lowering of the base of the thorax, and these two conditions are always in direct relation as far as their intensity is concerned.

From birth one may note a ptosic temperament in a given subject, and, when speaking of heredity, I pointed out that Stiller had demonstrated the relations existing between abnormal mobility of the

anterior end of the tenth rib and in lividuals predisposed to ptoses, and that Ceri had also shown a tendency towards lordosis.

Beside visceral ptoses, children under the influence of this diathesis frequently present prolapsus of the rectal mucosa resulting from a defective tonicity of the sphincter ani; their tissues are soft and the scrotum is elongated. They are subject to chapped hands, and so forth, due to vascular ptoses, and very frequently they present congenital hernia or renal ectopia. All these facts uphold the theory of heredity, and the ptosic diathesis would appear to be due to a kind of congenital weakness of the nervous centers.

It is between the ages of 20 to 40 years that the larger number of visceral ptoses are met with, and it is towards the middle age of life that women show various forms of prolapsus. Women who will suffer from ptosis sooner or later have very easy labors, sometimes with hardly any pain, and the proof of this temperament in these patients is shown by the extreme laxity of the abdominal walls after labor, while they are also subject to hemorrhages due to atony of the uterine muscle, while the uterus has a great tendency to become displaced backwards. As time goes on all forms of ptosis become accentuated, and it is between the ages of 50 to 60 years that the most marked forms of eventration are met with. Senility attacks the nervous system, the muscles become atrophied and undergo fatty degeneration, while the development of the ptosis at this time of life shows the influence of the muscular tonus, which is inevitably insufficient at this age.

Visceral ptoses are rarely single, and it is of common occurrence to find enteroptosis and nephroptosis combined. Movable kidney is met with in about 18 per cent. of subjects not having intestinal ptosis, while this renal condition is found in about 30 per cent. of those presenting the latter condition. One finds movable kidney in 60 per cent. of patients suffering from enteroptoses. Transverse ptosis and movable liver are combined in about 61 per cent. of cases of hepatoptosis, and very frequently nephroptosis is met with in cases of movable liver, about 25 per cent. according to Antoine. Out of 100 cases of nephroptosis the same authority states that there was ptosis of the liver in 45. Ptosis of the spleen is rarely met with associated with that of the liver, but this is simply due to the infrequency of the former condition. A remarkable fact, however, has been pointed by Antoine, namely, that out of 100 hepatoptoses there were only 5 splenoptoses, while out of 100 splenoptoses there were 100 hepatoptoses. Consequently, ptoses of the spleen do not exist without hepatoptoses. The same may be said of splenonephroptosis, which always accompanies ptosis of the liver.

Nervous and hepatic disturbances are the two factors, which, according to various authorities, act differently. All have noted the coincidence of nervous disturbances with ptoses, but while some uphold that the nervous conditions are the result of the ptoses, others have reversed the proposition and believe that the ptoses are the result of the nervous disturbances. It is, I believe, an evident fact for everybody that nervous heredity plays a very important part in these cases. Glénard has also considered the functional weakness of the liver, and places nervous conditions as secondary, the primary cause acting directly on the liver, whether this cause be of an infectious, toxic, nervous, or traumatic nature, it matters not, the disturbance of the nutrition persists and brings about a functional weakness of the organ. The subject then becomes a diasthesic, and from this time on he will be the possessor of an "hepatic temperament." This "hepatism" may be either infectious or hereditary, but however this may be, it will be the endogenic factor of other diseases of the nutrition, like enteroptosis, etc. Which of these theories are right is impossible for me to decide.

If patients the subjects of ptoses are questioned as to their morbid antecedents one will frequently note that the condition has made its appearance after some serious infection, such as typhoid, scarlet fever, influenza, etc. Convalescence was long, the loss of flesh great, the general condition thereby consequently changed, while the nervous system or the liver were affected by the toxins, and from all this results a general dystrophia, which gives rise to ptoses.

My personal observation would lead me to believe that labor contributes the largest share in the production of visceral ptoses. During pregnancy the abdomen is for the greater part of the time insufficiently upheld, and an elastic binder or a special corset would, to a certain extent, prevent the excessive distention of the muscles and the skin. On the other hand, after labor, sufficient care is not given to properly apply the binder and to continue its use for a sufficient length of time. Women usually get up too soon, and the abdominal walls undergo pressure at a too early date which they are incapable of resisting. Then, again, sufficient attention to laceration of the perineum is not given, and, although the latter may be small, it should, according to my way of thinking, be immediately repaired.

Surgical interference I believe only legitimate in those cases where all other means have proved unsuccessful, or where the patient's life is rendered miserable by the condition. In order to be sure that the operation is successful in its results, I employ the following technique: The patient is placed flat on the operating table, or very slightly tipped up, so that the position will not allow the prolapsed organs to return to their normal position. An assistant then grasps the abdominal wall with both hands, so as to tighten it as much as possible. Then, by palpation and percussion, the surgeon ascertains if the kidney, liver, and stomach have undergone any notable ascension. Since the operation has for an end to tighten the abdominal wall, it is performed as follows: An incision, starting a little below the point of the sternum, is carried down to the pubis, and the aponeurosis of the recti is exposed and is then dissected to the extent of about one-third of its length. The posterior aspect of the recti is then exposed to the extent of about 2 centimeters in breadth. A row of continued kangaroo tendon sutures unites the recti by overlapping them. After having resected the excess of the anterior aponeurosis, a second laver of kangaroo tendon unites this. Then, by an elliptical incision, all the skin that is necessary should be removed and the borders brought together by silkworm gut sutures.

I have resorted seven times to this operation successfully in very desperate cases of ptosis, and so far as I am aware no recurrence has ever taken place. The patients varied between 37 to 58 years of age, and all made uneventful recoveries. Some of them were hard-working women with large families to care for, and as they have remained in very good health ever since, attending to their arduous duties, they would seem to speak decidedly in favor of the operation. Then, again, since the peritoneum is not opened the interference may be considered as absolutely devoid of any danger whatsoever.

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ADVANCED AGE AS A CONTRAINDICATION TO OPERATION.*

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SURGEON TO HARTFORD HOSPITAL.

A WHOLESOME dread among the medical profession and an inherited, long-existing prejudice among the laity has ever been the attitude toward surgical operations among the aged. It is unnecessary to say that elective operations, unless it is quite certain they may prolong life and increase comfort or usefulness, are not to be urged upon patients far advanced in years; but emergencies which threaten life, and conditions productive of suffering and incapacity, making the life miserable while it lasts, not infrequently demand surgical interference as promptly and as surely in the aged as in the young.

In deciding for or aginst operation we depend upon the condition of the heart, the arteries, the lungs, and kidneys, rather more than upon the number of years the patient has lived. The potential age is the factor of importance. The individual may be young in vital tissues, while the actual age is advanced, and vice versa. Modern methods of technique, including careful hemostasis, rigid asepsis, gentle handling of viscera, local anesthesia, or general anesthesia by the ether drop method, and the prevention of shock, have placed surgery of the aged upon a far safer plane than it has occupied in times past.

Aged people do not tolerate well the loss of blood, and in surgical work upon them we should adopt those measures which are calculated to control hemorrhage before it occurs. These measures include the use of the Esmarch bandage, of proper posture, of segregation as practised by Dawbarn and Crile, of clamping and ligating vessels on either side before they are severed, hot gauze and hemostatic packing in locations where the vessels are not susceptible of ligation. Prominent among these hemostatic remedies may be mentioned solutions of adrenalin chloride and formaldehyde gelatin.

Asepsis should include careful and thorough preparation of the parts, for the senile skin is frequently thick and scaly; careful avoidance of crushing of tissues by forceps or ligatures drawn too tightly, and the use of correct methods of personal and operative cleanliness.

In the handling of viscera in the abdominal cavity it is important to avoid injuring the serosa, to grasp the tissues with soft, moist serviettes or with the gloved hand, to use as little traction as possible, to guard against pinching and bruising, producing hemorrhage or ecchymoses, for there cannot be quite the power of resistance, repair, or absorption in patients of advanced years as in those of middle life or youth. Explorations in the abdominal cavity should be carried out deftly and with dispatch. In the language of another, the motto in operating upon these patients should be that of "bloodless surgery and breathless speed."

The anesthesia is a very important matter. Too frequently this importance is under-estimated and the anesthesia is considered too lightly. It is well known that many operations for which general anesthesia is usually administered may be comfortably and safely performed with some local anesthetic. With such we have frequently done perineal sections and drained the male bladder; we have operated for strangulated hernia, appendicitis, and performed minor amputations. I am not in a position to advocate strongly spinal anesthesia, although we have used it in a number of cases. It carries with it certain unfortunate sequelæ, and has not grown in favor in this section, at least during the past two years. For general anesthesia I have become wedded to the use of ether by the drop method. Prior to May 1, 1906, we had used it occasionally according to the rules observed at the Mayo clinic, and since that time we have used it exclusively in cases where ether was not contraindicated. The average time for complete anesthesia has been eight minutes. The stage of excitement is markedly diminished and generally absent. The quantity of ether is reduced from that used by the cone method to about one-half. Asphyxiation, cyanosis, stertorous breathing, swallowing of the tongue, and vomiting during etherization are of rare occurrence. We are firmly convinced that this open, economical, and safe method of etherization will be the accepted method of the future. J. B. Murphy, in his recent year book, says that "Ether should never be used upon the cone." While this method is simple, it still must be used with certain rules, and I find that these are not generally appreciated.

If I may be permitted, I will repeat the technique which I quoted from the paper of Miss Alice McGaw of Rochester, Minn. She says: "A thick pad of moistened cotton is placed over the eyes to protect them from the anesthetic. The inhaler used is the Esmarch mask with two thicknesses of stockinet. The mask should be boiled and the stockinet changed after each patient. Ether is given by the drop method from the original can, provided with a notched cork and a bit of gauze protruding to direct the drops, and as slowly and carefully and with as much air as though you were using chloroform, continuing until the patient's face is flushed. You then add a few layers of surgeon's gauze to the stockinet covering and give ether a trifle faster, until the patient is asleep. We then remove the gauze and continue with the same covering as at the start." She adds: "After complete narcosis, it is surprising how little ether is required to keep the patient in a perfect state of surgical anesthesia. Cutaneous sensibility is tested by pinching the skin; the indications thus obtained are more reliable than those obtained by touching the conjunctiva, the latter being dangerous and often infecting the eye." In a series of 150 consecutive ether anesthesias by the drop method, administered by my associate, Dr. Orin R. Witter, the shortest time for establishing complete anesthesia was two minutes; the longest time was twenty-five minutes; average time, 7.86 minutes. The largest amount of ether used was 320 grams; the smallest amount used was 25 grams, and the average amount 106.30 grams. That some of our elderly patients with serious lesions recovered is as much due to Dr. Witter's skillful etherization as to the operator.

Elderly patients do not well tolerate shock. Every means should be taken to prevent its occurrence.

G. W. Crile and W. E. Lower, in an article in the *Journal of the American Medical Association*, June 17, 1905, give notes on 5,800 cases of major operations in discussing the prevention of shock and hemorrhage. They maintain that shock is chiefly the result of the effect on the vasomotor centers of different impulses, caused by trauma, exposure, etc. Among the certain necessary causes are given psychic excitation, hemorrhage, cold, acute and chronic infections, anemia, cachexia, collateral dis-

*Read before the Hartford County Medical Association, October, 1906.

eases, and age. So it behooves us in each case to study probable causes of shock and its prevention in so far as it is possible, avoiding trauma to the nerves and viscera, hemorrhage, exposure of body to cold, avoidance of operations during acute infections where it is possible and where the hemoglobin indicates a very marked anemia.

The treatment of shock in these aged patients is important. If hemorrhage has been thoroughly controlled, remedies which raise blood pressure, such as adrenalin and aseptic ergot, are certainly indicated.

We still have faith in strychnine, although by some its usefulness is disputed. The infusion of physiological saline solution into the tissues by hypodermoclysis, and a method which we are now using in nearly all severe operations—slow introduction of moderate quantities of saline solution just within the anal sphincter, in conjunction with elevating the foot of the bed twelve inches—are both of great value. In extreme cases of depletion from either shock or hemorrhage, the direct transfusion of arterial blood into a vein of the patient is probably the most positive method of resuscitation at our command.

In referring to my surgical records, I find that in a series of 1,000 operations in general surgery I have operated upon 167 patients over 50 years of age, the average being 69 years. Conditions for which these patients were operated upon are as follows: Appendicitis, 16; benign tumor of breast, 1; carcinoma, of pelvis 1, of intestine 4, of stomach and pancreas 1, of stomach 3, of breast 7, of gall-bladder 1, of urinary bladder 1, of pancreas 1, of uterus 4, of prostate 10; epithelioma, of lip 2, of neck 1; deep abscess of cervical region, 1; melanosarcoma of foot, 1; sarcoma of scalp, 1; adenosarcoma, submaxillary region, 1; cholelithiasis, 13; cholangitis, 2; pyosalpinx, 1; diabetic gangrene, 2; accessory thyroid tumor, 1; general peritonitis, 6; enlarged prostate, 38; periurethral abscess, 1; hydrocele, 2; hernia, uncomplicated 8, strangulated 6; intestinal adhesion, 1; intestinal obstruction, 6; ovarian cyst, 3; psoas abscess, 1; plyoric obstruction, benign, 2; prolapse of bladder and uterus, 6; endometritis, 1; uterine polypus, 1; rectal fistula, 2; ischiorectal abscess, 2; senile gangrene, 4. Of these 167 cases, 65 were females, 102 males; 49 were between 50 and 60, 43 lived, 6 died, mortality 12.24 per cent.; 66 were between 60 and 70, 49 lived, 16 died, mortality 24.24 per cent.; 47 were between 70 and 80, 38 lived, 9 died, mortality 19.14 per cent.; 5 were between 80 and 90, none died.

There were 31 fatalities in the 165 cases, a mortality rate of 18.61 per cent. Fifty per cent. of this number were due to malignant diseases, and 30 per cent. to acute abdominal lesions; the remaining 20 per cent. were caused by diseases of the prostate, cholangitis, and diabetic gangrene. It will thus be seen that in clean, non-malignant, elective operations, the surgery of these aged people carries but a slight mortality. It is fair to say that a number of these operations, where malignant conditions were found, were not radical, but were for the purpose of drainage or were exploratory in character. Since compiling the above statistics my associate, Dr. George N. Bell, has operated upon a man ninety-one years of age for strangulated hernia, with primary union and recovery.

I will recite in detail but a few of these of the most advanced age:

Herniotomy for Strangulated Hernia.—E. S. Y., Unionville, Conn.; age 87; family history negative. Patient has had hernia for fifty-seven years, since 1849; several times it has been reduced with difficulty by various physicians. Present attack occurred twelve hours before my visit, following a drive of twenty-five miles. Dr. M. J. Morrisey employed taxis and applied poultices and ice bag. Patient is vomiting and is in much pain. Large scrotal hernia strangulated. Pulse gaseous. Patient's respiration rapid and wheezing. Moist, dry râles over chest. A decidedly poor surgical subject. Dr. Morrisey tried in vain for several hours to induce the family to permit operation. Consent was finally obtained. Operation at house, midnight. Ether, drop method. A large amount of intestine found in hernia; color dark, but gradually improved with hot saline packs. Patient's breathing became alarming during operation; laryngeal râles persisting after the operation. Rallied in one-half hour. Made uninterrupted recovery, with primary union.

Amputation of Breast for Carcinoma.—Mrs. H. H., Hartford, Conn.; age 87; family history negative. Has enjoyed good health until two years ago, when she discovered a tumor of the left breast involving nipple. The condition was kept from the family until the odor from discharge attracted attention. Tumor size of large grape fruit, indurated edges, sloughing and discharging at three points. The patient was anxious for operation, let the result be what it might; various members of the family, with one exception, objected strenuously. A distinguished surgeon in Chicago, who was consulted, wrote that it would be folly to amputate a breast at 87, as the patient's life would be shortened. This message came on the day that had been appointed for operation, and its performance was postponed some weeks. After writing the surgeon that the tumor was movable and I felt the operation was justifiable, he and the objecting members of the family consented. Ether was given by the drop method; the operation rapidly performed, the axilla not being entered. The wound was closed and healed by primary union. The patient enjoyed complete immunity from the pain, odor, and discharge. She died painlessly some months later from apoplexy.

Carcinoma of Breast.—Mrs. S., Terryville, Conn.; age 78; family history negative. Has been a hard-working woman of spare habit, but fairly well nourished until two years ago, when she noticed a small lump growing in right breast. Has had irregular heart action, and now has dilatation with mitral regurgitation, and has been considered at the hospital, where she applied for operation, to be an unsafe subject for an anesthetic. Operation under cocaine. Breast amputated. Primary union not attempted. Granulations gradually filled in, covering the surface, and the patient wrote from Terryville three years later that she had enjoyed fairly good health, but was then suffering from a recurrence.

Cholecystostomy for Cholelithiasis.—Mrs. E. B., West Hartford, Conn.; widow; age 82; family history negative. Was married and had several children between 20 and 35, since which time has been a domestic in one family. For past two years has suffered attacks of severe epigastric pain, accompanied by vomiting. During past three weeks has had three severe attacks. Patient now incapacitated; confined to bed. Slightly jaundiced. Marked tenderness over gall-bladder region. Operation, Hartford Hospital. Ether anesthesia. Gall-bladder found much enlarged; a number of fine cinder stones removed; one large stone obstructing cystic duct. Usual tube drainage. Scarcely any shock. No vomiting. No distention. Tube came out on sixth day. Patient sat up on eighth day. Made uneventful

ful recovery, and at once resumed her duties. This operation was performed two years ago. Patient is living and in good health.

Cholecystostomy for Cholelithiasis Following a Long Illness of Pneumonia.—Mrs. J. D. Y., Hartford, Conn.; age 72; mother and two sisters have suffered from gallstones. Health good until six months prior to present attack, when she suffered from asthma and bronchitis, with cardiac palpitation. Three months later suffered acute attack of bronchial pneumonia. Remained in typhoid state for several days. Rapid and audible respirations. Heart irregular and very frequent. Recovered slowly, with several relapses. Had been convalescent three weeks when she was seized with acute epigastric distress and vomiting. Pain was not relieved by vomiting. Forty-eight hours later pain and tenderness localized over gall-bladder region. P. 120; T. 103 1-2°. Drs. Porter, McKnight, and Abrams agreed with me that cholecystostomy was imperative. Husband objected on account of her age and feeble condition. Operation postponed for this reason twenty-four hours. Realizing that his wife was growing steadily worse, the husband consented. Operation at night. Gall-bladder contained quantity of pus and 34 large, irregular-shaped, sharp-pointed gallstones. Gall-bladder perforated by one of these stones, pus exuding into abdominal cavity. Gall-bladder drained by tube; abdominal cavity drained by gauze. Pulse and temperature steadily fell following operation. Vomiting ceased. With exception of attacks of cardiac weakness and distress, patient's recovery was uneventful.

Suppurative Appendicitis.—B. R., Hartford, Conn.; age 79; male; German; family history negative. Although in feeble health, had been able to be about until two weeks before entrance to hospital, March 2, 1902. Condition at this time was one of marked infection. T. 102°; P. 110, feeble and irregular. Patient vomiting, constipated, and complaining of pain in abdomen, which had existed for ten days. Physical examination revealed dilated, weak heart; subcrepitant râles at base of both lungs. Abdomen distended; tender at McBurney point, where a small tumor was palpable. Operation under cocaine anesthesia. Appendical abscess opened. Wick and gauze drainage. Prompt recovery.

Among this series of cases have occurred many agreeable surprises. In cases where age was coupled with crippled organs, arteriosclerosis, and a long history of progressive debility and emaciation, we have seen patients recover following operations, and we have been more than rewarded for the responsibility and the hazard we have taken. Truly, this cannot always be thus, and we must expect from the very nature of these cases to have some fatalities.

Among the commoner conditions occurring in the aged, calling for prompt surgical relief, may be mentioned strangulated hernia, intestinal obstruction from various causes, inflammatory and perforative lesions in the abdominal cavity, including the gall-bladder and the appendix; gangrenous extremities, retention of urine and sepsis of the urinary tract due to enlarged prostate.

The conditions calling for more deliberate surgical intervention are cataract, benign growths, hydrocele, varicocele and testis, prolapse of uterus and vaginal walls, and malignant neoplasms, and in the latter our results are even better than in younger subjects, because of the diminished activity of the lymphatic system and the lessened likelihood of metastasis and recurrence.

Enough has been said, I believe, to establish the propriety of surgical interference in emergencies which threaten life, and in conditions which destroy the peace and comfort in the elderly.

It is certainly our duty as physicians and surgeons to exercise as keen an interest in this class of patients as in those of younger years. We must remember that these patients are flesh and blood, entirely capable of suffering pain, and often most grateful for relief. Because they are old we must not consider that it is time for them to die. We should endeavor to prolong life, and prolong it in comfort. These aged patients are dear to some one, and their lives may still be of great value.

CORRECTION OF FAULTY FASHIONS IN DRESS AN IMPORTANT FACTOR IN THE TREATMENT OF DISEASES OF WOMEN.*

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"Seest thou not what a deformed thief this fashion is?"

When I was requested by the chairman of your program committee to prepare a paper of more or less universal interest to the general practitioner, I was at a loss to answer him, and asked for time. After much thoughtful consideration I became convinced that the subject of "tight lacing" was of special interest to the physician, as well as to the gynecologist, while to womankind it is of momentous importance; and my excuse for bringing this subject before you is the absolute necessity for seriously considering the subject of tight lacing as it exists to-day in all civilized countries.

Believing implicitly in the truth and earnestness of the views enunciated in this paper, I feel no degree of trepidation in condemning tight lacing, and ask your thoughtful consideration of the subject as philanthropists, humanitarians, and physicians. I fear that in the mad rush for scientific research we have, as physicians, overlooked the importance of this subject as an etiological factor in diseases of the female organs of generation. There is no one subject to which more importance should be given by the profession, and I shall try faithfully to point out in a practical manner the baneful effects of tight lacing, both as a factor in the etiology of disease and as an impediment to normal development of the uterine organs, which offers the greatest hindrance to disease, and at the same time to contrast the well-developed conditions and freedom from pelvic disorders in those who do not practice tight lacing, with frail constitutions, barrenness, and various uterine disorders found in those who wear the corset tight. I wish it understood, in the beginning, that tight lacing is not confined only to those who wear the corset, since the clothing may be worn so tight as to do practically the same harm, though to a less degree by gradual compression.

Before discussing this subject in detail, it might be well briefly to review the anatomy of the female pelvis, so that you may better comprehend the idea intended to be conveyed in this paper.

The female pelvis consists of a solid, unyielding structure of bones with a false pelvis representing

*Read before the West Side Clinical Society.

a truncated cone, the base looking upward, and slightly flattened on its anterior; the external and internal oblique, transversalis, pyramidalis, and rectus muscles, with sheaths and tendons combining, form the lateral and anterior walls of a cylinder continuous with the last named structure. The spinal column lined with the quadratus lumborum muscles form the posterior wall.

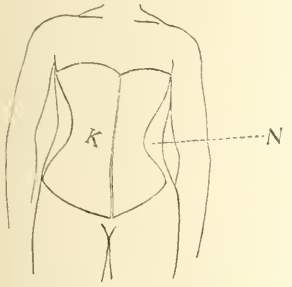

FIG. 1. K—Girl in the ordinary corset. N—Same girl without corset; normal waist line. Note comparisons.

Inclosed within this cylindrical body—pelvis and abdomen from diaphragm downward—are the various abdominal and pelvic organs, all readily and easily displaced by pressure.

Among these we find the uterus, which remains undeveloped and in an infantile state until near the approach of puberty, when it develops rapidly and continues to increase in size, proportionately to the rest of the body, until the normal size is reached, which is usually between the sixteenth and twentieth year. The virgin uterus is about two and one-half inches long; its width, at about the level of the Fallopian tubes, nearly one and three-quarter inches, and its weight about twelve drams. It is suspended in the pelvis by ligaments amounting to little less than folds of peritoneum. The Fallopian tubes and ovaries, with feeble supports, spread out on the right and left of the uterus in connection with the broad ligaments almost at right angles.

The ovaries, formed from the Wolffian bodies, rapidly begin to develop at the age of twelve, when a new era sets in, marked by maturation and periodical rupture of the Graafian follicles just before and after menstruation, and the remaining parts of the organs of generation rapidly increase in size.

FIG. 2.—Girl bending forward at work, showing how "tight lacing" increases abdominal pressure and depresses the pelvic organs.

In at least 85 per cent. of girls the generative organs develop between the twelfth and sixteenth years. It must not be overlooked that the uterus and appendages are covered almost entirely by peritoneum, which is very susceptible to injury, even from the slightest causes; that the construction of vessels supplying blood is of such a nature as to favor either anemia or congestion, proportionate to the degree of compression exerted. The free mobility of the uterus and appendages and the increased supply of blood the parts are receiving or should receive, enable us to more clearly understand the effects of pressure on an organ requiring rest and freedom during the period of development.

It is at or about this period, or more frequently earlier, that the young girl is allowed to commence wearing corsets, and she is not always given proper instructions as to the degree of constriction that should be permitted.

"Either thou are most ignorant by age or wert born a fool."

"Nature stood with stupid eyes,
And gaping mouth which testified surprise."

The law of growth in the human body is one which has not always been considered in relation to development of girls. The energies of the body rise and fall in each individual with a certain rhythm. Each swell of the physical growth is designed to bring about certain morphological and functional conditions, and when these conditions are not secured at the time Nature is accustomed to bring them about, or their maturation and development are interfered with by faulty fashions in dress, there is a possibility of their not being completed and perfected in subsequent years. The maturity of the sexual apparatus and its function in the girl must be accomplished at that stage of development known as puberty. It is, of all periods in the life of woman, the most important, for her future health, both physical and mental, depends upon its completion and perfection. All the care

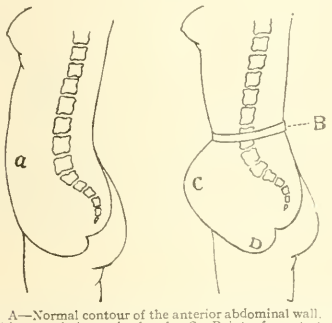

FIG. 3. A—Normal contour of the anterior abdominal wall. B—Same patient with constricting waist band. C—Point of greatest protrusion. D—Pelvic floor bulged down from waist constriction (after Gallant).

and all the intelligence that it is possible for mothers and physicians to bestow upon her should be given at this time. Not only motherhood and subsequent health, but sanity and lifelong happiness depend upon the perfect development of the female organs of generation. It does not seem unreasonable, therefore, that the foolish fashion and evil custom of wearing tight corsets should be tabooed.

The corset offered in the shops is so constructed that, when worn, it exerts its greatest constriction, pressure, from an inch or so above the brim of the pelvis downward, constricting the abdominal walls, the lower part of the thorax, and pushing inward the costal cartilages, often causing the seventh and eighth ribs to overlap. (Fig. 1.) The greatest point of constriction and compression is at the waist line, in the immediate neighborhood of the stomach, which, when distended, as after a hearty meal, produces the "hour-glass" stomach, often observed in this class of patients.

Tight lacing forces and crowds the small intestines with accompanying mesentery and colon into the pelvis, filling Douglas' anterior cul-de-sac; if the rectum is loaded with feces and the bladder empty anteversion of the uterus follows; if the bladder is distended, and the rectum empty, retroversion results, displacing the intestines into the posterior cul-de-sac. In most of these cases, where

the compression is great enough to interfere with and retard the normal peristaltic action of the intestines, constipation is also produced.

We no longer doubt that compression of any part or organ interferes with physiological growth and function; therefore, all women who wear tight corsets and constricting waist-bands, breathe with a well-marked sternal movement, which is unnatural, since Nature intended woman to breathe like man, abdominally. Women when asleep breathe like men, and all animals, male and female, breathe alike, abdominally. Mays has shown that Indian girls breathe like men, and Kellogg has confirmed this observation. Among several Indian tribes, Chinese women, agricultural women, English pit-brow lassies, and civilized women who wear their clothing loose at the waist or suspended from the shoulder, all show the same type of abdominal breathing, and the flimsy argument that chest breathing is normal to women, because it is necessary during gestation, goes to the wind when it is shown that even in the last months of pregnancy abdominal respiratory movements predominate over thoracic movements. The most active respiratory organ, that muscle of respiration, the diaphragm, adapts itself most beautifully to circumstances, so that, when from tight lacing the abdomen is constricted, the type of breathing becomes thoracic; when pressure is relieved it again changes to the abdominal type.

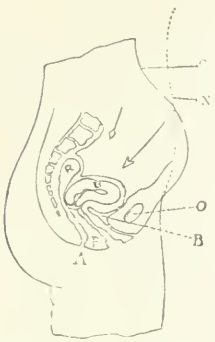

FIG. 4. C—Corset line. N—Normal outline. U—Uterus forced down by corset, producing anti-flexion. O—Os pubis. B—Empty bladder. R—Loaded rectum. P—Perineal body. A—Anus.

The Egyptians, who were foremost in the promotion of civilization, education, and art, while allowing variations in luxuries, were the first to formulate legal barriers against the introduction of "any new ideas" of fashion in articles of dress tending to constrict the waist, or in any way to attempt to modify the true teachings of Nature.

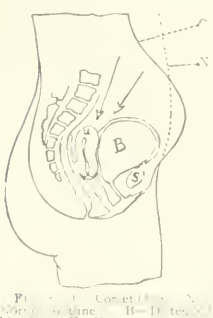

FIG. [illegible] C—Corset line. N—Normal outline. B—Distended bladder. U—Uterus retroverted from [illegible] lying. S—Symphysis pubis.

Do tight lacing and faulty dress interfere with normal abdominal respiration? The reasons for an affirmative answer are based on recent experimental researches, by which certain facts seem well established that heretofore have largely been matters of speculation, opinion, or prejudice; therefore, we conclude as follows: (1) Normal breathing in woman is like that of man—abdominal; tight lacing changes the type to costal. (2) The pelvic organs normally make a considerable excursion with each respiration; tight lacing in the ambulatory position prevents this motion almost entirely. (3) Sitting or leaning forward lessens intraabdominal pressure; tight lacing in these positions greatly increases intraabdominal pressure (Fig. 2); (4) Tight lacing displaces the uterus downward from 2 to 3 inches; (5) The pelvic floor is bulged downward by tight lacing from 2½ to 3 inches, and the circulation is rendered sluggish. (6) Undue constriction of the waist from corsets is a constant impediment to free indoor exercise and outdoor gymnastics is hampered. (Fig. 3.) (7) It has been shown that a loose-fitting corset diminishes chest capacity one-fifth, and a tight-fitting corset tends to atrophy of the abdominal muscle and accumulation of fat. (8) With each movement of the diaphragm the structures of the pelvic floor with the uterus and its adnexa are carried downward from 1 to 3 inches and up again; in the case of women who have worn loose clothing about the waist.

Alternating pressure and relaxation accelerates the free flow of blood through the large venous plexuses and lymphatics; alternating traction and relaxation tend to develop uterine ligaments and their peritoneal investment, and give tone to the muscular pelvic floor; alternate stretching and slackening tone up elastic supports. With each full inspiration the descent of the diaphragm increases abdominal pressure and lessens that in the chest; blood is forced out of the portal and pelvic veins and sucked up above the diaphragm; therefore, it is plain to the critical observer that any form of dress that cripples the free excursions of the diaphragm impedes the pelvic circulation. The blood flow of the uterine organs is seriously hindered in another way. The valveless ovarian veins empty in the area of greatest corset pressure, which causes a damming back of a long column of blood.

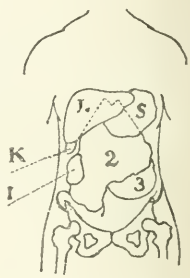

FIG. 6. K, L, S—Kidney, liver and stomach in normal position. 1, 2, 3—Same organs displaced by tight lacing.

When a constricting corset is worn, little or no motion can occur, because all the structures in the true pelvis are carried downward by constant pressure and crammed into the cylindrical cone-pelvis so tightly as entirely to impede movement.

Kellogg and others have demonstrated that pressure from a tight corset, or from a loose corset with the wearer stooping over or bending forward, bulges the pelvic floor downward to the utmost limit of its capacity, and the uterus is correspondingly forced to descend. This constant pressure for hours keeps the uterine supports tense and stretched for many hours daily, while exertion or stooping overstrains these taut structures still further.

Africans, Indians, Eskimos, and all other nations who wear loose-fitting clothing, are almost entirely free from pelvic disease. It is in this class of women that we find the most natural and perfect pregnancy, the easiest and almost painless deliveries, and the most rapid and perfectly satisfactory puerperium. Any physician who has practised medicine in the rural districts for the well-developed and healthy country woman, and later in the city for the dainty, delicate, badly nourished, and poorly developed, where tight lacing and other foolish fashions are practically universal, will soon be convinced that there is an explanation for the frequency of female ills and frailty in the latter, as compared with the freshness, vim, and vigor, and fine physique of the former.

To any clear-minded, thinking physician there can be no doubt of the claim that 75 per cent. of the

women who habitually practise tight lacing to any considerable extent, suffer from maldevelopment of the uterine organs, especially if the corset is worn at that period of life when uterine development conduces to diseased conditions, and practically renders the normal physiological functions of organs incomplete and painful; nor will it be longer doubted by the close observer of passing events. Uterine displacement, that subject about which so much has been written during the recent past, and the treatment of which has been so varied that "falling of the womb" is prevalent in the minds of so many women and a "hobby" for such a large number of doctors in the main, may be laid to the corset.

In no forms of mammalia, other than womankind of the civilized races, do we find uterine displacement or diseased conditions of the generative organs. Why is this? Tight lacing displaces the uterine organs and appendages and maldevelopment is the result. In anteflexion, which is often accompanied by inflammation of the uterosacral ligaments, the downward traction on the tender ligaments is especially dangerous; moreover, the increased pressure from above flexes the uterus still further when the bladder is empty. (Fig. 4). Dickinson relates a case of a robust dressmaker who consulted him, measuring five inches less with corsets on, than over her undershirt with corsets off. The cervix and fundus met, so extensive was the bend; without other treatment than removal of the corsets the uterus assumed its normal position in three weeks. In descensus of any degree the ordinary corset should not be worn.

In retroversion the pressure is exerted on the anterior surface of the uterus, forcing the fundus backward. Indeed, whenever an overdistended bladder tilts the organ backward, abdominal pressure increases the displacement. (Fig. 5.) Kellogg and others have shown by autopsy that the abdominal organs are displaced by corset wearing. The liver has often been found pushed downward, even to the iliac crest. One or both kidneys, in 30 out of 100 cases examined, were found abnormally low. (Fig. 6.)

Maldevelopment of the uterus and appendages affects menstruation in various ways. Amenorrhea is frequently the result of a poorly developed mucosa and uterine adnexa, together with faulty-developed ovaries—a condition which, if neglected, often leads to atrophy; or one may find congestion-menorrhagia with long-continued, profuse flows. Dysmenorrhea is a condition mainly due to maldevelopment of both uterus and appendages, the nervous system, and also to the imperfect development of the muscular and cellular tissue entering into their makeup, rendering them inadequate to their physiological requirements.

Physiologists tell us that there are in the uterus embryonic cells which remain throughout life; they are the cause of epithelioma of the cervix, and the cervix in 98 per cent. of cases is the seat of uterine cancer, local irritation and ulceration being the exciting causes. Tight lacing by producing malposition forces the os downward against the floor of the vagina, causing inflammation, irritation, and eventually ulceration. A prominent author says: "Up to puberty the mortality for carcinoma is the same; afterward the relative proportion of female to male deaths gradually rises till it attains its maximum at about the sixtieth year. Cancer of the uterus is a rare disease among Indian women, yet occurring with great frequency in all civilized countries, must have its explanation in some custom peculiar to such civilization."

Miscarriages, lacerated cervix, weak and inefficient contractions of the uterus in labor, protracted puerperium, the result of subinvolution, may often find their true explanation, directly or indirectly, in maldevelopment. The increased frequency of endometritis, hyperplasia, erosion, stenosis, sterility, and atresia of the cervix and os, must be largely due to this cause. A large number of the parauterine cysts, as well as papillomatous cysts of the hilum, parovarian cysts of the broad ligaments, have their origin in these unobliterated ducts and the remains of the Wolffian bodies. Maldevelopment is surely accountable for this condition of affairs. Fibroid and other tumors of the uterus have their etiology in maldevelopment of the organs of generation.

During the past few decades the Germans, who have always been early and earnest workers in new fields, have been busy inventing new bandages, supports, and corsets for displaced organs. Israel of Berlin, in a comparatively recent monograph, describes a waist that acts by not interfering with the normal motions of the body, nor having any pads for making direct pressure over any of the abdominal organs, or the organs of generation. It is an

Fig. 7. The proper way of adjusting the corset (after Gallant).

apparatus with triangular air cushions made to fit just above Poupart's ligament and the iliac crests, and held in place by elastic bandages reinforced by braces and stays.

A few years ago, Gallant of New York published some original ideas on a new straight-front corset as an ideal orthopedic kidney support. He believes that the weight of the clothing and compression at the waist line at and after puberty have an important effect on girls in producing movable kidneys. He recalls fifty cases where he made careful measurements and found abnormalities in the length of the trunk, as shown by the distance between the suprasternal notch and upper border of the symphysis pubis, and deviation from the normal relation between the circumference of the waist and of the hips at the trochanters. There was a hollowing of the epigastrium and bulging of the hypogastrium. A respiratory rise and fall of the greater curvature of the stomach was observed in thin-walled subjects.

Displacement occurred frequently after childbirth, which could have been remedied by a firm abdominal binder and exercises while in bed. Prolapse of the colon and stomach was generally associated with that of the kidney. These conditions were not remedied by operation. According to Gallant, a properly shaped corset, put on before rising, in a semiopisthotonous position, makes the patient comfortable and prevents complications.

Another investigator of this city, working along

independent lines, has perfected the straight-front corset—a specially designed abdominal corset that meets the demand of physicians for one that will successfully support displaced organs. This corset is built on lines different from those of other corsets, and when perfectly fitted lowers the waist line in front, gives perfect freedom of movement to the entire chest cavity, allows deep breathing, and at the same time gives direct pressure and support from below upward and backward throughout the lower abdominal region, which not only reduces a large abdomen, but holds in place all prolapsed viscera. There is no constriction at the waist line nor above; all the compression is across the hips and lower abdomen, which is lifted upward and backward, leaving the chest free, allowing deep breathing, permitting chest expansion, and favoring an erect carriage. This corset is made with a long graceful straight front which covers the abdomen to the os pubis, at the same time adding support to the diaphragm, instead of breaking it down, as do some corsets. The waist line runs below the short ribs, which lengthens the waist, producing graceful lines without compression, encouraging deep respiratory movements with the effect of enlarging the bust measure and throwing the chest forward.

Rigidity, instead of flexibility, is characteristic of most corsets, but the one here described is flexible and elastic, and yields to every movement of the body, leaving the thoracic, abdominal, and pelvic organs in their normal and natural position of unrestricted freedom. A woman feels no need of loosening this corset, nor feels the need, when it is removed, of taking a deep breath. On the other hand, most women who practise tight lacing complain of pain on removing their corsets. This pain is caused by the displaced organs attempting to assume their normal position. This corset reduces a large abdomen, holds in place all prolapsed viscera, and at the same time preserves all the style and elegance of figure of the ultrafashionable. As a surgical corset, it is indicated in floating kidney, enteroptosis, gastroptosis, dilatation of the stomach, and for supporting the abdomen after laparotomy and parturition.

The Lafayette, 320 Manhattan Avenue

THE W. GILL WYLIE APPENDIX OPERATION.

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That in these days of advanced surgery a man should declare that he is now doing, and has been doing for the last five years, an operation for the removal of the appendix, the technique of which is generally unknown to surgeons, is indeed strange. However, such is the case. I refer to the method employed by W. Gill Wylie. Dr. Wylie has never written on the subject, so none but his assistants are acquainted with his operation, and I have never heard of anyone who employs the same technique, excepting those few to whom Dr. Wylie has shown the operation. The remarkable results obtained by this operation sufficiently justify, I think, the writing of this paper.

Before describing in detail the modus operandi, I will briefly state the class of cases for which this operative technique is adapted: (1) All chronic cases; (2) all acute cases before rupture; (3) all cases of open appendix. By "open appendix" I refer to those cases in which there is free opening or drainage from the appendix into the cecum. There may be catarrhal or ulcerative inflammation present, but on account of the anomalous anatomical conditions in these cases, the secretions are drained into the cecum; while in cases of ordinary anatomical structure there is a twist or constriction at the mouth of the appendix which prevents this drainage and aids very materially in perforation when such an appendix is inflamed. Of all noninflamed appendices examined, from 92 per cent. to 97 per cent. show this constriction (Cunningham). In spite of the large percentage of this type found in noninflamed appendices, Dr. Wylie's observations made from cases on the operating table have led him to the conclusion that most cases of inflamed appendices are of the open type. This type is sometimes called the persistent fetal type. The reason given for this predisposition of the open appendix to inflammation is that the funnel-like mouth of such an appendix favors the entrance of fecal matter, which of course favors inflammation, but at the same time permits of drainage into the cecum. Such appendices, although prone to inflammation, seldom perforate during the first attack on account of the drainage, but this drainage may become occluded in a second or third attack on account of the cicatricial stenosis formed by the healing of the ulcers in the appendix.

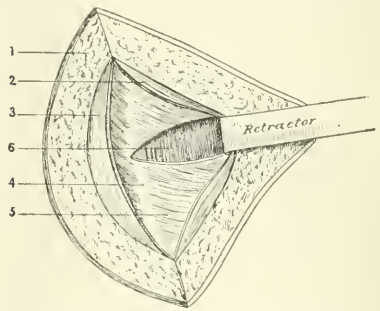

Fig. 1.—1, Subcutaneous fat; 2, aponeurosis, inner flap; 3, aponeurosis, outer flap; 4, linea semilunaris; 5, anterior sheath of rectus; 6 rectus muscle exposed.

These appendices with such stenoses give the same symptoms clinically as do those with the normal constriction, because the same tendency to gangrenous inflammation is present.

Detail of the Operation.—1. Skin incision. This is begun a little to the right of the linea semilunaris and extended obliquely downward and inward, so that the lower end of the incision just crosses the linea. The incision is made two or three inches long, or longer in fat subjects, so that during the search for the appendix the tissues are not macerated by the knuckles, and the different layers thereby obscured to such an extent that homologous apposition cannot be secured. The objection raised to the long incision is that it leaves such a long scar. This objection is not warranted, for in hundreds of cases sutured in the manner I shall describe later, the scar is only a fine line perfectly movable and found only on close inspection. While if it is not sewed up in this way, and one cannot do it if the tissues have been roughly handled, the scar invariably spreads and dimples. This is certainly a point in favor of the long incision.

2. The incision of the aponeurosis of the external oblique is made a little shorter than the skin incision and in the direction of its fibers. This incision will thus follow the line of the skin incision.

The inner flap of the aponeurosis is then retracted toward the median line, thus exposing the fibers of the internal oblique muscle, the linea semilunaris, and the anterior sheath of the rectus. Sometimes the aponeurosis is adherent to the anterior sheath of the rectus, but this can be separated usually with the back of a knife. Having thus exposed the rectus for about an inch toward the median line, one can readily see, as Dr. Wylie has taught for twenty years, that the transverse strength of the abdominal wall is toward the linea alba, and that this strength extends along the fasciæ in a transverse direction, the sheath of the rectus acting as the tendon of the oblique muscles of the abdominal wall with the linea alba as its insertion. The rectus muscles give longitudinal, but no transverse strength. It is for these reasons that, if an incision is to be made through the sheath of the rectus, it should be made in a transverse direction, so that when the abdominal muscles contract after operation the wound in the sheath will not be found to spread open.

3. Incision of the anterior layer of the sheath of the rectus. As illustrated in Fig. 1, this layer is cut in the direction of its fibers for about one and one-third inches, beginning at the linea semilunaris and extending toward the linea alba, thereby exposing the rectus muscle. A small retractor about

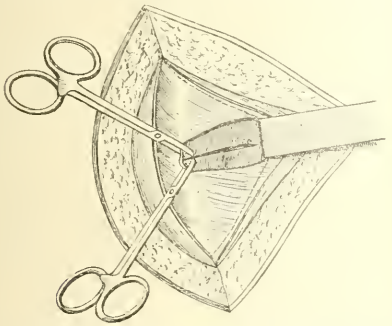

FIG. 2.—As indicated by the dotted line, the rectus is pulled inward, thereby exposing the posterior sheath of the rectus; this is then incised as indicated.

one inch wide is then used to pull the rectus toward the median line. Then two forceps (Fig. 2) are placed at the linea semilunaris, and the posterior layer of the sheath of the rectus with the peritoneum is cut parallel to the incision of the anterior sheath. This incision is made about one inch long, or long enough to admit the index finger of the left hand comfortably. Dr. Wylie has demonstrated during operation, by allowing the patient to come out of ether partially, that a contraction of the oblique abdominal muscles, as in vomiting, will approximate the cut edges of the sheath, while a cut made in the opposite direction (the one made in Kammerer's and Deaver's operations) will spread open during such a contraction. Also the contraction of the recti muscles produces the same effect, instead of the opposite, as is generally supposed. This can be explained by the fact that the sheath is adherent at the lineæ transversæ only, so any shortening of the recti muscles will tend to produce a relaxation of the sheath between the lineæ transversæ, and thus any longitudinal cut will spread open and any transverse cut will tend to close.

4. Search for the appendix. Dr. Wylie uses the index finger of the left hand and palpates first the brim of the true pelvis; then, with a sweep upwards and outwards on the posterior abdominal wall, he finds the appendix, and delivers it with a small sponge holding forceps. This forceps is made with a small end and a joint as far from its end as Dr. Wylie's index finger is long, and so weak that when brought to the last catch the bite is not strong enough to damage the intestine. There is seldom any trouble in delivering the appendix.

5. Removal of the appendix. The mesentery of the appendix is ligated with catgut and cut, section ligation being used if necessary. A purse-string suture of fine catgut is then placed about the end of the cecum, far enough away from the base of the appendix to permit its being turned in. This suture is not tied until the appendix has been cut away. Next the appendix is tied near its base with small catgut. Then the appendix is crushed distally to this tie by an artery clamp, crushing out everything but the serosa. Now the appendix is amputated just distally to this tie in the area crushed. The stump is carbolized and turned in while the purse-string suture is tied. By this means the end of the cecum is completely covered by peritoneum, and any abscess that may form in the stump of the appendix will break into the cecum and drain itself. The omentum is then brought down into its normal position and the abdominal wall sewed up as follows:

6. Suture of the abdominal wall. Dr. Wylie says that the most important procedure in the suture of the abdominal wall is the perfect adjustment of the fasciæ in homologous apposition. He uses fine catgut throughout. The following layers are sewed: (1) Peritoneum. (2) Fasciæ extending down from the fold of Douglas' posterior to the rectus muscle. (3) Anterior layer of the sheath of the rectus. (4) Thin areolar tissue over sheath; this is done so that the aponeurosis will slide upon the sheath and not become adherent to it. (5) Aponeurosis of the external oblique. (6) Areolar tissue. (7) The deep and superficial layers of fasciæ, which form what he calls the "tics" of the layer of fat. These tics are always found on close inspection running somewhat irregularly through the fat, and should be sewed up to catch the edges of the two mattresses of fat formed by these two tics. This procedure prevents dimpling and spreading of the wound. (8) Skin.

Advantages of the Operation.—(1) Not a muscle fiber is cut. (2) There is no danger of hernia. (3) From a mechanical point of view it does not weaken the abdominal wall. (4) From an artistic point of view the scar left is with difficulty to be found. (5) The peritoneum is opened for only one inch.

Disadvantages of the Operation.—(1) The incision cannot be extensively enlarged readily if such is needed. It can be enlarged in two ways: (*a*) Extend incision into the fibers of the external oblique, which is done in the few cases which require drainage. (*b*) Make Kammerer's incision in the sheath and sew up the transverse incision. I have never seen Dr. Wylie enlarge his original incision. In one case in which the appendix was in the left iliac fossa he sewed up his original incision and made a second in the median line. This latter incision he prefers in all cases of general peritonitis from rupture of the appendix.

2. The search for the appendix requires a keen sense of touch.

215 WEST FORTY-THIRD STREET

Medical Knowledge of Frederick the Great.—A book has recently been published in Berlin entitled "Correspondence of Frederick the Great with Physicians." The published documents show that the king possessed deep knowledge of the medical science of his day. He founded the Charité Hospital.

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR

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THE POSSIBLE DANGERS OF SALINE INFUSIONS.

It has long been recognized that the introduction into the blood-vessels of considerable quantities of ostensibly "physiological" salt solution is by no means the indifferent procedure it was at first considered. Edema of the lungs, watery diarrhea, effusions into the serous cavities, and collapse have been known to follow the ill-advised resort to what, when properly used, may be a life-saving measure, and it is evident that the indications for and limitations of the procedure, as well as its dangers, have not yet reached the precise state desirable from both the theoretical and practical standpoints. It is possible that if the practice of infusion, instead of dating back to a score or more of years ago, before the development of the modern lore of osmotic pressures and of the laws of solutions and interchange of ions, were a more recent suggestion, more caution would have been exercised in its application, and its use would be restricted to a more clear-cut set of conditions.

Rössle, writing in the *Berliner klinische Wochenschrift* of September 16, 1907, notes a condition of the heart muscle which he has found in a sufficient number of cases to enable him to determine with a reasonable degree of accuracy from the post-mortem appearances that an infusion has been given shortly before death. These consist in a macroscopic cloudy swelling of the muscle, together with poor contraction and a friable consistency, though no microscopic evidence of parenchymatous degeneration is to be discovered. He furthermore describes two cases in which he considers that the autopsy showed a directly injurious effect of the infusions given, in the one case for collapse during a forceps delivery, and in the other in conjunction with the removal of a large ovarian cyst. In these cases serous diarrhea and ascites respectively followed the infusions and numerous organs and tissues, including the kidneys, revealed edematous accumulations of fluid. While saline infusions are usually given only in cases of considerable gravity, and in which the clinical picture is a complicated one, so that the interpretation of post-mortem findings is very difficult, there is little doubt that greater caution than is usually exercised is desirable in formulating the indications for the procedure. It would appear to be unsuited for use purely as a cardiac stimulant, and to be not free from danger when the kidneys are incompetent, while observation of the fundamental rules in regard to accuracy in making the solution, and keeping it at the required temperature, slowness of flow into the vein, and administration of only small amounts at a time is absolutely necessary. *Post hoc ergo propter hoc* reasoning is always unsatisfactory, but it is probable that a careful analysis of the cases in which death has followed saline infusion would be highly instructive, and, perhaps, by pointing out some of its contraindications, would serve to enhance the value of a measure of approved merit.

AN INDICATION OF ADEQUATE NURSING.

Nothing so well indicates that an infant is thriving and is getting the proper food as an increase in its body weight. A decrease, on the other hand, while it may be due to various conditions, is in the majority of cases caused by improper nourishment, which in a nursing baby usually means an insufficient amount of food rather than food of poor quality. It therefore becomes a matter of great importance to decide whether the nursing is adequate, *i.e.* whether the child is getting enough food. The amount of milk ingested may be ascertained by weighing the infant carefully before and after each feeding during twenty-four hours.

Süsswein, writing in the *Archiv für Kinderheilkunde*, Vol. 40, Nos. 1-3, says he has recently studied the action of healthy and sick infants, both at easy running breasts and those which empty themselves with difficulty. The number of times a baby drew at a breast and the number of times it swallowed were carefully counted, the acts of swallowing most easily by placing the finger lightly upon the larynx. He found that a healthy infant put to an easily running breast drew from forty to ninety times in each of the first two to three minutes, each act of sucking being followed by an act of swallowing, while after the third minute there was only one act of swallowing to every two, three, or four of sucking. The infant seemed to draw more rapidly after the third minute, though in reality the average number of times it drew per minute was smaller than during the first few minutes of nursing, this being due to the fact that it rested now and then at this period. As the quantity of milk ingested depends on the number of times the infant swallows, it must become less and less after the third minute, in fact more than one-half of the meal is taken in the first five minutes. The children were weighed at various times during a meal, the average amount of milk ingested at each act of swallowing being six-tenths of a gram, and thus the total amount per feeding and during twenty-four hours could be calculated. When the same healthy infant was put to a breast which emptied itself with difficulty, the acts of sucking were less frequent from the start, and while each was at first followed by an act of swallowing the proportion of two to one and higher set in before three minutes were up, and the rests while drinking also set in earlier, the child thus getting less in a given time than from the easily running breast; in other words, it had to nurse much longer to get the same amount. In weak and premature infants the acts of sucking were still less frequent in the first few minutes, and while each was at first also followed by an act of swallowing, very soon two or more had to take place before an act of swallow-

ing set in; the rests during drinking also took place much earlier, the infants therefore usually did not get the necessary amount of food, even if they were put to the breast more frequently.

Süsswein thus approximated the amount of milk an infant ingested (confirming his results by also using the scales), and found the nursing to be adequate when the relation of the act of sucking to the act of swallowing was as one to one for the first three minutes and when at the same time more than half of the meal was ingested in the first five minutes. When the infant swallows seldom and rests early there is something wrong. This method, therefore, also enables one to determine the necessary length of the meal and the amount ingested at each; at the same time it is an aid in selecting a wet nurse. Though it is not as exact as weighing before and after each feeding, Süsswein thinks it is more practical.

VENEREAL "JACK."

Of the sailors annually entering this port and leaving it, 100,000 are estimated to be affected by venereal diseases. The number infected here and carrying their diseases to other ports is beyond computation. These factors in the increase of venereal diseases are not usually considered by writers on these ailments.

The Society of Sanitary and Moral Prophylaxis has shown that the essential need at present is in teaching the community the dangers of venereal diseases. It is, however, only the most exceptional sailor who can, especially after a long voyage, be brought to attend lectures or read pamphlets of any kind. He has stood a season of hardship, his pockets are comfortably filled, his ideas of morality are circumscribed, temptations are thrust upon him by liquor dealers and prostitutes. Small wonder that he has "a good time" while he is idle. The consequences are shown by the figures given above. When infected, as a result of his debauch, there is no institution which offers to relieve him and the community from the dangers thereof. If "Jack" has any money left he has recourse to the quacks, whose advertisements and runners are his only informants on the subject. There is, consequently, manifest need for an institution that will properly care for these disseminators of venereal diseases. The men admitted thereto because of their infections are in a receptive stage for that instruction which can lead them to avoid again becoming a menace to themselves, their families, and the countries to which their occupation takes them.

Dr. William T. Jenkins, for a number of years Health Officer of the Port, has had the best possible opportunities to study this ponderous menace to the entire civilized world. In an "Appeal to the Philanthropic" he sets forth the need of methodically protecting, especially our country, from the annual importation of at least 100,000 disseminators of venereal diseases. This he proposes to do primarily by the establishment of a public hospital avowedly for the purpose of treatment of the affections under consideration. The possibilities for good of such an institution are not discutible in brief consideration. Moreover, to the medical profession they are self-evident. In view of our deep-rooted Anglo-Saxon prejudice against at all recognizing the existence of the results of sexual immorality, Dr. Jenkins' self-set task is enormous. He counts, however, on the 130,000 physicians of the United States to give him moral support in convincing the public that every person, every house, every community is imperiled far more by venereal diseases than by all the other infections against which quarantine is now recognized as a public necessity.

THE NEW SCIENCE—EUGENICS.

Frequent reference is now made in current literature to the new science, eugenics, which is after all an old science, repopularized in the recent Robert Boyle lecture at Oxford by Prof. Karl Pearson. The inventor of the science, Mr. Francis Galton, defines it as "the study of a genesis under social control that may improve or impair the racial qualities of future generations either physically or mentally." The new science has manifestly a wide range of application. Such a range of investigation as is implied obviously includes problems of inheritance, environment, nurture, health and disease, vigor and impotence, intelligence and stupidity, conscientiousness and irresponsibility, clean living and license, and sanitation in its broadest sense. It thus touches at innumerable points the work of the medical man.

Prof. Pearson says that all sciences pass through three distinct stages of development. As phrased in a review of his lecture in a recent issue of the *British Medical Journal* of September 21, 1907, these may be stated as follows: "First, the ideological in which you evolve your camel from your inner consciousness. Second, the observational in which you study the form and habits of the real camel, and, third, the metrical in which you measure the camel and study its relation to other camels, and to the rest of nature. Eugenics had reached a certain stage of development when Plato first wrote his *Laws;* indeed, it was already passing from the first to the second stage, but it has been the last of the sciences to enter the third stage, and here its pilot is "biometrics."

The science of biometrics applies mathematical methods to various kinds of association which lack the absolute dependence of pure causation. It applies to biological data, in a general way, the same methods the actuary uses in calculating a life table. A typical emanation from a eugenics laboratory is that consisting of a recent study of data bearing on the degree to which some forms of intellectual ability may be regarded as hereditary. Thus two workers in the laboratory endowed by Mr. Galton have analyzed the Oxford examination records and the school lists of Harrow and Charterhouse. These studies show that "there is a relationship between the class obtained by a father and that of his son at Oxford, and also between the respective successes of brothers. It is further shown from the Harrow and Charterhouse returns that there is a relationship between the position in the school of brothers at the end of the same number of years from entry in each case. The values of the correlation coefficients are appreciably lower than those obtained for the inheritance of physical characters in man, and the authors discuss some of the possible reasons—for instance, the fact that even

skilfully conducted examinations are not ideal tests of ability, and cannot be compared in respect of accuracy with physical measurements. Still further, there have been collected between three hundred and four hundred pedigrees of tuberculous stock; four hundred family histories of insanity, four hundred descriptions of parentage and home environment of mentally defective children with as many more of normal children, the records of nearly four hundred noteworthy families with psychical and physical description and entries as to ailments and causes of death. The scope of the work of eugenics is thus indicated.

Now, it may seem a long reach from such work to the problems of clinical medicine, and the work thus far done may not seem to differ appreciably from that now carried on in so many ways for social betterment, but without doubt a mass of facts has been and is being collected from which the future may draw valuable conclusions. Does such work constitute a true science? A recent writer observes that we may be fairly sure that the new science will not be adopted into the hierarchy until its field is more sharply defined, its methods perfected, and its pretensions substantiated. He notes that the misfortune of such a science is that it attracts as its votaries men who are prone to slipshod thinking and haphazard generalization. Of these faults, medical science has already too many. Prof. Pearson declares that "not only the medical profession, but statesmen, disregard two great principles, the inheritance of variations and the correlation in heredity of unlike imperfections." If the influence of eugenics on medicine shall lead to more careful thinking and statement, and a greater realization of all the factors concerned in health and disease, its influence cannot but be most salutary. But physicians have already covered much of the ground seized upon by eugenics as virgin soil, although they have chosen their own definitions, which frequently differ from those employed by the new science devotees, and considered as something quite different, although they are practically the same. Sociology is, after all, but a department of biology, and the new workers seem to be but copyists of old methods.

The Mode of Infection in Pulmonary Tuberculosis.

The particular predisposition of the lung to tuberculous infection has always made it seem natural to assume that the infectious material gained access to the body through the respiratory tract. Those who share Koch's belief in the nonpathogenicity for man of the bovine bacillus, of course defend this position most warmly against the objections of v. Behring and his followers, who are of the opinion that the nonresisting intestinal mucosa of infancy is the most common portal of entry for the tubercle bacillus. This contention connotes a belief in the transmission of infection through milk, and consequently attributes widespread virulence for the human being to the bovine organism. Numerous observers have sought to throw light on the point at issue by experiments in which animals were caused to inhale tubercle bacilli or the organisms were introduced into the gastrointestinal tract. The results of this work have not been conclusive, however, and in fact are almost susceptible of being used as arguments in favor of either theory. Pfeiffer and Friedberger (*Deutsche medizinische Wochenschrift*, September 26, 1907) describe a series of such tests that appear to have been conducted with unusual care to avoid extraneous errors. As a result of these, out of twenty-eight guinea-pigs that received tubercle bacilli by stomach tube, twenty-one, when killed at the end of fifty days, exhibited no tuberculous lesions whatever, and only four had pulmonary lesions. Twenty-nine other guinea-pigs were caused to inhale the germs, and of these twenty-two manifested pulmonary tuberculosis. This discrepancy is the more striking as, owing to the manner in which the cultures were diluted, the inhalation animals could at most receive less than 3,000 bacilli, whereas the animals of the other series were given more than 3,000,000. This result is in harmony with Flügge's dictum that in guinea-pigs inhalation is a much more potent means of tuberculous infection than ingestion of the germs through the alimentary tract, and furnishes a cogent argument for those who hold that the practically important means of transmission in man is through inhalation and not through food.

The Tarsophalangeal Reflex.

Some years ago both Bechterew and Mendel called attention to a foot reflex which they averred would be found of use in distinguishing between organic and functional disease of the nervous system, but the sign does not seem to have attracted a great deal of attention as yet. It consists in the fact that when the dorsal surface of the foot is tapped with a percussion hammer over the third cuneiform or cuboid bone, dorsal extension of the second to the fifth toes is produced in normal persons, and in cases of functional nervous disease, whereas if organic lesions of the nervous system are present plantar flexion of the toes is caused. Recently two communications on this subject have appeared, one by Lissmann in the *Münchener medizinische Wochenschrift*, May 21, 1907, and the other by Meyer in the *Berliner klinische Wochenschrift*, August 26, 1907. One of the chief points of interest in connection with the reflex has been its relation to the Babinski reflex, and the former author states that he was not able in any case to elicit a positive Bechterew-Mendel reflex when the Babinski was negative. Meyer, however, reports ten cases in which the former reflex was constantly present, but the Babinski sign was either entirely absent or appeared only after the lapse of considerable time. It therefore appears that cases occur in which the Bechterew-Mendel reflex is present earlier than the Babinski, and that it accordingly has added diagnostic value in differentiating between organic and functional diseases, since it is a very early symptom of the former condition and forms a precursor of the Babinski sign, which is now so universally looked for.

Pemphigus Neonatorum.

As is well known, this not very uncommon disorder is a contagious disease affecting infants, usually between the fourth and ninth day after birth. Vesicles the size of a pea or smaller appear and burst, evacuating a cloudy, serous fluid. The affection runs its course in from twelve to twenty days without causing any serious disturbance of the general condition. Staphylococci have usually, though not always, been discovered when the fluid of the vesicles has been examined, and Koblanck has regarded the *Staphylococcus aureus* as the source of the infec-

tion. Epidemics of the disease sometimes occur in maternity hospitals where the conditions are favorable for the transmission of the contents of the vesicles from one child to another. This may easily occur through the common use of various articles employed in the care of the children, but may also be effected simply through the person of the nurse. Kownatzki describes such an instance in the *Münchener medizinische Wochenschrift*, September 24, 1907, in which, after an epidemic of pemphigus, the disease was practically exterminated through strict isolation of the patients, but broke out again when the precautions were relaxed, and did so under circumstances that made it clear that one nurse in particular had been the means of carrying the infection. The necessity for isolating such cases is apparent when they occur in institutions, and even though its etiology has not been definitely established the disease is evidently one to be readily controlled by precautions such as are used in cases of erysipelas for example.

Tuberculosis and the Induction of Abortion.

In a recent number of the *Beiträge zur Klinik der Tuberculose* (Bd. VIII., Hft. 2), van Armstel reports the results of extensive observations on the relation of tuberculosis and abortion. He has not found that the lung disease causes abortion except in its last stages. If the disease in the mother is considered curable the author would advise abortion as soon as possible, in order to conduce to her recovery, but if there is no hope of recovery the pregnancy should be allowed to go to term in the interest of the child. The most notable of van Armstel's views are formulated in the following propositions: Pregnancy, labor, and the puerperium exert a bad influence upon an already existing phthisis. When an hereditary weakness of resisting power exists pregnancy often causes the development of tuberculosis. Placental infection rarely occurs, but the children of a tuberculous mother have less resistant power and less prospect of life both before and after birth than normal, and are predisposed to pulmonary tuberculosis. The medical advisers should warn women who suffer from phthisis, and who propose to marry, of the dangers which marriage will bring. When marriage has occurred the physician should warn against the danger of permitting pregnancy to occur. Van Armstel even counsels abortion in such cases if conception should chance to occur, and he says the indication for abortion is the more pressing the less advanced is the tuberculosis, because of the increased chance of preserving a relatively sound state of health in the woman. If, however, there is no hope of recovery or arrest of the disease in the mother, the pregnancy may, in the interest of the child, be allowed to go on to term.

Abolishing a Dirty Practice.

In our news columns a few weeks ago it was stated that the progressive Health Commissioner of Pennsylvania, Dr. Samuel G. Dixon, had published an order forbidding Pullman car porters to brush the clothes of passengers in the aisles of the cars. The endurance of this noxious custom for so many years is an evidence of the long suffering patience of the American traveling public. Apart from its glaringly unhygienic features, this scattering of dust through a car and over the already sufficiently dirty and uncomfortable passengers has long been voted an unmitigated nuisance. The practice was instituted by the rapacious porters as a means of extorting dimes and quarters from their unwilling victims and has been endured simply because no one wishes to make himself conspicuous by audible protests. It is worse than useless as a means to cleanliness, for the clothes of those first brushed are as dirty as before by the time the whole carload has been curried, and what dirt has not settled back on the external parts of the travelers has filled their nostrils and lungs—not only the dust of the road, but the germ-laden accretions from the garments of men in all conditions of health and disease. Other State boards of health, that have the authority to issue and enforce orders for the protection of the health of the communities they serve, will do well to follow the example of Pennsylvania in putting a stop to this most insanitary and in every way objectionable practice.

News of the Week.

Quiet in the Coroner's Office.—For the first time in many years, according to those in charge at the Coroner's office, a period of almost three-quarters of a day elapsed without any sudden or suspicious deaths being reported. The interval of inactivity began at 2 o'clock on last Saturday afternoon and lasted until 9 o'clock Sunday morning, which makes the occurrence all the more unusual, as Saturday night is usually very prolific in tragic deaths. No suicides or murders were reported during the twenty-four hours ending at 2:45 P.M. Sunday, which was also almost unprecedented.

Imprisoned for Selling Cocaine.—A druggist on Mott street in this city was sentenced on Monday by the justices of Special Sessions to six months' imprisonment in the penitentiary on Blackwell's Island for selling cocaine. This is the heaviest sentence that has yet been imposed for this offense. In April last the same man was twice convicted, but only a nominal fine, with the option of a few days in prison, was his punishment at that time.

Titled Chinese Opium Users.—According to the press despatches, the efforts to restrict the habitual use of opium in China are being pushed with considerable vigor. The names of several princes and other high officials are given, who, it is alleged, have been suspended from their court positions for failure to give up the drug during the six months allowed by the imperial decree of last year. This provided that functionaries who were not able to abandon the habit during the prescribed period would be allowed to retain their rank, but would have to retire from office. Those who should falsely pretend to have abandoned the drug and continued to use it in secret would lose both rank and office.

The Long-suffering Prune.—The unpopularity of prunes as a staple of boarding-house dietaries will probably be still further increased through the newspaper announcement that an eminent French scientist has declared that there is a connection between the use of prunes and baldness. The "professor" is stated to have discovered a new kind of microbe which flourishes in prunes and figs and other dried fruits, also in the human hair and in the feathers of certain birds, notably parrots. This parasite, while not definitely causing the hair to fall, is alleged to predispose to baldness.

Plague.—Deaths from plague and new cases of the disease continue to be reported from Oran, Algeria.

Yellow Fever in Cuba.—Although there are still cases of the disease outside the city, Cienfuegos

itself has been freed from yellow fever under the régime of the United States health authorities.

Cholera.—The cholera situation in Russia is increasing in gravity, and every province that suffered from the famine of last year is in the grasp of the disease. The cholera epidemic in Tokio is gaining alarming proportions in spite of the efforts of the authorities. The disease is also spreading in Korea.

Hospital Closed by Smallpox.—The Hospital of the University of Pennsylvania has been closed by order of the Philadelphia Bureau of Health by reason of the admission to the wards of a sailor from an incoming vessel, who was subsequently found to be suffering from smallpox. Every person within the hospital was vaccinated, and none was permitted to make his exit and none permitted to enter until the period of incubation had elapsed and the hospital had been disinfected.

Anniversary of the Charity Organization Society.—The New York Charity Organization Society will hold a convention of settlement and social workers on November 19, 20, and 21 in this city to mark the twenty-fifth anniversary of its existence. An open meeting will be held at Carnegie Hall on the evening of November 19, at which Gov. Hughes will speak. Tickets for this meeting may be had by applying to the Charity Organization Society. There will be six other sessions of the convention.

A Large Fee.—The physician in attendance during the last illness of a wealthy Chicago woman, who died several years ago in California, has been awarded a verdict against the estate for $100,000 for professional services. The claim was made by virtue of a contract made with the patient that he should attend her until the time of her death, and should then receive $100,000 by her will. The physician had given all his time to the patient during several years, and the jury allowed the full amount sued for.

Fire at the Post-Graduate Hospital.—On Friday of last week the Post-Graduate Hospital was endangered by a fire in the storeroom in the basement of the seven-story building. The patients were brought down from the upper floors, but the members of the house staff had put out the fire with hand extinguishers before the arrival of the firemen. The fire was caused by defective insulation of the electric wires.

Gift from the German Emperor.—At the fair of the German Hospital and Dispensary Association in Jersey City last week a portrait of the German Emperor, with his autograph attached, was received through the German consulate.

Christian Scientists Convicted.—A jury in Mount Holly, N. J., last week rendered a verdict of guilty with a recommendation to mercy in the case of two Christian Scientists charged with manslaughter. They had refused to employ a physician in the illness of their seven-year-old son until within a few hours of the child's death.

New Health Department Building in Brooklyn.—Ground has been broken for the new office building of the Brooklyn Health Department at the junction of Fleet street, Willoughby street, and the Flatbush avenue extension. Dr T. R. Maxwell, head of the Brooklyn department, officiated. The building will be of white marble and six stories in height.

Chicago School Children Inspected.—According to the weekly bulletin of the Chicago Health Department, 17,820 children were examined during the first twenty schooldays by the medical inspectors of the health department, and of this number 1,476, or 8.3 per cent., were excluded from attendance at school on account of the existence of the following contagious diseases: Tonsillitis, 315; pediculosis, 378; impetigo contagiosa, 188; scarlet fever, 120; scabies, 99; diphtheria, 84; whooping-cough, 66; purulent sore eyes, 45; measles, 42; mumps, 40; chickenpox, 32, and tuberculosis, 3. Of the 456 exclusions during the week 105 were afflicted with tonsillitis. Microscopic examination of cultures from 66 of these cases showed 7 of them to be diphtheria.

Opening Exercises of the Chicago College of Physicians and Surgeons.—The Medical Department of the University of Illinois was opened October 1 for the session of 1907-8. The address was delivered by Dr. L. Harrison Mettler, who selecetd for his subject, "Art and Science as Applied in the Practice of Medicine."

Sanatorium at Naperville, Illinois.—A building, which will accommodate ten female patients, has just been completed at the Edwards Sanatorium, Naperville. This institution, designed for the treatment of early cases of pulmonary consumption, was created a year ago by Mrs. Edward L. Gaylord, as a memorial to her husband. Mrs. Gaylord recently deeded the entire plant, with forty acres of land, to the Chicago Tuberculosis Institute. There are ten free beds, the other sixteen patients paying $10 per week, on an average.

Dr. Robert Coleman Kemp has been appointed Visiting Physician in Gastrointestinal Diseases to the Red Cross Hospital.

New Jersey Board of Health Conference.—The second annual conference of the New Jersey State and local Boards of Health will be held in the State House at Trenton, October 25 and 26, 1907.

To Exterminate Mosquito Larvæ.—In order to check the multiplication of mosquitos in Pittsburg, the Bureau of Health of that city has placed 70,000 sunfish in the park lakes.

Ambulance Accidents.—A Mount Vernon trolley car on October 11 collided with a Mount Lebanon Hospital ambulance at Melrose avenue and 156th street. The surgeon was thrown heavily, suffering severe contusions and a sprained ankle, and the ambulance was wrecked. In a similar accident in Newark, at the corner of Bergen and Bank streets, the ambulance was badly damaged and the surgeon was severely injured about the body and legs. The driver also received several wounds.

Gift to Philadelphia Hospital.—The German Hospital of Philadelphia has received a donation of $5,000 from Mrs. Amelia H. Harjes of Paris to establish a free bed in memory of her mother, Bertha Everts Hessenbruch.

Demands Exoneration.—Dr. Francis D. Patterson, who resigned the position of surgeon to the Police and Fire Departments of the city of Philadelphia, has asked for an investigation on the part of the censors of the Philadelphia County Medical Society of charges made by the Director of Public Safety that he had been unduly active in the prosecution of claims for damages against the Rapid Transit Company. Dr. Patterson has made an unequivocal denial of the charges and insists on a retraction by the Director.

The Late Dr. Seneca D. Powell.—At a regular meeting of the Medical Board of St. Mark's Hospital, held October 1, 1907, the following resolutions were adopted: "*Resolved*, That in the death of our late friend and associate, Dr. Seneca D. Powell, the hospital has sustained a loss which we deeply mourn.

His great ability as a teacher and voluminous writer commanded the respect and admiration of the entire profession. His devoted work and experiments in behalf of medical education connected his name most prominently with the teaching of medicine and surgery. But, above all, his fearless honesty of purpose and his exquisite gentleness of character and manner so endeared him to his associates that we, his colleagues and friends, feel in his death a personal bereavement. *Resolved*, That we tender to his family our sincerest sympathy in their bereavement, and that a copy of these resolutions be spread upon the minutes of this Board and published in the medical press." (Signed) Reynold Webb Wilcox, President; Ignatz Morvaj Rottenberg, Secretary; Carl Heck, President, Board of Trustees.

Obituary Notes.—Dr. JOSEPH GRAHAM of Charlotte, N. C., died on August 13, at the age of seventy years. He had suffered for forty years with stricture of the esophagus, and this was complicated by a chronic pleurisy. Death resulted from inanition. Notwithstanding his age and his serious ailments, he was in active practice until seven weeks before his death. He was a graduate of the Jefferson Medical College in 1859, and practised in Charlotte continuously from that time until shortly before his death. He was one of the best known and most honored practitioners in the Old North State, having served as a member of the State Board of Medical Examiners, and was at one time president of the North Carolina State Medical Society.

Dr. LILLIAN ALICE WILLIS of Jersey City died on October 7, at the age of forty-three years. Dr. Willis was born at Trumansburg, N. Y., and had practised in Jersey City for over twenty years.

Dr. P. H. ELLSWORTH of Hot Springs, Ark., died on September 30 of a gastric disorder. Dr. Ellsworth was born in Hatley, Canada, in 1838, and was graduated from Rush Medical College in 1861. He served through the Civil War as surgeon of the 106th Regiment, Illinois Infantry, with the rank of major. He had practised in Hot Springs for about forty years.

Dr. EDWARD R. JEBB of Battle Creek, Mich., died on October 3, at the age of fifty-six years, after an illness of three weeks. He was born in Bristol, England, but when twenty years of age came to Toronto and was graduated in medicine from Queen's University. For a time he practised in Climax, Mich., and Benton Harbor. For the last ten years he had been a resident of Battle Creek.

Dr. WILLIAM H. BERTH of Providence, R. I., died suddenly on October 3, at the age of thirty-one years. He was a native of Providence, and was graduated from Georgetown University in the class of 1903.

Dr. JOHN M. PRILAY of Bangor, Me., died on October 3, at the age of forty-six years. He was a native of Newport, Me., and was graduated from the Hahnemann Medical College of Philadelphia in 1885. Since that time he had practised in Bangor until about two years ago, when ill health compelled him to give up active work.

Dr. CLARENCE E. BARBER of Warren, Wis., died on October 2 in Salt Lake City of tuberculosis. Dr. Barber was thirty-nine years of age, and had practised in Warren for about sixteen years. Some months ago his illness compelled him to give up practice, and since that time he had been traveling in the West.

Dr. C. BRET POOLE of Lowell, Mass., died on October 8, at the age of thirty-eight years. He was born in Otter, N. Y., and was a graduate of the Baltimore College of Physicians and Surgeons.

Correspondence.

ANTERIOR POLIOMYELITIS AND COWS' MILK.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Epidemics of acute anterior poliomyelitis have been so often recorded that its infectious origin seems a probability, while many of the causes ordinarily given may well be predisposing. The percentage of cases occurring during the different periods of infancy is, at least, somewhat suggestive of cows' milk as a possible medium of infection. For instance, cases are rare during the early months of the first year—a time when many infants are on the breast. The greatest number of cases is seen during the second year—a time when cows' milk becomes the staple food of infants. The frequency diminishes during the third and the fourth and fifth years, after which only a small percentage of cases occurs.

In short, the rise and decline in the percentage of cases seems to be more or less parallel with the increase, height, and subsequent decrease in the amount of cows' milk used during the different periods of infancy. Epidemics, moreover, occur principally during the warm months or those most favorable to the growth of different microorganisms in the milk. The attacks, also, frequently follow or are accompanied by disturbances of the digestive tract.

If the inference that the disease is conveyed by cows' milk be correct, sterilization would prevent or check the spread of epidemics, and prophylaxis is most important, as the disease so frequently results in permanent disability despite all efforts to the contrary. This letter is written merely as a suggestion, in the hope that by cooperation some light may be thrown upon this condition, which is so prevalent and distressing at the present time. Such a result might be obtained if physicians would report to some responsible authority (as the Board of Health) every case coming under their observation, with a statement of the condtion in which the milk was given; that is, whether raw, pasteurized or sterilized, or whether the infant was breast-fed exclusively. Printed postals would facilitate reporting.

P. S. SABINE, M.D.

960 MADISON AVENUE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SANITARY MATTERS—CONFERENCES—A NEWCASTLE PROGRAM—INTERNATIONAL HYGIENE AND DEMOGRAPHY—OUR EXHIBITION OF QUACK MEDICINES AND LECTURES ON THEM—THE "BELOVED PHYSICIAN"—OPENING OF THE SCHOOLS—INQUEST.

LONDON, September 27 1907.

Omnia Sanitas expresses in brief the topics of the day—or at any rate of the conferences, congresses, and associations that have so busily occupied themselves this autumn with everything relating to public health. And these meetings are not yet over. At home and abroad they are going on and others are projected. Here in London it is proposed to hold in November a preliminary conference of sanitary authorities with a view of uniting them in a sort of central union. This proposal comes from Newcastle-on-Tyne and may prove another important "Newcastle program." Dr. H. E. Armstrong, the able and strenuous Medical Officer of Health in that northern town, is the originator of the scheme and an executive committee has been formed to promote it. A circular letter has been addressed to the chairmen of the sanitary committees of county councils, boroughs, and port sanitary authorities. This circular remarks on the want of conformity of action of the several authorities—a fact which has long been notorious and has sometimes seemed the despair of sanitary reformers. Time and energy have been expended in the vain endeavor to carry out broad measures, formulating model codes and overcoming the opposition of vested interests. This last point is perhaps the core of public health reformation. We so often see committees failing to support their Medical Officer of Health because his recommendations affect the pockets of some of the members. It would seem, therefore, that the first thing to do would be to educate the ratepayers so as to secure independent committees. Dr. Armstrong's scheme is to set up a central body, which should represent every sanitary authority in the kingdom. This body, which some of its supporters dub a sanitary parliament, perhaps because they mean it to be another talking machine, certainly will not be legislative, and if it reaches maturity it may be hoped that it will prove more businesslike than most of its constituent parts. Its first duty would appear to be advisory and as its recommendations would represent

the numerous local administrations they would come before the government with more authorities than any of these bodies. They might, too, have an important influence over local boards. The public health acts might be submitted to close expert criticism and the defects with which medical officers have to contend would be brought more forcibly before the public and the legislature. Perhaps in the not too distant future the acts might be consolidated and added to so as to form a national sanitary code. The questions that might be profitably discussed by such a body as proposed are so numerous that before the conference in November it seems desirable that the Newcastle program should be more definitely defined.

The dispute at Southend-on-Sea as to the salary of the Medical Officer of Health is a sample of several others. Some of the vacancies will shortly be advertised, but the medical journals will refuse to insert the notices. It remains to be seen whether any qualified men will step into the shoes of those who have been treated unjustly and even cruelly.

Some echoes of the International Congress of Hygiene and Demography are reaching us. It was opened in Berlin on the 23d and your Berlin correspondent will no doubt furnish you with an account of its proceedings. I will, therefore, only allude to what is commented on here. Major Ronald Ross submitted a paper on "Malaria," and other English congressists are contributing on tropical subjects. Mr. Aldridge of Leicester, secretary of our National Council for Dwellings Reform, explained what has been done in some of our districts and how far he thought the measures might be applicable elsewhere, and both French and German members discussed his statements.

In connection with the congress a correspondent informs me that an exhibition is open of a very interesting kind. A notable section sent by the Health Office of Rio de Janeiro shows the methods of dealing with yellow fever and malaria, while another consists of a display and exposure of quack medicines, old and new, I suppose of German manufacture only. Lectures are also delivered on the pretences of magnetopathists, occultists, and other irregular practitioners. The example is one which might very well be followed by one of our sanitary institutions or even by the British Medical Association. Such an exhibition would make a popular section in the annual museum. But I am induced to refer to this chiefly by the action of one of our newspapers, which makes it a text for censuring the profession for not "more emphatically proclaiming aloud the truth about quackeries." Is not this an apt illustration of the proverb that none are so blind as those who will not see? All the time this very newspaper is selling its columns and its influence to fraudulent advertisers of quack concoctions. Is it the price of the advertisements that hides the fraud or hypocrisy doing homage to virtue? Telling doctors to speak out about quackery, forsooth!

Was the author of the third gospel a physician? The Luke tradition has for some time been contemptuously rejected by the German "higher critics," but Professor Harnack has, after several years devoted to reinvestigating the question, come to the conclusion that the tradition is based on historic fact. In his work which is now translated he declares we can assert now that in A. D. 30 to 70, on the soil of Palestine—particularly in Jerusalem—the Christian tradition took the essential form it presents in its later development. From a strict scrutiny of the text of the gospel he concludes that Luke was a Hellene by birth, a physician, a companion and fellow worker with Paul. The date of composition of the Acts he puts as about A. D. 80—certainly sometime between the fall of Jerusalem and the Domitian persecution. Probably Luke was then fifty or sixty years old. His use of medical terms and the prominence he gives to miracles of healing in both the gospel and the Acts show that he was well versed in the medical science and practice of his time.

Next Tuesday is the opening of the London schools and the details of the ceremonies on the occasion are almost all complete. At Guy's work will begin without special ceremony, but on the Friday following the Physical Society will open and it is pleasant to hear that Sir Samuel Wilks will preside on the occasion. This venerable teacher of Guy's lately issued a pamphlet consisting of a revision of an address he had given in connection with the subject of vivisection.

At St George's Hospital a tablet to the memory of the late Dr R Barnes will be unveiled in the Robert Barnes Laboratory. A lecture by Dr. Swart will follow and a dinner in the evening, at which Sir H. M. Ellis, Director-General of the Royal Naval Medical Department, will preside. At St Mary's Hospital Professor Osler will give the address and distribute the prizes. At the Middlesex Mr Henry Morris, President of the Royal College of Surgery, will distribute the prizes and Mr. Foulerton deliver the address. At King's College, besides an address at the distribution of prizes, there is announced for the next day a special introductory lecture by Prof. Thompson on the study of embryology during the nineteenth century. This may seem hardly a theme for an introductory, but you must remember that freshmen are a very small minority on these occasions, which are rather opportunities for meeting old students and renewing old associations. Moreover of late years the discourses have had a tendency to appeal to the public so that sanitary matters threaten to displace the more strictly medical ones, or at least the relations between the profession and the public. In this year's announcements there is one lecture entitled "Res Medica, res Publica."

A more distinct appeal to the public, or rather that part of it specially interested in hospitals, is the substitution by Bart's, the London, and some other hospitals of a dinner, reception, or some kind of gathering to which supporters of the particular institution and friends of students can be invited.

The opening of the session at University College corresponds with the opening of a new era in the history of the medical school which will begin its work in the new buildings provided by the generosity of Sir Donald Currie. Sir Richard Douglas Powell will deliver an address, at the conclusion of which medallion portraits of the late Mr. Christopher Heath and Dr. G. V. Poore will be unveiled in the entrance hall. The students' dinner will be held in the library, Sir W. R. Gowers in the chair.

A singular prosecution for selling poison in drugs has followed the death of a child who got hold of a bottle of tabloids containing strychnine and swallowed fifteen or sixteen. The tabloids were bought at a chemist's store, the bottle was not labeled poison, and the Pharmaceutical Society prosecuted the firm and obtained a conviction. The defense was that these tabloids were always thus sold; but the magistrate could not recognize such a custom, as it was in direct opposition to the Act. The firm of store chemists thereupon bought drugs at various shops and, having secured some at an establishment belonging to an ex-president of the Pharmaceutical Society, summoned him in turn and obtained a conviction. There was no pretense of an attempt to evade the Act, but the magistrate was obliged to convict, as the letter of the law had not been complied with. It was pleaded that the child ought not to have had access to the tabloids and that as many antibilious pills would have been just as fatal.

OUR PARIS LETTER.

(From Our Special Correspondent.)

URETERAL ANASTOMOSIS—OPERATIVE TREATMENT OF BILIARY CALCULUS—ENDOSCOPY OF THE UTERUS—TREATMENT OF CANCER BY THE HIGH FREQUENCY CURRENT—BACTERIOLOGY OF ACUTE ARTICULAR RHEUMATISM—DEATH OF PROFESSOR GRANCHER.

PARIS, August 31, 1907.

At a recent meeting of the Société de Chirurgie, M. Pierre Delbet opened an interesting discussion on ureteral anastomosis. After referring to Auvray's case of implantation of the ureter in the rectum, he related two personal cases of a similar nature. In both of these the results had been successful. The great danger of this operation is an ascending infection of the kidney, but this occurs very often even when no operation is attempted. M. Legueu reported the case of a woman with cancer of the bladder who was suffering from stenosis of the ureter and renal trouble, consequent upon retention. He grafted one of the ureters into the rectum and the woman survived the operation four years, being entirely relieved of the trouble which had called for intervention. At the autopsy the implanted ureter was found much narrowed and the corresponding kidney completely atrophied. The speaker said that the success of these operations depended wholly upon the technique employed. The operation was a very difficult one, for immediate and perfect union was indispensable, and such union was far from being the rule. When it was not obtained, the result was a certain degree of inflammation, with subsequent narrowing of the ureter. Permanent catheterization of the ureter was an indefensible procedure. M. Ricard described a simple method of ureterovesical anastomosis. After having freed and divided the ureter, he then made a lateral section, about a centimeter in length, of the tube which permitted of folding back of the ureteral wall, which was fixed by fine catgut sutures; then the invaginated tube was attached to a buttonhole incision in

the bladder wall, and the bladder itself was united to the renal pelvis to prevent a tearing loose of the attachments. Dr. Delbet said that he had twice made a new implantation of the ureter into the bladder. In studying the results of these operations he had employed with much satisfaction Luys' method of separation of the urine. In one case he had found the operative results excellent, the newly implanted ureter giving about as much urine as the other side. In the other case the anastomosed ureter did not give a single drop of urine, showing that the ureter was obliterated and the corresponding kidney atrophied.

M. Terrier reported five interesting cases of Kehr's operation for biliary calculus and for non-calculous cholecystitis and angiocholitis. This operation consists in extirpation of the gall-bladder and cystic duct, followed by drainage of the hepatic duct. The results were good in these five cases, owing, the speaker said, to the fact that the biliary passages were dilated, this condition being favorable to the success of Kehr's operation. M. Picqué said he had performed this operation successfully in the case of a woman, 45 years old, who had two stones in the ductus choledochus. These were shelled out of the wound, resulting from resection of the cystic duct, and removed at the same time as the shriveled and suppurating gall-bladder. The operation was followed by drainage of the hepatic duct, and the patient made an excellent recovery.

The subject of endoscopy of the uterus was discussed at a meeting of the Hospital Internes Society. With an instrument constructed on the model of Luys' urethroscope, M. David had been able in several cases to diagnose in the puerperal uterus retention of placental remains, fibroids, and traumatic tears. The author believed this method was destined to render great service where other modes of clinical investigation were insufficient.

M. de Keating-Hart read a paper at a recent meeting of the Academy of Medicine on the action of high-frequency sparks in the treatment of cancer. The author employs prolonged and forcible projection of powerful sparks given off by an Oudin resonator. The results obtained were relief, partial or complete, of the pain and often a suppression of the hemorrhages. The late results varied according to the seat, more or less superficial, of the tumor and the state, more or less advanced, of the disease. But there was always a retardation in the growth of the tumor, together with a notable improvement in the general condition.

The bacteriology of acute articular rheumatism was the subject of an interesting communication presented to the Hospitals Medical Society by M. Triloubet. In a man suffering from rheumatic polyarthritis, there developed successively a double bronchopneumonia, a double pleurisy, aortitis, and endopericarditis. The author found in the sputum, the pleural effusion, and the blood the diplostreptococcus, growing in both aërobic and anaërobic cultures, described by himself and M. Coyon in 1897. The same microorganism was found in sections made from the pericardium, appendix, and ampulla of Vater. The speaker said that a rheumatic subject was always liable to attacks of the disease by reason of the presence in the digestive tube of this causal organism. The greater number of cases of acute articular rheumatism were, he said, referable to a catarrhal condition of the digestive tract, and were due therefore to an intoxication of intestinal origin. All degrees of this intestinal toxemia might be encountered, from a slight ephemoral articular effusion to the most terrible and painful involvement of the joints, and even dissemination to the neuraxis (chorea and cerebral rheumatism).

Professor Grancher has died, at the age of 64 years, stricken down in a few days by a grippal pneumonia. With him disappeared one of the most striking and illustrious personalities of the medical world. The important works of this master on tuberculosis are too well known for it to be necessary to recall them. It is known how deeply he studied auscultation of the lungs and the subject of pleurisy, and with what eloquence he argued in support of the curative isolation of hospital cases of tuberculosis. Since 1883 Grancher was Professor of the Diseases of Children at the Faculté. The precision of a style always simple and absolutely correct, an impeccable method of exposition joined to concision constituted the great qualities of Grancher and explained the real power of persuasion of this master and the authority early acquired and readily conceded to him by all. The work of the preservation of children from tuberculosis was founded by him; its end was to cure from this scourge children as yet uninfected but the issue of tuberculous parents. This work proved the noble qualities of heart and the generous philanthropy of him who has just gone from us.

OUR LETTER FROM VIENNA.

(From Our Special Correspondent.)

OCULAR PALSIES AND DIABETES INSIPIDUS—GARRULITAS VULVÆ—X-RAY FEVER—RADIOTHERAPY OF LEUKEMIA—FORMALDEHYDE DISINFECTION—AN EPIDEMIC OF SMALLPOX.

VIENNA, September 15, 1907.

An interesting case was recently reported by Prof. Schlesinger. The patient was a man of twenty-two years, who had paralysis of the eye muscles and diabetes insipidus supervening in the course of an attack of scurvy. The paralysis affected both abducentes nerves and in a degree also the left oculomotor (superior and inferior recti muscles). The other cranial nerves were unaffected and there was no paralysis of the extremities. Symptoms of cerebral compression and general symptoms, with the exception of vomiting, were absent. The ophthalmoscope showed numerous points of retinal and choroidal hemorrhage surrounding the papilla on each side. Of especial interest was another cerebral symptom appearing at the very beginning of the brain affection, viz. polyuria. The amount of urine increased progressively, in the course of about a week, from one liter to more than twenty liters a day. At no time was there any sugar or albumin; the sp. gr. of the urine was about 1.001. This case confirmed the fact that lesions of the structure of the posterior convolution may be followed by diabetes insipidus. The patient was put upon strychnine, but a reduction in the polyuria was obtained only after restricting the intake of fluids.

Heinrich Rotter has reported a case of garrulitas vulvæ in a woman twenty-five years old, who had had two children and two miscarriages. With the first childbirth there was a tear into the bowel which was not repaired at the time. Since then the patient had noticed the frequent noisy escape of gas from the vagina. The lesion was one typical of such cases. When the woman was in the knee-elbow position the vagina became distended with gas, and when she sat down it escaped with noise. The bacteriological examination showed the presence of a gas-forming bacillus. The operation, which gave relief, consisted in an anterior colporrhaphy and a colpoperineorrhaphy. Rotter believes that mechanical factors are most active in the production of garrulitas vulvæ, though he would not exclude entirely Veit's theory of the action of gas bacilli.

Alfred Huber reports a case of elevation of temperature occurring in a patient under *x*-ray treatment. The case (in Rona's clinic) was one of lupus erythematosus in which fever of an intermittent type occurred.

Alfred Decastello and Robert Kienböck have made a number of interesting observations on radiotherapy in the treatment of leukemia. The cases studied were 18 in number, 10 of myelogenic and 8 of lymphatic leukemia, several of which had been under treatment for a long time, even as much as two and one-half years. In myelogenic cases (in 90 per cent. of which substantial improvement may be looked for), the treatment should be persevered in for a long time, but in spite of the apparent improvement relapses are apt to occur; sometimes the efficacy of the treatment appears to wear itself out, and an acute exacerbation of the disease may result fatally. The prognosis appears to depend less upon the duration of the disease than upon the acuteness of its course. In lymphatic leukemia a general improvement is often noticed, but it is seldom that any betterment in the anemia occurs. The prognosis of this form of leukemia depends largely upon the degree of anemia present. In general the disease, under radiotherapy, runs a very chronic course with slight tendency to relapse, so that the prognosis as regards length of life is better in this form than in myelogenic leukemia. The authors conclude that under the influence of radiation substances are produced which are not directly leucolytic, but which hinder the new formation of granular cells, though probably not of lymphocytes.

Two military surgeons, Doerr and Raubitschek, recently described, in a paper before the Gesellschaft der Aerzte, a simple and inexpensive method of house disinfection. This consists in the use of equal parts of water, formalin, and potassium permanganate. For every 100 cubic meters of space, two kilograms of each of these three substances are required. Several vessels should be used, and into them the permanganate is first placed, and when all is ready the mixture of water and formalin is added, the room being immediately vacated and closed. Metal vessels should be used, and they should be of good size, for the mixture foams considerably, a vessel of twenty-five liter capacity

being none too large for a kilo of each of the substances. Six hours is sufficient for complete disinfection. Then the doors and windows are to be opened and the formalin vapor expelled or neutralized with ammonia. The cost is about 4 crowns (80 cents) for every 100 cubic meters. The method is to be recommended by reason of its simplicity, cheapness, and freedom from danger of fire. The reaction upon which it is based was discovered by Evans and Russell in Washington.

We are now in the midst of a smallpox epidemic. Every year there are isolated cases of the disease in Vienna, but because of the very general resort to vaccination the cases have hitherto been few in number. Of late years, however, the antivaccinationists, inspired by the "nature healers," have been active with the result that the general population has become in a measure unprotected. About ten days ago some cases of smallpox occurred, imported probably from the country, and the disease spread with great rapidity. The sanitary authorities have done everything in their power to master the epidemic, but they have to contend with the indifference or active opposition of the families of the sick. The newspapers have tried to suppress the accounts of the epidemic, for this is the season when many strangers are in Vienna and the shopkeepers and hotels would suffer if it became known that smallpox was so prevalent. The city authorities have appointed a special corps of medical inspectors and have opened a number of vaccination stations. The latter are visited by throngs, and the number of vaccinations and revaccinations is increasing daily. The public has suddenly become convinced of the protective power of vaccination, and there is a growing sentiment in favor of a compulsory vaccination law.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 3, 1907.

The Treatment of Typhoid Fever with Specific Sera, Filtrates and Residues (Vaughan).—M. W. Richardson reports the results of his studies of specific therapy in 130 cases of typhoid fever extending over a period of eight years. His work has brought out the following facts: (1) Specific therapy, confined to the original disease, increases, apparently, the tendency of the disease to relapse. (2) By therapeutic inoculation, however (Vaughan's nontoxic residue), continued into convalescence, the relapse in typhoid fever can be largely eliminated. This claim is made with much assurance, but is, of course, subject to confirmation by observation upon a much larger series of cases. If relapses can be prevented then it follows almost certainly that mild typhoid infections can be aborted. This study would show, furthermore, (3) that to get the best results cases must be seen as early as possible in the infection, but (4) that an early diagnosis in typhoid is oftentimes impossible, and that, for this reason, specific therapy suffers under a severe handicap. (5) Antityphoid serum was no more effective than filtrates and residues and was infinitely more expensive. (6) Typhoid filtrates may exert a powerful effect upon the clinical course of the typhoid process, their use being followed in many instances by chills, or rise in temperature and pulse, these being followed in their turn, oftentimes, by marked fall in temperature, pulse, and respiration, and a general improvement in the clinical picture. The nature of these reactions is still unknown. It is hoped that further study, especially that of the opsonic index, in connection with these reactions, may give valuable information concerning their nature. (7) The nontoxic residue of the typhoid bacillus as prepared by Professor Vaughan seems to make the typhoid process longer, but milder. As stated above, it is apparently very effective in the prevention of relapses.

New York Medical Journal, October 5, 1907.

Adhesive Plaster for the Cure of Certain External Diseases and Lesions.—The use of ordinary adhesive plaster is commended by M. B. Hutchins, subsequent to the caustic or electrolytic destruction of tissue. The plaster is fitted closely to the eschar or crust and prevents too free oozing. It is renewed as often as soiled, hastens the softening and separation of the eschar, and greatly shortens the time required for healing. Some cases have been dressed with the plaster directly on the wound and periphery up to final healing. The plaster is often a valuable substitute for the familiar salicylic acid plaster. The most striking results have followed its use in boils and subcutaneous abscesses. It apparently closes in the infection so that the usual "crop" of boils does not follow. Also in subcutaneous abscesses equally good results have been obtained. The abscess is punctured and all the pus is pressed out, the pressure being continued till blood and serum begin to flow from the distended capillaries. A small piece of cotton is then applied and covered with the adhesive plaster over a sufficient area to insure some moisture beneath. Serous flow is constant, the incision cannot heal or crust, infection rapidly yields and granulation begins to repair the damage. The incision must be probed and kept open each day until fluid no longer appears. The dressings seem to owe some of their value to their exclusion of the air. Histories of eleven cases illustrate the points made by the author.

Incarceration of the Retrodisplaced Uterus.—C. W. Barrett's conclusions on this topic are as follows: (1) Although pregnancy may be a means of correcting some cases of retrodisplacement, each case of pregnancy and each case of retrodisplacement has added clinical significance when the two conditions are combined. (2) With the onset of pregnancy a retrodisplaced uterus should be returned to normal position as soon as possible and supervised during the early months of pregnancy. (3) An irreducible retrodisplaced gravid uterus may be given time to rise out of the peivis with growth if symptoms of early or late incarceration do not present. (4) An irreducible retrodisplaced gravid uterus that shows early symptoms of incarceration which might lead to abortion, or late incarceration, with its attendant evils, should be replaced by means of a celiotomy; the complications should be dealt with, and a radical operation should be performed to permanently cure the retrodisplacement. (5) Cases of late incarceration may be met in which gangrene, septicemia, peritonitis, uremia, etc., may contraindicate celiotomy for replacement and in which drainage of the bladder, drainage of the peritoneum, emptying of the uterus, or hysterectomy may be indicated. (6) The latter cases, now uncommon, will be rare indeed if the former teaching is generally accepted. (7) Careful celiotomy will seldom be the cause of abortion, but abortion will sometimes follow the operation as a result of incarceration. (8) This, instead of contraindicating an operation, points to the necessity of earlier operative measures. (9) This earlier resort to operative treatment appeals to the judgment of the patient and the physician when it can be shown that a radical cure of the displacement and its complications is feasible.

Intratympanic Operations Under Local Anesthesia.—M. J. Ballin gives the formulæ of the Bonnani, Gray and Haug mixtures, preferring the one first named (equal parts of phenol in crystals, menthol, and cocaine muriate), but late experience has convinced him that the use of cocaine alone is preferable. In the majority of intratympanic operations he uses a small syringe, injecting from 10 to 15 minims of a 1 per cent. solution, to which a little adrenalin has been added, into the superior wall of the external meatus. The main object, however, of the author's paper is to call attention to the method in acute cases, as in paracentesis. His techniques are as follows: The external auditory canal is first thoroughly cleansed with any antiseptic solution. A small piece of cotton is then placed into the canal so as to protect the drum against the ethyl chloride spray, which would otherwise cause too much pain. Having done this, a cleft speculum is introduced in such a manner that only the superior wall of the canal is exposed to view. With the aid of an assistant a spray of ethyl chloride is now allowed to play on this exposed surface, and as soon as the parts are well anesthetized the needle of the syringe is quickly introduced at the junction of the bony and cartilaginous canal, and the fluid slowly injected as already stated. Injection must be carried out very slowly so that infiltration takes place gradually, thus avoiding unnecessary pain. Having done this the little piece of cotton is then removed from the canal. After four to five minutes it will be noticed that the drum has assumed a more or less bleached appearance, and has also become so insensible to pain, that paracentesis can be performed without any annoyance to the patient.

Journal of the American Medical Association, October 12, 1907.

The Diagnosis of Exophthalmic Goiter.—L. F. Barker points out the diagnostic symptoms of exophthalmic goiter and their significance. Of the three generally recognized cardinal symptoms, the struma is present in the majority of cases, and, since we have learned to recognize slight degrees of goiter, it has been claimed by some to be constant. It may, however, be absent. The tachycardia is the most constant and important sign,

and the exophthalmos, while the most striking symptom when it occurs, is absent in about one-third of the cases. The muscular tremor of the disease is so frequently present that it might well be classed, with the above three, as a fourth cardinal symptom. It is rapid and vibratory, with from eight to ten oscillations a second, and is best seen by asking the patient to hold his hand with widespread fingers between the observer and the light. Other symptoms of diagnostic importance are throbbing of the carotid arteries and abdominal aorta, the accentuated cardiac sounds and murmurs, the characteristic anxiety and restlessness, the tiring on slight exertion in young persons, the Graefe sign and other ocular symptoms, the skin pigmentation and vasomotor unstability and the metabolic changes, loss of weight, etc. The diagnosis in typical cases is easy, but in the incipient and atypical cases there may be difficulty. Once the clinician has learned to observe the physical symptoms, the goiter heart, the psychic symptoms, etc., there is rarely room for doubt. An important part of the diagnosis is in the indications for surgical intervention. Barker has little faith in medical treatment, except it may be in modern serum methods, and he advises surgical operation, and the quicker the better, whenever a persistent thyreointoxication is clearly evident. The only contraindications in uncomplicated cases are a feeble heart with very high pulse frequency and pronounced psychic excitation. In these cases some preliminary medical treatment may be needed. In exophthalmic goiter the symptoms retrogress in conformity with the amount of gland removed.

Enterostomy in Postoperative Ileus.—F. D. Donoghue reports four cases of serious postoperative ileus treated by reopening the operative wound and by incision and puncture of the distended intestine, closing the multiple punctures with sutures, and providing not merely for permanent drainage in the cecum or ascending colon, but also for further treatment. He recommends this procedure even in cases in which the existence of profound shock would contraindicate operation in other than postoperative cases. While its indications cannot be clearly defined for all cases, it will be found, he says, a life-saving procedure in many cases ordinarily regarded as hopeless. Following recovery from enterostomy, the resulting fistula can be closed by suture or left to nature. As it causes little inconvenience and can be easily controlled by a pad on an abdominal belt, it may well be left alone.

Opsonins and Vaccine Therapy.—G. W. Ross defines opsonins as substances not yet isolated but existing in the blood, by means of which the phagocytes are enabled or induced to destroy bacteria. Their existence was one of Wright's discoveries, another was the technique by which we are able to measure the quantity of opsonins in a given blood, or the opsonic index. The application of these discoveries to the treatment and diagnosis of disease by means of the therapeutic inoculation of devitalized bacteria, or bacterial vaccines, he also credits to Wright. He offers the following classification of bacterial diseases in their relations to vaccine therapy: Class 1. This class comprises mostly chronic infections with persistent low opsonic index, due, it is supposed, to the absence of autoinoculation. The bacteria do not escape into the blood and increase the opsonins, hence the infection persists. In this class are included many tuberculous infections of glands, bones, joints, and early pulmonary tuberculosis. Here also we find acne, boils, felons, etc., and many persistent suppurative conditions. Class 2. In this class autoinoculation is the characteristic feature, and severe pulmonary tuberculosis is the type. The opsonic index fluctuates from high to low, and *vice versa*. Class 3. This class comprises the pure septicemias with probable generally lowered opsonic index, such as ulcerative endocarditis and puerperal septicemia. It is in the first class of localized infections that vaccine treatment has been most successful, and Ross reports an illustrative case showing the method of treatment. He also gives his experience with the treatment of boils, carbuncles and other staphylococcic infections by this method and also in the treatment of localized tuberculous conditions with new tuberculin. Lupus he finds rather more refractory than most other forms of localized tuberculosis, since we fail with it as often as we succeed. In early pulmonary tuberculosis he considers tuberculin a powerful agent for good, but in advanced cases it will be of little benefit. Streptococcic, pneumococcic, gonococcic, and other bacterial affections have been treated with success, and cases of cystitis, sinuses, etc., due to infection with *Bacillus coli communis*, have yielded to colon vaccine. He also reports a representative case of the third class of diseases, the septicemias and a case of ulcerative endocarditis, successfully controlled by streptococcus vaccine after antistreptococcus serum had failed. In conclusion, Ross states his opinion that inoculation with proper vaccines is a powerful aid in the treatment of many bacterial diseases. There is considerable difference of opinion concerning the relation of the opsonic theory to inoculation, but it is his opinion that while estimation of the opsonic index is often unnecessary such investigation has been and still is of great service in enabling us to determine the proper dosage and time for inoculation and reinoculation when we are in doubt.

The Venous Pulse.—A. R. Cushny and L. C. Grosh report investigations, both experimental and clinical, on the venous pulse. In their experiments on dogs, they registered the jugular pulse, as in their clinical observations, by means of a funnel receiver connected by an air tube to a very sensitive tambour, the writing end of the lever being in contact with the smoked paper of the kymograph. The carotid pulse was registered by means of a cannula in the carotid connected with a Hurthle's sphygmomanometer, and movements of the auricle and ventricle were registered by threads attached to them and to the membrane of the tambour which connected with another writing on the kymograph. In the jugular tracings, as a rule, a series of elevations separated by deep depressions is seen. The elevations are composed of three minor waves, which are marked *a*, *c*, *v* in their figures, after Mackenzie's method. The wave (*a*) has been ascribed by Mackenzie to the auricular contraction, and Cushny and Grosh find in their tracing that on projecting the auricular tracing on the jugular the middle wave corresponds exactly with the auricular contraction in its commencement and fall. The succeeding wave (*c*) was considered by Mackenzie to be a communicated impulse from the carotid, and others have supposed it communicated from the systolic stiffening of the aorta and the large arteries of the thorax. Morrow has lately revived Potain's view that this wave is produced in the heart during the ventricular systole and transmitted along the course of the vein. The authors' results indicate that this wave is not of local origin in the neck, but they are unable to say whether it arises in the heart or in its immediate neighborhood. They consider the question, however, as hardly of great importance as regards the clinical use of the method of recording the jugular pulse. The (*v*) wave appears to be dependent on the ventricular systole, and cannot be due to stasis as some have held, but their experiments do not suggest a perfectly satisfactory explanation of its mechanism. It may possibly be, as François-Franc has suggested, an indication of increased intraauricular pressure associated with ventricular relaxation. A number of other points of interest are noticed, and the clinical observations in four patients suffering with cardiac disorders are detailed, with special reference to the alterations of the venous pulse. The authors think that more attention might be given "to the form of the auricular wave in the jugular pulse, and that as much information as to the state of the heart may perhaps be derived from this source as has occurred from the study of its time relations."

Postoperative Intestinal Obstruction.—D. H. Craig reiterates his views, expressed in previous articles, as to the value of eserin salicylate for the prevention and treatment of early postoperative intestinal obstruction. He claims that the drug counteracts the spinal inhibitory impulses carried by the irritated splanchnics to the intestines and also sustains and stimulates the intrinsic intestinal musculature or its nerve supply, thus in both ways combating intestinal paresis. Its routine employment by himself and others has, he believes, demonstrated its safety in all cases where not contraindicated, even in children. The postoperative obstruction must be an early, not a late one, and his earlier suggestion was that in cases not demanding, from the nature of the work done, complete intestinal rest, a hypodermic injection of atropin sulphate should precede the administration of the anesthetic, and that on the operating table, as soon as it could be determined that it was not contraindicated, as above, often only from two to five minutes after opening the peritoneal cavity, a hypodermic injection of eserin salicylate in fresh solution be administered. Constant employment of this method for six years leaves him more enthusiastically in favor of its use than at the beginning. He gives his views regarding postoperative obstruction, its mechanism, diagnosis, etc., at some length, and reviews the objections that have been offered to his

method. Caution is given against using too large a dose. Craig uses 1/40 of a grain on the operating table and very rarely has occasion to repeat the dose. The keynote of success in the after-treatment of cases in which a prophylactic dose of eserin has been administered consists, he says, in letting the patient alone—it is purely expectant or symptomatic.

The Lancet, September 28, 1907.

Excision of the Parotid Gland with Preservation of the Facial Nerve; Its Possibility.—T. Cavdaurine reports the case of a girl of eighteen years with a mixed tumor of the parotid which was shelled out so as not materially to damage the nerve. Two months later it began to return and was soon a mass the size of a walnut. By patient dissection with small scalpels the nerve was successfully freed and held up by a loop of catgut, then the vessels were tied above and below, and the whole gland was completely excised. One or two distal filaments were accidentally ruptured, but the greater part of the nerve was preserved. Following the operation there was temporary facial paralysis, but in a couple of months the patient had twitchings at the angle of the mouth and kinesthetic sensations. In about four months she had some movement of the facial muscles about the eye and mouth. A year afterwards she had good control of the facial muscles of that side, with very occasional slight twitchings. At this time very little inequality in the movements of the two sides of the face was discernible and the extent to which the patient could move the facial muscles of the side of the operation is depicted in the accompanying reproduction of a photograph which was taken during the phase of contracture. The operation requires the expenditure of considerable time and care but the cosmetic results repay the trouble. The question is of importance because there is no possibility of performing any kind of nerve anastomosis after injury to ramifications of the facial nerve passing through the parotid gland.

Certain Fatal Forms of Pharyngeal Diphtheria.—Summaries of eight cases are given by A. Harris. He says that in certain cases a fatal prognosis can with certainty be given. These cases are characterized by a grayish facies with anxious expression, vomiting (independent of food) of yellow or greenish matter; the vomiting like that of cerebral trouble, severe abdominal pain, albuminuria, but no casts and alteration in the rhythm of the heart sounds. This appears after the vomiting has set in. One of the heart sounds is often reduplicated. The patients are generally very restless but remain conscious to the end. The membrane in this group of cases is dark-colored and the breath is most offensive. Cultures in such cases show large numbers of staphylococci and streptococci mixed with the Loeffler-bacillus. Antitoxin is here useless.

Treatment of Rheumatoid Arthritis.—W. I. Midelton commends the use of blister counter-irritation applied in the regions of the cervical and lumbar enlargements and gives the notes of five cases out of a series of twenty. His results have been better than from other methods. Several of his cases were extremely feeble, but no ill-results followed the applications. In one instance a patient much subject to dysuria had some strangury, but it was temporary and yielded to copious drinking of water and the internal use of hyoscyamus. This therapy was some time ago recommended by Latham, who believes that the lesions in the joints are the results of irritative and destructive conditions in the regions of the cord named. The author is not altogether in accord with this view as he regards the disease as due in some measure to a cerebrospinal toxemia. Latham based his views on the fact that first clinical experience has taught that injuries to the spinal cord or even to the nerves of a limb will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis. And second that pathological facts appear to show that the trophic nerves of the bones and joints are found in the vaso-motor nerve trunk, and that they issue along with the motor fibers from the anterior cornua of the spinal cord. These fibers are, (1) the muscular trophic fibers, connected with a group of large caudate cells, and that it seems now generally admitted that both irritative and destroying lesions of the ganglion cells of the anterior horns of the spinal cord and their homologues in the medulla oblongata, nerves, and neurs, or of the efferent fibers which unite these cells with the periphery, may give rise to active atrophy of [illegible]

Clinical Journal, September 28, 1907.

Acute Streptococcal Septicemia Occurring at the Menstrual Period.—One case is reported by W. F. C. Dickson, whose patient was a girl of sixteen. Her illness was associated with tonsillitis at the time of her menstrual period. On the second day severe diarrhea and vomiting occurred with a sharp rise of temperature. The heart became rapid and irregular and a systolic apex murmur was audible. A tense diffuse swelling was found in the region of the left parotid, extending halfway down the neck and very tender on pressure. The fever continued and the patient gradually grew worse, dying on the evening of the fourth day. The provisional diagnosis was acute septicemia from the inflammation in the parotid gland as above described. Autopsy revealed a condition of general sepsis. Cultures were taken from the parotid cervical glands, left tonsil, Fallopian tubes, spleen, heart muscle, and femoral bone marrow. In every case pure cultures of *Bacillus coli* were found except in the bone marrow which yielded in addition a streptococcus. It was thought that the case was one of acute streptococcal septicemia, the presence of the *Bacillus coli* being probably a terminal phenomenon. Though the source of infection *may* have been the throat or intestine, the author is inclined to think that the condition of the uterus and Fallopian tubes pointed rather to these organs being the origin of the bacterial invasion, and that the case may be regarded as one of "menstrual septicemia," precisely analogous to puerperal septicemia, and due to infection occurring in a somewhat delicate girl during the menstrual period.

Primary Epithelioma of the Vagina, Showing Autoinoculation or Contact Infection.—A. J. Wilson's patient was a woman of forty-eight years complaining for three months of pruritus vulvæ. She had had twelve healthy children. Examination showed just at the left side of the introitus vaginæ, a small ulcerated swelling. On the other side more anterior and extending back into the vagina was a larger ulcerated patch with rough granular surface and raised edges. There was a slight offensive discharge. Inguinal glands were not enlarged and the urine was free from albumin and sugar. The growths were excised and seven months later there had been no recurrence. The excised masses proved to be squamous-celled epithelioma. Two theories were suggested to the double lesion. The first one (to which the author inclines) was that the lesion appearing the more recent was the result of an inoculation across the vulva. The other was that of the development of two epitheliomas in one vulva at the same time. The author adds some observations on the rarity of primary vulvar cancer and refers to reported cases of inoculations of the nature of the case described.

Berliner klinische Wochenschrift, September 23, 1907.

The Causative Agent in Trachoma.—Fermi and Repetto describe a series of investigations on the nature of the etiological agent in trachoma conducted with material obtained from fifty uncomplicated cases of the disease. It was found that on filtering the secretion from the infected eyes through a Berkfeld filter the infectious agent was removed, for no reaction could be obtained on inoculating with the filtrate the conjunctival mucous membrane of monkeys, of the authors themselves, and of ten other persons. As a control observation unfiltered secretion was applied to two healthy conjunctivæ with a positive result. Inoculations made with a mixture of all the organisms from the trachoma cases that could be grown agar were also consistently negative. The authors were also unable to detect any constant structure that might be considered the causative agent by the use of any staining methods, including that of Giemsa.

Münchener medizinische Wochenschrift, September 17 and 24, 1907.

A Simple Dressing After Amputation of the Breast and Other Operations Extending into the Axilla.—Ebner says that the customary method of fixing the arm close to the body after amputation of the breast has the drawback of interfering with the mobility of the shoulder joint and favoring contraction of the scar, which it takes a considerable length of time to overcome. Various incisions have been described with the object of avoiding this result, but a very great improvement is represented by a suggestion made by Lexer, and applied in modified form by the author. It consists in keeping the arm in the extended and abducted position from the first, and Ebner has found that the simplest way of accomplishing this is by slipping over the arm a sleeve of stockinet which at its distal end is tied by a strip of bandage to the head of the bed. The arm is kept at an obtuse angle to the body, or at least at a right angle. Instead of the usual cumbersome dressing involving the use of many bandages, the author applies only a comparatively small amount of gauze held in position by strips of adhesive plaster. According to this method, the patients are said to acquire complete function of the arm in a very short time, and photographs of two

patients are appended, showing both arms raised above the head on the seventh day after amputation of the breast.

Iodine Benzine Disinfection.—Enderlen speaks of a method of hand disinfection described by Heusner. The active agent employed has the following composition: Tincture of iodine, 10; benzine, 750; paraffin oil, 250. It is used by pouring half a pint into a dish and scrubbing the hands with it for five minutes. Preliminary washing with water is inadvisable. Enderlen has tried the method, and says that it is serviceable, though it is open to the objections that it discolors the hands, causes eczematous irritation of the skin on long-continued use, and damages rubber gloves. The results, as far as the wounds are concerned, seem to be a little less good than those obtained when the older methods of hand sterilization are used.

Bacteriological Examinations of Gallstones.—Bachmeister examined gallstones from twenty cases and comprising all the ordinary varieties. Of these sixteen were found to be sterile in the interior, while in four cases bacteria were found in the center. In three of these cases the organisms were colon bacilli, whereas in the fourth, that of a woman dying in the fourth week of typhoid fever, typhoid bacilli were found. The author is of the opinion that in all of these cases the stones were of long standing, and that the bacteria had not formed a nucleus for their formation, but that their presence was due to a secondary invasion of the calculus by the germs. The possibility of such an occurrence was proved by experiment.

Observations on Pirquet's Tuberculin Reaction.—Engel and Bauer have tested this form of the tuberculin reaction on forty-eight infants and two hundred and eighty older children. The test consists in performing a local inoculation with old tuberculin diluted four times. If the result is positive a red flat papule appears at the site of inoculation at the expiration of twenty-four to forty-eight hours. The originator of the reaction claimed for it absolute specificity, and commended it on account of its convenience and freedom from danger. The authors consider, however, that Pirquet's conclusions were founded on insufficient material, and, although they admit that there is an intimate relationship between the reaction and tuberculosis, they do not believe that a positive result is always indicative of the disease. Of the forty-eight infants tested, six gave a positive reaction, but five of these appeared from the clinical standpoint to be free from tuberculosis. At the autopsy on one of these no traces of tuberculosis could be discovered. The other four did not react to a subsequent injection of tuberculin. Of the 280 older children, whose ages ranged from three to fourteen years, a considerable percentage gave a positive reaction, and for these the authors believe that the test is more reliable. They conclude that the method is of value in making observations on the prevalence of tuberculosis in general, but that in cases presenting diagnostic difficulties it is not likely to prove of great service since its results are more difficult to interpret than those of the injection of tuberculin.

The Demonstration of Typhoid Bacilli in the Lice of Typhoid Patients.—Abe has repeated for the typhoid bacillus observations that have already been made in regard to the organism of bubonic plague. In four cases of typhoid fever it was possible to demonstrate the presence of typhoid bacilli in the bodies of lice taken from the clothing and persons of the patients. The insects were crushed in a mortar after having been washed in bichloride solution and sterile water. Cultures from the crushed bodies gave positive results and on injecting portions of the crushed bodies under the skin of mice the animals died of typhoid septicemia. In two instances in which fleas were taken from the persons of nurses caring for typhoid patients no bacilli could be found in the insects. The author concludes that vermin play an important part in the dissemination of various infectious diseases, especially of typhoid fever.

Ventilation by Means of the Action of the Wind.—Quincke describes a method of procuring ventilation which he has applied successfully for several years in hospital wards and which he considers would also be useful in restaurants, railway waiting rooms, etc. The plan is particularly applicable in winter when it is difficult to introduce fresh air without at the same time causing drafts. Two of the walls of the room, preferably on opposite sides, are pierced by pipes from four to eight inches in diameter which externally are flush with the surface of the building and internally are curved at right angles so that the opening points directly upward. These pipes are placed high up near the ceiling and if possible should be on the sides of the building facing the prevailing winds. The inner ends of the pipes are provided with dampers controlled by chains hanging down within easy reach. By means of this installation fresh air may enter freely at one side and through being deflected upward against the ceiling produces a current emerging at the opposite side of the room. As the cold air has a tendency to sink the entire air of the room is gradually replaced by fresh air without any danger of drafts. Several modifications of the plan are described by means of which air may be caused to enter the outside openings even though the wind is not blowing at right angles to the wall and to provide for cases in which the room does not have two external walls.

French and Italian Journals.

Gigli's Operation in Obstetric Practice.—Ballenghien reports two cases of pubiotomy in patients of the working class done in the homes of the patients. Premature labor is not to be considered in such cases, for the workingman has not the money nor the facilities to successfully bring up a premature infant. Embryotomy is not to be thought of, and the cesarean section belongs to the hospital and to severe contractions of the pelvis. By the use of pubiotomy many infants may be saved without danger to the mother. A firm osseous union may be obtained by using a firm bandage and rest in bed for four weeks. The author sees no advantage in the use of the subcutaneous section. He advises a section obliquely from above downward, to pass outside the subpubic tubercle; it should not be made too near the symphysis in order to avoid the bladder and corpus cavernosum of the clitoris.—*Journal des Sciences Médicales de Lille*, June 1 and 8, 1907.

Cancer of the Uterus.—O. Laurent describes cancer of the uterus as latent or insidious, and characterized by the triad of symptoms: pain, leucorrhea, and hemorrhage. It may spread to the vagina, adnexa, parametrium, bladder, rectum, ureters, peritoneum, and by metasasis to the heart and other internal organs. In two-thirds of all the cases it is of the cervix, and it may involve the body by extension, or may be primary in the body. The parametrium and lymphatic glands may be involved early or very late. Cancer of the body is much slower and less malignant than that of the cervix. When involving the cervix it may be pavement, cylindrical, or atypical epithelioma, but when of the body it is always cylindrical. It may be nodular, papillary, or excavating. It may be distinguished from chronic metritis by its more granular and glistening appearance; from benign papilloma by the absence of cauliflower growths; from fibroma or polypus of the cervix by the absence of the ring of the cervix surrounding it.—*La Revue Médico-Sociale*, June 10, 1907.

Experiments in General Treatment by Antidiphtheritic Serum.—Mongour has treated a number of general diseases by injections of antidiphtheritic serum with success. He has found it especially useful in anginas not of diphtheritic origin. In these the false membranes soon fall off and health rapidly returns. Arthralgia and eruptions may be produced. Cure is so rapid that a convalescent period is absent. It has been used with success in four cases of typhoid fever, one of septicemia, three of pneumonia, three of pulmonary abscess, two of scarlatina, one of pseudomeningitis, and one of cholecystitis. These cases were treated by the serum alone. The modifications were so rapid and the lowering of temperature so manifest after each injection that the author feels sure of the good effects of the remedy. The method of action is probably by the effect on the leucocytes. Is this hyperleucocytosis due to antibodies present in the serum or to alexins circulating in the normal serum? The author is not able to decide this point.—*Journal de Médecine de Bordeaux*, June 30, 1907.

Primary Infections of the Tonsils, Palate, Testicle, and Articulations in Tuberculosis.—G. Ghedini has injected tubercle bacilli directly into various structures to ascertain the method of spread of the tuberculin infection. In primary tuberculous affections of the tonsils and other parts of the oral cavity the infection spreads to the vessels, cervical lymphatic glands, superficial and deep of the clavicular region, mediastinal and bronchial glands, and the apex and center of the lungs. In most cases the infection is limited to these organs, but occasionally a general miliary tuberculosis sets in. Generally the process follows the lymphatics. In some cases the germs follow the vessels instead. Injected into the testicles they follow the afferent spermatic lymphatics, the lumboaortic lymphatics, and then reach the ganglia of the peritoneal serosa both parietal and visceral. Injected into the articulations the usual inflammatory reaction takes place, invading the serous membranes, articular ligaments, periarticular connective tissue and muscles, and the neighboring lymphatic glands. The tubercle bacilli prefer the path of least resistance.—*Annali dell' Istituto Maragliano*, Vol. 2, Part li.

Book Reviews.

The Abdominal and Pelvic Brain, With Automatic Visceral Ganglia. By Byron Robinson, B.S., M.D., Chicago, Ill. Author of "Practical Intestinal Surgery," "Life Size Chart of the Sympathetic Nerve," "The Peritoneum, Its Histology and Physiology," etc. Professor of Gynecology and Abdominal Surgery in the Illinois Medical College; Consulting Surgeon to the Mary Thompson Hospital for Women and Children, and the Woman's Hospital of Chicago. Hammond, Ind.: Frank S. Betz.

In this volume will be found a number of papers, embodying the author's studies on the anatomy, physiology and pathology of the abdominal and pelvic brain. The abdominal brain is the solar or epigastric plexus; and the pelvic brain is the cervicouterine ganglion situated on each side of the uterus. The book is practically a treatise on the abdominal sympathetic nerves, with special attention to the needs of the surgeon and physician; most of the chapters have been published in various medical journals during the past fifteen years. In several respects the present work is unique. It represents much original work on the part of the author; at the same time ample acknowledgment is made to previous workers in the same or neighboring fields; the author has struck out new paths for himself, and has probably done more work on the sympathetic system than any other writer; the illustrations are original, and represent many actual dissections, and not one of them contains a single feature calculated to appeal to the eye rather than to the brain. The book will make its way on its own intrinsic merits, and they are many. Among the most serviceable of the chapters may be mentioned those dealing with splanchnoptosis and visceral drainage. To the student and thinker the book will be indispensable; but it is a pity that so valuable a book is so poorly printed and edited.

L'Amnésie au Point de Vue Semeiologique et Médico-Légale. Par les Drs. G. Dromard et J. Levassort. Ouvrage couronne par l'Académie de Médecine (Prix Lorquet, 1906). Paris: Felix Alcan, 1907.

Studies of memory from psychological and from pathological points of view have been previously attempted; but this is the first work which we have seen which bears chiefly on the medico-legal aspect. The authors have reviewed the unfinished work of Dr. Garnier and acknowledge their assistance and inspiration from this source. They have divided the amnesias into functional and organic. Among the functional they include amnesia from shock and from alcoholic and other intoxications, and amnesia in certain of the neuroses and insanities. The organic varieties are those which follow local or disseminated lesions of the brain. There is a discussion of amnesic and paramnesic illusions, and of so-called progressive dysamnesias; while the last part of the book is devoted to a consideration of amnesia in its relation to legal medicine. In this section those forms occurring in epilepsy, early paresis, hysteria, alcoholism, and cerebral traumatism, and the simulation of amnesia, in legal medicine, are particularly considered, and illustrated by carefully described cases. The book will be found of special interest and value to the medicolegal expert.

Modern Surgery, General and Operative. By John Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital, and Consulting Surgeon to St. Joseph's Hospital, Philadelphia. Fifth Edition, Thoroughly Revised and Enlarged, with 872 Illustrations, Some of them in Colors. Philadelphia and London: W. B. Saunders Company, 1907.

From the appearance of the first edition of this work thirteen years ago, it has taken rank as one of the best of the single volume surgical treatises in the English language, and so long as the revision continues to be made with the care and thoroughness which characterize this fifth edition it stands in no danger of being outclassed by any of its contemporaries. In addition to a number of corrections and expansions in various sections, a quantity of new matter has been introduced. The added matter includes descriptions of Brophy's operation for cleft palate, Willy Meyer's operation for mammary cancer, Murphy's and Hugnier's operations for ankylosis, Cushing's operation for intracranial hemorrhage of the newborn, Matas' operation for aneurysm, scopolamine morphine anesthesia (of which the author expresses his fear, although he admits its efficacy), White's treatment of whitlow, typhoid cholecystitis, and much more. A few additional illustrations have also been inserted. In the section on segregation of the urine too much prominence has been given to the uncertain method of Harris and no mention is made of the superior methods of Luys and Cathelin, which are nearly as certain as ureteral catheterization and far more safe. The book is open to minor criticism on other points also, but its excellencies far outweigh its defects.

Materia Medica, Therapeutics, Pharmacology, and Pharmacognosy, Including Medical Pharmacy, Prescription Writing, and Medical Latin. A Manual for Students and Practitioners. By William Schleif, Ph.G., M.D., Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Series Edited by Bern B. Gallaudet, M.D. Third Edition, Revised and Enlarged. Philadelphia and New York: Lea Brothers & Co.

In this third edition the entire text has been revised and adapted to the new Pharmacopœia, metric equivalents have been introduced, the chapters on the administration of drugs have been enlarged, some new drugs have been added, and the volume is increased by nearly one hundred pages. The book will be useful to the medical student and also to the practitioner; the latter will particularly appreciate the index of diseases and remedies. In another edition the two prescriptions containing fluid extracts, on page 41, should be corrected.

On Fermentation. By Alonzo Englebert Taylor. University of California Publications; Pathology. Berkeley: The University Press, 1907.

This publication comprises, in a condensed form, some lectures delivered in the University of California, in October, 1904. The subject is considered from the point of view of general chemistry and chemical biology; and the reader with a fair knowledge of chemistry will find here a good résumé of what is known of the various fermentations of importance in the animal economy. A useful bibliography is appended to the several sections. There are numerous misprints in the volume, and the spelling is occasionally antiquated, *e.g.*, æthyl, æther.

Traitement Chirurgical du Cancer du Colon. Par le Dr. Joseph Okinczyc. Prosecteur à la Faculté de Médecine. Ancien Interne Lauréat des Hôpitaux, etc. Paris: Steinheil, 1907.

In this unusually complete and painstaking study of cancer of the colon may be found the statistics of fifty-eight cases, and a consideration of the diagnosis and surgical treatment of tumors. Special attention is given to colectomy in one stage. The work bears the stamp of great devotion and close application and is undoubtedly an important contribution to the subject.

Modern Methods of Diagnosis in Urinary Surgery. By Edward Deanesly, M.D., B.Sc. Lond., F.R.C.S., Hon. Surgeon Wolverhampton and Staffordshire General Hospital. London: H. K. Lewis, 1907.

Although this little volume contains nothing which is not familiar to the genitourinary specialist, it will be of service to the general practitioner in helping him to arrive at a diagnosis when some of the older clinical methods fail him. The author thinks that historical tradition is too often a hindrance to the advancement of surgical science, and that "even the most recent textbooks of general surgery rarely reflect the best practice of the day among good surgeons. Often their teaching is ludicrously inadequate, and any student who gives modern replies to ancient questions runs the risk of being rejected by his examiners." The volume is carefully written, instructive, and very readable.

Étude Expérimentale de la Pleurésie Sero-Fibrineuse Tuberculeuse. Par M. le Docteur P. Cartier. Paris: Steinheil, 1907.

This little monograph is divided into three parts: The first deals with the history of experimental tuberculous pleurisy; the second with a criticism of methods employed by other investigators; the third with original work. The virulence of a pleuritic effusion was studied in a twofold way: by inoculations into guinea pigs and by a study of the histochemistry of the fluid itself. The virulence was estimated from the dose required to infect a guinea pig; from the form of the resulting lesions, and the length of time the animal survived the inoculation. There was no relation between the number of bacilli found in the exudate and the virulence of the fluid. By counting the cells in the fluid, however, it was found that the poorer the latter was in red and white corpuscles the more virulent was the liquid.

Society Reports.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twentieth Annual Meeting, Held at Detroit, Mich., September 17, 18 and 19, 1907.

DR. ROBERT T. MORRIS OF NEW YORK, PRESIDENT, IN THE CHAIR.

Observations and Reflections on the Etiology of Gall-stone Diseases.—Dr. HUGO O. PANTZER of Indianapolis, Ind., said that the study of the clinical significance of gall-bladder pathology to-day stood in the medical foreground. Recent developments had shown that the gall-badder was second only to the appendix among the abdominal organs in its disposition to take on disease. Like the appendix, the gall-bladder was found to be a catchpool of disease germs, which displayed their activity under signs which for a long time went unrecognized or were incorrectly interpreted. The view of Kehr that an infection supervenes upon preexisting gallstones was supported by clinical and pathological observations and reasoning. It would seem indisputable pertaining to cases attended with rise of temperature; but less so where pyretic temperatures were wanting. There were, no doubt, cases where the verified passage of stones was unattended with fever. The writer about twenty years ago systematically treated attacks of recurrent gall-stone colic with podophyllin. This remedy was given in ¼-grain doses, three times daily, with just enough morphine and ipecac to touch off the harsh edge of the intestinal colic produced by it. It was found that this remedy in the majority of cases brought on biliary colic of variable degree. It was not equally successful in eliminating stones, because of the nature of the accompanying conditions in such cases and the varying size of gallstones. But a number of the cases so treated were relieved of gallstones, which appeared in the stools. One such case the author reported in detail. A gallstone engaged at the neck of the gall-bladder might excite an irritation of the wall of this organ not unlike that observed in the pregnant uterus when its contents become unsettled, and these acted like a foreign body. The vaginal portion suddenly swelled to a large size, with edematous infiltration, and the dormant uterine musculature became active; rapid dilatation of the cervical canal and violent expulsive pains occurred. In the case of the gall-bladder, a stone wedged in its cervical canal might be supposed to bring forth similar changes, affecting both the musculature and connective tissue of the entire organ. Opinions of authors and practitioners varied greatly as to what size of stones could be passed by the cystic or common duct. No doubt most times large stones that were passed by the bowel or vomited had left the gall-bladder through unnatural openings; yet there was unmistakable evidence of comparatively large stones having passed by natural ways. The temperature should be regularly taken in all cases of gallstone colic. Its elevation in a case of gallstone colic might be the first definite sign of a grave disease. Every case of biliary colic having temperature demanded a local examination to detect evidence of an inflammatory character, gangrene, and pericystic involvement, or excessive enlargement. The persistent absence of fever would commonly indicate a non-dangerous condition, and when associated with concurrent conditions might warrant persistence in non-surgical measures.

Dr. JOHN A. LYONS of Chicago related the case of a physician whom he saw about four months ago. Blood tests were made to determine whether the case was one of cholecystitis or appendicitis. The pain radiated from the right to the left hypochondriac region. These blood tests were made by men of eminence. It was decided that the case was one of cholecystitis, and a noted surgeon concurred in the diagnosis and operated. Operation disclosed multiple carcinoma of the liver. This case was cited to show that it was difficult for even eminent practitioners to make a positive differential diagnosis between gall-bladder disease and appendicitis in some cases.

Dr. JAMES F. W. ROSS of Toronto referred to five cases of gangrene of the gall-bladder he had had. Whenever this condition was diagnosed it required immediate operation, just as a case of gangrene of the appendix did. In one case no gallstones were present, yet gangrene of the gall-bladder had taken place. This case demonstrated to him the possibility of gangrene of the gall-bladder without the presence of stones.

Dr. JAMES F. BALDWIN of Columbus, O., said he had had a number of cases of gangrene of the gall-bladder, and intended some time to make them the basis of a paper on this subject. He had noticed a symptom to which Dr. Ross had called attention—namely, irregularity of the pulse. The last patient upon whom he operated had no elevation of temperature or acceleration of pulse, but severe pain. The patient gave a history, going back one year, of attacks of pain, and a Cincinnati physician who saw him in one of these attacks thought it was clearly the appendix that was at fault. The man was in a desperate condition, so that an immediate operation was clearly indicated. Dr. Baldwin operated, going high up, as he thought there was more tenderness over the gall-bladder than over the appendix, and he struck it just right. The gall-bladder was gangrenous; it had ruptured, and contained fifty gallstones. The patient recovered.

Dr. JOSEPH PRICE of Philadelphia said that gallstone disease was exceedingly common. In insane asylums it was found that fully 30 or 40 per cent. of the inmates had gallstones, as demonstrated by post-mortem examinations, without symptoms. At the female department of the Norristown Asylum, of 1,200 women, who rarely had symptoms of gallstones, gallstones were found in 30 per cent. of the cases that came to post mortem. The physicians in this institution were good diagnosticians; they had found concealed hernias; they had recognized appendicitis in these demented women, which was really a difficult thing to do. Dr. Price had not found gallstone colic a common symptom.

Dr. WILLIAM H. HUMISTON of Cleveland, O., referred to the frequency of gallstones without symptoms. During his residence in Vienna, for several months, he was in the habit of going to the autopsy room, where they had from six to twelve bodies daily. In a hospital with 3,500 beds, the frequency of gallstones was apparent, although the patients were thought to have died from other symptoms or other diseases without any symptoms of gallstone colic whatever; yet gallstones were found at the autopsies. On careful examination, he had found that a rigid right rectus was an indication of gall-bladder disease.

Dr. CHARLES L. BONIFIELD of Cincinnati said that physicians, in writing and speaking of gallstone colic, confused the conditions that really existed. There was a decided difference between a pain due to an acute inflamed and distended gall-bladder and one that was due to true gallstone colic. Gallstone colic was always due, in his opinion, to contraction of the gall-bladder, and this contraction might be caused by the effort of the stone to pass through the duct, or it might be caused by an inflamed condition producing contraction. It had been his experience that the cases that gave rise to gallstone colic frequently had small gall-bladders, without much fluid in them, and doubtless filled with stones, usually attended with some inflammation; and the small stones were apt to get into the gall-bladder. He believed that almost every patient who had gallstones was liable to develop symptoms. The presence of gallstones in some way predisposed to infection of the gall-bladder.

Dr. Pantzer, in closing, said the frequency of gallstones bore no relation to the frequency of gall-bladder disease. The figures of Riedel go to show that of 2,000,000 Germans only 100,000 were afflicted with troubles that were characteristic and came to the recognition of surgeons. The possibility of a cholecystitis gangrenosa was to be

entertained in every case presenting symptoms of grave inflammatory disease.

Tuberculosis of the Kidney, with a Report of Cases.—Dr. Rufus B. Hall of Cincinnati said that less than a decade ago the opinions of the foremost men in the profession were at variance as to whether tuberculosis of the kidney justified more than a tentative operation. They agreed that if a large accumulation of pus was present drainage was at least justifiable. It was the general consensus of opinion in the profession to-day that renal tuberculosis was a local affection, limited to only one kidney in the vast majority of cases. As to the method of infection, we must consider the circulation, the lymphatics, and extension from the bladder, as well as direct communication from the tuberculous focus situated near or outside the genitourinary tract. There could be little doubt but that the kidney was often affected without either the ureter or bladder being involved. It was also capable of demonstration that if the disease was far advanced in the kidney, the ureter rarely escaped infection. While the difficulties of diagnosis were many and complex, careful clinical study and the refinements of the diagnosis of the present day ought to reward practitioners in a correct diagnosis in a large majority of cases even early in the disease. He placed much weight upon the importance of an early diagnosis, and said that it was perfectly possible to make it in the vast majority of cases. If a diagnosis could be made early and the kidney abscess drained, many of the cases could be cured without the sacrifice of the kidney, which necessarily followed if the disease was allowed to progress many months. If the general profession would realize the importance of considering tuberculous disease of the kidney as one of the chief causes of irritable bladder, occurring in patients between the ages of 20 and 50 years, where some other good cause could not be easily located to account for their condition, especially if the urine contained pus, and the urine was acid, there would be a great advancement made toward an early diagnosis of this grave condition.

Dr. Edward J. Ill of Newark, N. J., said the first case of tuberculosis of the kidney he saw dated back eighteen years. The patient was a girl, who had tuberculosis of the left kidney and ureter. The case was seen in the days before operations were undertaken for the relief of this condition. This patient did not undergo an operation, but was perfectly well to-day. No tubercle bacilli could be found in the urine. Another patient, seen twelve years ago, was perfectly well to-day. He did not cite these cases for the purpose of saying that they should not be operated on, but rather the reverse. In the last five or six years he had operated on six such cases, removing the kidney and ureter. All of the patients were alive, except two. One died of sepsis at the time of the operation, while the other died of lung trouble which previously was not recognized.

Dr. H. O. Walker of Detroit agreed with the essayist as to drainage of the kidney in tuberculous lesions. He had had some successful results by so doing.

Dr. O. H. Elbrecht of St. Louis cited two cases he had had of tuberculosis of the kidney, one of which he drained, and one he did not drain. One of his patients died from miliary tuberculosis eight weeks after the operation. The kidney was large, full of pus, and was drained. This was a case in which the kidney could not be removed without the pus coming in contact with the wound. In the other case the abscesses were small, and nephrectomy was done, without puncturing the various abscesses to find out what they were. He also removed the ureter in this case, and closed the wound. The patient recovered from the operation, but later died of miliary tuberculosis.

Dr. Joseph Price said that when a kidney was honeycombed with tuberculous lesions it was perfect folly to attempt drainage. Such kidneys should be removed. Undoubtedly there were many cases in which surgeons anchored so called floating kidneys which were really pathological. He cited such cases.

Dr. James F. W. Ross of Toronto said it was unpleasant to do a nephrotomy in these cases, and then find out afterwards that one had to do a nephrectomy. It was not an easy matter to say whether a surgeon should do a nephrotomy or a nephrectomy primarily. English authorities some years ago announced the dictum that nephrotomy should be instituted first, and that nephrectomy should be regarded as a secondary operation in cases of kidney tuberculosis. In these cases he had followed that out to some extent, because he had not been able to satisfy himself as to the condition of the other kidney. It was stated that tuberculosis of the kidney was generally bilateral, but in his experience that was not so.

Dr. James F. Baldwin emphasized the point that nocturnal frequency of urination was not only equal to the frequency of urination during the day, but was increased. He had noticed this in so many cases that he attached a great deal of importance to it. Where there was an irritable bladder, the erect position produced more congestion, and there was increased frequency of urination during the day, without relief at night. A patient noticed that he had to urinate more frequently at night than during the day, and later examination in these cases had verified a suspicion of tuberculosis. He had practised nephrotomy in two or three desperate cases, believing that nephrectomy would have turned the tide in these and the patient would have died.

Dr. Hall, in closing, said that if there were many abscesses, with different pockets, he invariably took the tuberculous kidney out. In a few cases the condition of the patient had been so desperate that he had simply drained, but had to remove the kidney in these cases months afterwards.

Toxemia of Pregnancy as Observed by the Gynecologist.—Dr. Raleigh R. Huggins of Pittsburg stated that observations led to the belief that pernicious vomiting, acute yellow atrophy, and eclampsia were but the results of conditions which, as a rule, had gradually developed. The onset might be severe enough to seriously impair the process of metabolism, and thus render the patient susceptible to many other complications which frequently accompanied pregnancy and the puerperium. That many dangerous complications were liable to develop after delivery as a result of previous toxemic conditions was a fact that had not received the attention which its importance merited. That there was much greater danger of infection at delivery, as a result of lowered resistance, than when the eliminative organs had been functionating normally throughout pregnancy. That in a number of cases of cholecystitis occurring during pregnancy and the puerperium, it had developed in the presence of toxemic symptoms, and that complications such as cholecystitis and empyema of the gall-bladder had been the direct result of an overworked liver, caused by the toxins of pregnancy. That a large percentage of cases of insanity occurring during the puerperium gave a history of toxemic symptoms previous to delivery.

Dr. E. Gustav Zinke of Cincinnati said that a woman who became pregnant little knew the dangers that might beset her path during the following nine months. Few consulted a physician in time, and even when some physicians were consulted in time they did not give the cases the necessary attention. He was satisfied from what he knew about puerperal toxemia that probably it would be eliminated in nine-tenths of the cases if the physician knew all about it, and if patients were instructed to consult physicians who would do as they should by them. These women should have the necessary care from the beginning of their pregnancy until the end of it, until they were able to be up and about after their confinement. This was what should be taught young practitioners; this was what practitioners should preach to the public.

Dr. Joseph Price referred to a young woman who developed diabetes during pregnancy, and the question arose as to whether it was safe for her to bear a child. He

was called to determine that point. He believed that the woman could safely go on to term. She was watched with great care by a good physician, a man of great skill, who made high application of the forceps, and delivered her of a fine child who was now alive and a member of an influential family.

Dr. JOHN A. LYONS recalled two or three cases of puerperal sepsis in his experience, but not one of them came to him in time to do much good.

Dr. O. H. ELBRECHT was glad that the author had directed special attention to the liver in these cases, as he believed this was the place to look for the etiology. He reported cases of hyperemesis gravidarum. In one case it was necessary to resort to the induction of abortion to stop the vomiting.

Dr. WILLIAM H. HUMISTON said that in the severe cases that had resisted other methods of treatment, he had had good success from the use of stomach lavage, twice daily, with rest in bed, and with enemas of saline solution.

Treatment of Puerperal Sapremia and Puerperal Sepsis.—Dr. JOHN E. CANNADAY of Hansford, W. Va., outlined the present status of treatment of these conditions. He said that the treatment of the former had been definitely settled. The treatment of puerperal sepsis, however, was undecided, unsettled, and unsatisfactory. There were few conditions in which the treatment was farther from ideal than this. There were several more or less ineffective methods of treatment. Each had its champions. The yeasts, nucleins, sera, and more recently the opsonins had been lauded from time to time. In one or several of these evidently lay the hope of the future. The use of the curette had been praised by a few and decried by many. Pryor's iodoform gauze method gave good results in the hands of a few. Several of the more radical men practised hysterectomy, but there was danger of a deadly staphylococcus infection external to the uterus. The author advocated vaginal and uterine douches of a physiological salt solution, supplemented by cul-de-sac drainage, whenever there were any evidences of infiltration or of abscess posterior to the uterus, in the broad ligaments, or in the tubes. Saline transfusions, frequently administered, nutritious diet, and other general supportive measures should be resorted to.

End Results in Operations for Prolapsus Uteri.—Dr. JOHN W. KEEFE of Providence, R. I., expressed the conviction that hysterectomy for prolapsus should be practised in only rare instances, as it was an operation attended with a high mortality. The loss of the uterus had a depressing mental influence upon many women, and at the child-bearing age should never be performed for prolapsus uteri. Simple procedures, like the Alexander operation, amputation of the cervix, anterior and posterior colporrhaphy and perineorrhaphy, attended with no mortality, were sufficient, not only to relieve the symptoms, but to enable the patients to bear children and subsequently to having borne children to have the uterus in good position with no symptoms. The author tabulated 48 cases of operation for prolapsus uteri of varying degree. Of this number 46 women were treated by the combined methods of plastic operation on the parturient canal and the Alexander operation. He had been able to trace after operation 23 cases out of the 48. Of the 23 patients examined he had found 18, or 77 per cent., with the uterus in good position and cured of their previous symptoms. Of the 5 remaining, 2 had a return of prolapsus to the second degree, but without any subjective symptoms. One was treated by plastic work on the vagina, and for four years remained well until she gave birth to a child, after which the prolapsus returned. In this case no Alexander operation was done. Another woman was also treated by plastic work, also with a resulting failure. This case returned later, the plastic work was repeated, and an Alexander operation done. After this the patient bore two children, and on examination, August 21, 1907, the uterus was found in good position, with a moderate cystocele and rectocele. The patient had had no return of the symptoms for which she sought operation. The other case of failure was advised to return for hysterectomy. Seven women had borne children since operation, and one was pregnant at the time of examination. The labor in every case was normal, free from the use of forceps, and did not cause a return of the prolapsus except in one case, which did not have the benefit of an Alexander operation. The author was convinced of the practical value of the Alexander operation combined with plastic surgery upon the uterus and vagina in cases of prolapsus uteri.

Common Mistakes in Gynecological Diagnosis.—Dr. W. S. SMITH of Baltimore, who contributed a paper on this subject, referred to easy and difficult cases. The most skilful specialists found it impossible to avoid mistakes in obscure cases. The general practitioner should make them less frequently in common and easily recognized conditions. Elements of diagnosis were often overlooked; histories were disregarded; examinations were careless, and conclusions reached too hastily. He referred to the routine methods of treatment without any diagnosis, and made a plea for more orderly, deliberate and systematic investigation.

Phlebitis Following Abdominal Operations.—Dr. ORANGE G. PFAFF of Indianapolis presented the following conclusions in a paper on this subject: "1. Many of these cases are simply extensive aseptic blood clots, without any true inflammation. 2. There must be present an abnormal plasticity of the blood in order that thrombosis may be the result of surgical traumatism. 3. The clot generally receives a mild form of infection introduced into the wound at the time of the operation, and in turn an invasion of the vein wall results. 4. As stagnation is such an important element in the etiology, getting patients up earlier will undoubtedly reduce the liability to thrombosis. 5. As an abnormally high degree of plasticity of the blood is essential in developing the disorder, the blood ought to be tested by some recognized standard in every case, and if found in a dangerous state, operation should be postponed until medication shall have brought it back to a normal condition.

Dr. HERMAN E. HAYD of Buffalo said there was undoubtedly great susceptibility on the part of some women and men to phlebitis, or it would not be so common after the most trivial operation or undertaking. A woman patient was at present in bed with a post-operative phlebitis, he having operated on her four weeks ago for a simple recurrent attack of appendicitis. The wound healed kindly, without any evidence of irritation or pus. The patient was married and sterile. She was anxious to have children. He found the tubes and ovaries healthy. There was no history of gonorrhea either on the part of the husband or the wife. He dilated the cervix, put in an intrauterine stem, and the vaginal work was done with just as much care as the work above. The stem was thoroughly boiled before its insertion. There was no question as to the possibility of an infection, so far as it was evident to him. He did a curettage before operating on the appendix, so that his hands were perfectly sterile for both operations, because he had no evidence of trouble from the latter. He used gloves for the vaginal work, and the same pair of gloves for the abdominal. The woman left the hospital in two weeks, and was able to walk upstairs to her apartment. The next day she complained of pain in the calf of the leg. He was suspicious of phlebitis. A couple of days afterwards the left leg was two and a half inches larger than the right. He had no doubt that the phlebitis came from the vaginal work, and not from the appendical. It is possible, however, it might have come from the latter. He cited this case to show that after such trivial undertakings under the most careful precautions phlebitis was likely to follow, and probably this woman would be in bed five or six or eight weeks.

Dr. Joseph Price said that wherever much acrobatic surgery was done, phlebitis would follow operation. He had noticed with anxiety that in certain institutions where great prominence had been given to binders, crutches, and retractors, phlebitis followed the operations. In one institution they had had forty-eight cases of phlebitis following operations, twenty-five of ileus, and eighteen of ether pneumonia. One would expect such a record from the rough handling of the tissues by instruments. Personally, he had not had a case of phlebitis following operation for five or ten years. Really, he did not know what it was, and it pained him to hear men talking about the early getting up of patients, which was now so commonly advised. The too early getting up of patients after operations was a variety of criminal assault on them. Phlebitis was comparatively common in some hospitals, while very rare in others.

Dr. Robert T. Morris of New York had had two cases of phlebitis on the left side after operation on the appendix. He found it difficult to explain the occurrence of left-sided phlebitis in these two cases.

Dr. Hayd said in his case the phlebitis was left-sided.

Dr. James F. Baldwin asked if the members had not seen phlebitis in cases of appendicitis in which no operation had been made?

Dr. Morris replied that he had seen it in cases in which there was no infection. There was none in either of the two cases he had mentioned.

Dr. John W. Keefe of Providence, R. I., cited a case of hernia in a woman in whom he did a Bassini operation. The operation was absolutely clean; it was done in fifteen minutes, but a left-sided phlebitis occurred, and within two weeks a right-sided phlebitis followed. At no time was there any suppuration or redness about the hernial wound.

Dr. Edward J. Ill said that for a number of years he had no cases of phlebitis, and then came eight in succession. These cases were operated on, both in hospitals and in private practice. Not one of his assistants had had a phlebitis following operation, but he had them all. He believed it was a septic condition, for he had seen it follow as much as five weeks after a simple appendectomy. What the nature of it was he hoped to learn some time; at present we did not know. He hoped that the peculiar condition of the blood which had been referred to by the reader of the paper would help us out. However, he thought surgeons should look to themselves. Any one who had seen Dr. Price operate could readily understand why he had not had any case of phlebitis in ten years, as his assault upon a patient was the gentlest or mildest possible. All surgeons could not treat patients in that way.

Dr. Hugo O. Pantzer commended the paper for its clear and convincing arguments. He felt that an exception should be taken to the early rising of patients after infectious disease. Most cases of phlebitis were aggravated as soon as the patients got up. In some instances phlebitis did not develop until the patient began to sit up.

Dr. Pfaff, in closing, was surprised that Dr. Price had not had a case of phlebitis in ten years. He thought certain factors in the etiology were going to be cleared up; that Wright was too good a man to be considered lightly in any statement he might make. Traumatism was inevitable in all surgical operations. Sepsis was also inevitable, but it was not always the septic cases that gave us phlebitis. It was the simple, easy cases, where clean, aseptic operations had been done.

Formation of an Artificial Vagina by Intestinal Transplantation.—Dr. James F. Baldwin of Columbus read a paper in which he described a new method for making an artificial vagina, and reported a case. He first described the method on theoretical grounds three years ago in the *Annals of Surgery*, but no case had then presented itself for operation. The operation consisted in making the usual opening between the rectum and bladder, and then lining this with a loop of intestine taken from the sigmoid flexure of the colon, or from the lower end of the ileum as seemed preferable. Continuity of the bowel was restored by an anastomosis, and the cervix, if the uterus was to be saved, attached to the bowel so that menstruation would take place through the artificial channel. In the case which he reported the operation was in every way successful, a capacious vagina lined with mucous membrane having resulted, with no tendency to cicatricial contraction.

Painful Menstruation in Young Unmarried Women.—Dr. W. A. B. Sellman of Baltimore discussed some of the causes of this condition. He considered the anatomical conditions existing, and said the cause of painful menstruation must be thoroughly understood before any attempt was made to relieve the condition. Painful menstruation was too lightly considered by the family physician, and it was not dealt with as a pathological condition. Any cause that would bring about a thickening of the lining of the uterus would eventually produce dysmenorrhea. Contracting cold during the menstrual flow, thereby interfering with involution of the uterus and the consummation of those changes which normally occurred in the tissues at this period, was a cause of painful menstruation. Shock and mental influences were strong factors in bringing about this condition. An imperfectly developed condition of some portion of the sexual organs, any abnormality in development, any vicarious function which might prevail in any of them, would be a cause for painful menstruation. After enumerating other causes and the part played by other conditions in producing dysmenorrhea, the author pointed out that these suffering young women should receive the benefit of those operations which had been so successful in giving permanent relief to this class of cases. A girl suffering from dysmenorrhea was an invalid. She was unable to meet her friends and engage in those entertainments and diversions in which she was expected to take part. The cervices of these suffering young women should be dilated or slit, curettage performed, or something else done to bring an end to their pain.

Dr. Bertha van Hoosen of Chicago said that one of the most potent causes of painful menstruation was a chronic appendicitis, or at least a diseased appendix, which made itself known only at the time of the menstrual period. During the past two years she had recognized more and more the importance of making a thorough examination of the appendix, and since she had done this she had had almost no case of dysmenorrhea that she had not been able to relieve.

Dr. Joseph Price said that the prominence given to dysmenorrhea and menstrual disturbances generally was too great. He believed that early marriage was the best treatment for all varieties of dysmenorrhea, except in those cases in which pathological conditions existed. Recently he had removed two small dermoids from women who had married and conceived. Twice the dermoids complicated their menstrual history. These dermoids should have been removed before the women were married, because these growths were prone to set up inflammatory action and cause adhesions.

Dr. J. Henry Carstens of Detroit said that many of these young women, after they married and bore children, had no further disturbances of menstruation. When the trouble was in the uterus, he had repeatedly called attention to the value of the stem pessary to remove the hypertrophied condition of the mucous membrane. In several cases in which the dysmenorrhea was due to an undeveloped uterus, when the uterus could be stimulated to development good results could be obtained in those that had resisted other forms of treatment. In another class of cases there was pelvic inflammation, the result of some tubal infection. This might be due to tuberculosis or to some inflammatory condition of the appendix. In some cases of this class the surgeon was justified in making an abdominal section for either diagnostic or curative pur-

poses, and in nearly all of them one would find sufficient trouble to account for their distress, and would have very little or no difficulty in relieving the condition.

Dr. Hugo O. Pantzer emphasized the importance of the hygienic treatment in these cases. When young girls with dysmenorrhea were sent to mountainous regions for a short sojourn, thus changing their manner of living, it did them lots of good in that they rid themselves of this affection for months; but in some cases, when they returned to a life which was faulty so far as hygiene was concerned, the dysmenorrhea returned.

Dr. Sellman, in closing, said he had failed to recognize the connection between appendicitis and painful menstruation. He did not think it was a cause of dysmenorrhea.

The Menstrual Function: Its Influence Upon Chronic Inflammatory Conditions of the Appendix.—Dr. Francis Reder of St. Louis, Mo., said that after a painstaking consideration of the cases coming under his observation, only in the severest froms of adnexal disease could the inflammatory condition be said to communicate itself to the appendix and cause a primary acute disease. It was in the chronic form of appendicitis, be it a catarrhal or interstitial disease of the appendix, that pelvic hyperemia could arouse the dormancy of a smouldering appendix and provoke the clinical manifestations of an acute attack. In differentiating between abdominal and pelvic pain, the value of a vaginal examination must not be underestimated. In the cases seen by the author in which a diagnosis of appendicitis was made, there were important disclosures from such an examination. He did not believe that a menstrual hyperemia could provoke an acute attack in a healthy appendix. He did believe, however, that a menstrual hyperemia could incite an acute attack in an appendix that was diseased subacutely or chronically. The author reported several cases to support his contentions.

Lipthopedion, or Lithokelyphopedion.—Dr. Herman E. Hayd of Buffalo, N. Y., reported a case of lithopedion of thirty-two years' standing, which was successfully removed from a woman 68 years old. He also exhibited the specimen. He spoke of the rarity of the condition. He referred to the age of the specimen and its excellent preservation; the arms, legs, fingers, nails, hair, ears, and external genitals were all clearly shown. As to the clinical history, the specimen caused no symptoms for nearly thirty-two years. Reference was made to the possible changes that may take place in extrauterine pregnancy, such as suppuration, maceration, mummification, and calcification.

Dr. O. H. Elbrecht of St. Louis reported a case of tubal abortion, with complete detachment of the fetus from the placenta at six months, resulting in omental attachment and beginning lithopedion.

Ophthalmia Neonatorum: A Pathological Anachronism.—Dr. F. Park Lewis of Buffalo, by invitation, delivered an address on this subject, in which he advanced or suggested the following conclusions: 1. To secure the enactment of laws in each State or Federal Territory placing the supervisory control and licensure of midwives in the Boards of Health; requiring that they be examined and registered in each county, and that they be required to report immediately each case of ophthalmia occurring in their practice, under penalty, if found guilty, of forfeiture of their license and a fine. 2. Distribution by health boards of circulars of advice to midwives and mothers, giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum. 3. The preparation and distribution by health boards of tubes containing the chosen prophylactic. For midwives 1 per cent. solution of nitrate of silver is almost universally recommended by obstetricians and ophthalmologists; for physicians the Credé solution, which should consist of 2 per cent. solution of chemically pure fused nitrate of silver. If used as directed by Credé (one drop from a glass rod) it is free from excessive irritation and absolutely safe. To insure purity of the drug and accuracy of dosage, the Credé solution should be given freely to physicians who make application therefor. This should be merely advisory. The Health Department should be free to use such prophylactic as it may deem best. 4. The accomplishment of these measures by the appointment of committees through the various State and county societies, whose cooperation would make concerted action possible. 5. To assure these ends, the cooperation of the American Association of Obstetricians and Gynecologists, the Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, the American Public Health Association, and such other organizations as may appoint committees on ophthalmia neonatorum is urged. 6. If this plan of campaign be agreed upon, with such modifications as obstetricians, ophthalmologists and sanitarians may suggest, then a united and coordinated effort should be made to carry it into effect. Such an organized and concerted movement, steadily and effectively at work, would practically abolish ophthalmia neonatorum as a cause of blindness, thereby saving millions to the commonwealth and immeasurably increasing the happiness and efficiency of humanity throughout the world.

Back to an Old Idea.—This was the title of the President's address, which was delivered by Dr. Robert T. Morris of New York. He said the surgical patient was a factory. He had for his business the manufacture of phagocytes and opsonins for destroying bacteria. The new idea was to avoid disturbing this factory in such a way that it could not manufacture phagocytes and opsonins. The dominant idea in surgery to-day began with the studies of Pasteur and Semmelweis, formulated by Lister and continued by scientists of all countries, for the purpose of removing by the artifices of the surgeon the bacteria which caused disease. That idea had grown and had become dominant in surgery to-day. Exactly opposed to this was the new idea of letting the patient manage his bacteria, while the surgeons should let them alone. There were many ways for preventing this factory from manufacturing its full complement of phagocytes and opsonins, such as long-continued operations, extensive operations, free handling of viscera and tissues, long-continued anesthesia. Dr. Morris referred to the importance of rapid operating. Among the very earliest of ancient writers there was no reference to rapid operating. The relationship between the duration of an operation and the degree of shock was essentially a modern discovery. The old Romans made no reference to rapidity in operating. Celsus, after stating the requirements of a surgeon, said that he must be hard-hearted enough not to have compassion which would lead him to hurry. There was a distinction to be made between hurry in operating and rapidity in operating. Celsus had reference to the point of hurry to condemn it. Paré defined surgery as a quick motion of an intrepid hand, joined with experience. Heister, in the seventeenth century, quoted Celsus with approval and again made the statement that the surgeon should not hurry, but must be expeditious. Dr. Morris was fully agreed with those who argued against hurry in operating, but he believed surgeons should cultivate, as far as possible, rapidity of action, to the point that the average abdominal operation should require not more than fifteen minutes for its completion from beginning to end. Surgeons must drop many details in technique. The idea of details in technique was based upon the old dominant principle that the surgeon must remove bacteria. To-day it was held that the surgeon must cultivate speed in operating for the purpose of allowing his patient to manufacture his bacteria and opsonins, since the patient would manage his bacteria better than the surgeon could. Surgeons had been trying to do this conscientiously and scientifically, describing science as classified knowledge; but classified knowledge on this point had passed the vital point of con-

serving the resistance of the patient. This was the new idea. While it was not the dominant idea in surgery this year, he believed it would be the dominant idea in surgery in less than three years.

Premature Interruption of Pregnancy.—Dr. JOHN A. LYONS of Chicago said that, inasmuch as criminal abortion was constantly increasing, should not physicians assume the unpleasant duty of seeing that abortionists were prosecuted more vigorously, even if changes in the statutes were necessary? A campaign of education was essential for the benefit of the older as well as the younger married women, hoping to partially overcome the nerve-wasting, cruel tales of childbed. In the active treatment of incomplete abortion there was strong and intelligent opposition to the use of the sharp curette. Personally, he did not support either its pernicious or its promiscuous use in obstetrics, but followed more closely the practice of Von Winckel, who interfered when the temperature began to indicate a tendency to sepsis.

Surgical Treatment of Typhoid Perforations.—Dr. JOSEPH PRICE of Philadelphia said that the good practitioner and good nurse should not overlook a perforation of the bowel in a case of typhoid fever running a perfectly uniform course. Nearly all the perforations were within about the first twelve inches of the ileum. The characteristic symptoms of perforation were now well known. Typhoid and other perforations were always followed by peritonitis, local or general. The possibility of its remaining local or circumscribed by adhesions should not be considered if the diagnosis of perforation had been made. Perforation and hemorrhage were the two accidents in such cases that were commonly anticipated. In more than 75 per cent. of the cases recorded general septic peritonitis had been found, with escaping bowel contents, gas and feces, foul pus, and free exudate in considerable quantity. Generally the perforations were easily and quickly found near the ileocecal valve; rarely multiple or ragged, and, whether of large or small caliber, fine pure silk was the safest material. The surgeon could safely reduce the lumen of the bowel to one-half. If the margins of the ulcer were ragged, they should be trimmed. A resection was an unjustifiable and dangerous procedure. It was better to anchor the ragged ulcer and disorganize the bowel with catgut sutures on the opening between drains, forming an artificial anus or fecal fistula, which was a much safer procedure and was commonly followed by spontaneous closure. The repeated excuse for not operating on a typhoid perforation was low vitality of the patient, weakened condition, extreme emaciation. Successful operations had been done in the midst of low, alarming typhoid and abdominal conditions, general incontinence, muttering delirium, and subsultus. The triumphs following the repair of mutilations were now so numerous and gratifying the schooled surgeons should fear nothing.

In the discussion Drs. HERMAN E. HAYD, C. C. FREDERICK, JOHN A. LYONS, CHARLES L. BONIFIELD, WILLIAM H. HUMISTON, E. GUSTAV ZINKE, R. E. SKEEL, ALBERT VANDER VEER, JAMES F. W. ROSS, RALEIGH R. HUGGINS, JAMES E. SADLIER, RUFUS B. HALL, and HUGO O. PANTZER reported cases on which they had operated for typhoid perforation, some with successful, others with fatal results.

(To be continued.)

Inequality of the Pupils in Acute and Chronic Pleuro-Pulmonary Diseases.—R. Massalongo records observations as to the diagnostic value of inequality of the pupils in pulmonary diseases. His observations refer to pulmonary tuberculosis, acute pneumonia, bronchitis, and pleurisy. He finds that the symptom varies so much that no reliance can be placed on the indications based on its presence. Mydriasis may be present on only one side, or on both, or it may be absent. It has no clinical value, but is simply an accessory and secondary symptom. It has no diagnostic or prognostic value and its only interest lies in its physiopathology.—*Il Policlinico.*

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held May 21, 1907.

DR. GLENTWORTH R. BUTLER IN THE CHAIR.

Presentation of Patients Illustrating Early Recovery after Laparotomy.—Dr. RUSSELL S. FOWLER of Brooklyn presented the following patients: 1. A case of a female operated upon for appendicitis, who was allowed to move about freely in bed on the first and second day and to get up and walk about on the third day. 2. A patient operated upon for ovarian cyst, who walked about three days after the operation. 3. A patient who had had a left-sided intraligamentous cystoma, a right-sided pyosalpinx, and a fibroid, who walked about on the first day after the operation. 4. A case of acute appendicitis in which a five-inch median incision had been made, and which sat up on the first day and walked about on the third day after the operation. 5. A case of recurrent appendicitis that walked about on the first day. 6. A case of recurrent appendicitis that sat up in bed on the second day and walked about on the third day. 7. A case of acute appendicitis operated on with a three-inch incision, which walked about on the first day 8. A case of acute appendicitis, operated on with a three-inch incision, in which case the appendix ruptured on removal; the patient sat up in bed on the first and second day and walked about on the third day. 9. A case of appendicitis that walked about on the fourth day. 10. A case of large ventral hernia that got out of bed on the tenth day. 11. A case of acute appendicitis, in which the appendix was large and congested; the patient was up in bed on the first day and walked about on the second day.

Some Points in the Prevention and Treatment of Cystitis.—Dr. PAUL M. PILCHER of Brooklyn read this paper. He said that cystitis was always due to bacterial infection. Cases resembling closely true cystitis were those of congestion, edema, and hyperemia of portions of the bladder; they were not due to bacteria, but they frequently ended in cystitis. These congestions were caused by irritating lungs, exposure to cold, extensive burns of the body, traumatisms, highly acid urine, oxaluria, and retention of urine. Unless bacteria got into the bladder cystitis never resulted. The congestions and traumatisms were present frequently without any symptoms. In cases of extensive hysterectomies numerous ecchymoses often existed in the bladder, and in excessive cystocele pain, retention, and frequency of urination were due to hyperemia and edema of the trigonum and not to cystitis, for which they were often ineffectually treated. Cystitis did not develop until bacteria gained entrance, changing the urea to ammonium carbonate, which in turn irritated the bladder mucous membrane, preparing it for the fresh invasion of bacteria. The latter alone were not capable of causing cystitis. This was not likely to develop if the mucous membrane or other tissues of the bladder were uninjured. Bacilli could readily invade the bladder from the rectum. Seventy per cent. of the cases of cystitis were due to the colon bacillus. Instrumentation and retention of urine were the two most frequent predisposing causes of cystitis. Tubercular inflammation occupied a separate chapter. Cystitis developed after many cases of abdominal section in pelvic operations. Retention of urine, prolonged catheterization, with lack of aseptic precautions were the natural sequence in these cases. Clinically cystitis was classified according to location and distribution of the lesion, as localized cystitis involving generally the trigonum and base of the bladder, diffuse cystitis, and patchy cystitis. The etiological classification was: traumatic cystitis, cystitis due to extension of infection, obstructive cystitis, neoplastic cystitis due to the pressure of new growths and infection, and tubercular cystitis. In the localized and patchy cystitis there was frequently more healthy bladder mucosa than there was inflamed mucosa,

and Kelly pointed out that the use of strong solutions in these cases injured the healthy membrane. Cystitis developed most frequently at the trigonum and base of the bladder for the following reasons: They were the most dependent portion of the viscus, the mucous membrane was continuous with that of the urethra and the ureters, and it was most frequently injured by catheterism. Besides, the trigonum had a rich capillary supply. In cystitis due to obstruction the muscular bands of the bladder hypertrophied to form trabeculæ, with pockets of varying depths. Infection in this type of the disease was most intractable. Advancing inflammation caused destruction of tissue with formation and breaking down of abscesses and resulting unhealthy ulcers. In chronic cases the reason for the frequent failure of treatment was a lack of recognition of the underlying cause. The steps necessary to establish a diagnosis were: History of the illness, examination of the patient, examination of the urine, and examination of the mucous membrane of the bladder with the aid of the cystoscope. In the prevention of cystitis the cause had to be removed, strictures had to be dilated, hypertrophied prostate removed, acute distention of the bladder guarded against, and calculi and tumors of the bladder appropriately treated. Great care was necessary in giving urethral injections in the early stages of gonorrhea, which was a prolific source of infection. In catheterism the most careful asepsis was to be used in the preparation of the patient, instruments and operator's hands; care was to be taken not to injure the urethra, and the urine was to be allowed to escape slowly to prevent a violent grip of the catheter by the bladder wall. Following catheterism the speaker advised instillation of a few drops of a 1 to 1,000 solution of silver nitrate on the trigonum, and the administration of one of the milder urinary antiseptics. For the prevention of post-operative cystitis, particularly in gynecologic cases, the speaker's procedure was to avoid traumatism to the bladder during the operation, and if catheterization was afterward necessary, to perform this by means of a number 16 French catheter and to introduce afterward into the bladder 4 or 5 oz. of boric acid. A second injection of 8 oz. of the latter was advisable. A large syringe was preferable for the injection. Many cases could be rescued from catheterism by being induced to urinate voluntarily. The upright posture facilitated this, likewise a warm enema, hot moist cloths over the pubis, or the pouring of water from a container into another receptacle. In the treatment of cystitis the main point was the removal of the cause. In the acute cases bladder irrigation was contraindicated, except in the declining stage, if a gonorrheal cystitis. The treatment included rest in bed with the hips elevated, the administration of suppositories of opium, and belladonna to control the pain, heat to the perineum and above the pubis, and hot sitz baths, the free administration of diluent drinks, and, if the urine was highly acid, of mixtures containing potassium citrate and hyoscyanus; also the administration of hot rectal enemata. In his enthusiasm over urotropin, which was frequently useful, the practitioner often forgot the older drugs: infusions of buchu, linseed, and triticum repeus were often of value in acute cystitis, while in the subacute stage the oils of sandalwood, cubebs, and copaiba were useful for a few days at a time. The treatment of the chronic cases was divided into the nonoperative and the operative. For some cases rest in bed, drugs, and dieting regulations sufficed, but in most cases catheterism, irrigation of the bladder, and the use of some of the silver salts or of iodoform emulsion were necessary. In the gonorrheal cases oil of sandalwood or copaiba with salol was beneficial. For bladder irrigation warm sterile water was sufficient. For instillations solutions of silver nitrate (1-2 to 1 per cent.), argyrol (20 to 50 per cent.), and iodoform emulsion were useful. These were used after irrigation of the bladder, and then only a small quantity injected (as 2 oz. of a 1 2 per cent. solution of silver nitrate), which was to be retained by the patient for twenty minutes, and then passed voluntarily. Direct application was better, but this was only possible in the female in the knee-chest position, with the vesical mucosa in full view through a vesical speculum; stronger solutions were used, and where ulcers were present, these were cauterized by the silver stick or by carbolic acid or the actual cautery. Many cases resisted the ordinary methods of treatment. In prolapse of the uterus and cystocele the surgical correction of these deformities was necessary. In cases of contracted bladder with thickened walls and an old chronic cystitis, a vesicovaginal fistula frequently effected recovery. In the male suprapubic cystotomy or perineal section, with cleansing of the mucous membrane, the treatment of ulcerated surfaces or curettage of the entire bladder, with daily irrigation and, if necessary, topical treatment, was the procedure. In cases resisting all treatment, the existence of tubercular cystitis was to be suspected, and for this the safest method was the injection of 10 c.c. of urine into a guinea pig.

Direct Transfusion of Blood.—Dr. George W. Crile of Cleveland, O., read this paper. He said that in the early period surgery was heroic. The next stage in its evolution was the rise of the anatomic school. This was followed by the domination of pathology. Now the pathologic surgeon was beginning to add physiology. The question of transfusion was a broad one. It was practised for at least four centuries. It was more frequently performed before the development of chemistry, pathology, or bacteriology, and long before medical schools were established. Transfusion was performed almost exclusively with alien blood. This had given way to the transfusion of blood from one human being to another. This process had no adverse effect. The investigations of Dr. Follen of Yale revealed no metabolic changes resulting from this procedure. If after hemorrhage an individual received by transfusion an amount of blood equal to that lost, he was placed in the same condition that he was in before the hemorrhage. Death from shock was due to the failure of the supply of blood to the vasomotor centers, resulting in their functional breakdown. This created a vicious circle, the failure of the vasomotor center creating a still lower blood pressure, which in turn acted on the vasomotor center. *A priori* it was to be assumed that by transfusion the cause and effect of shock would both be combated. In fact, it was found that the influence of transfusion was the same on shock as on hemorrhage. The speaker's experiments had first been performed on dogs. He tried the effect of transfusion of blood in various toxic conditions. In strychnine poisoning transfusion following bleeding had no effect. These were similarly ineffectual in diphtheria toxemia. They had no effect in uremia following double nephrectomy. In gas poisoning, however, the transfusion of blood following bleeding produced recovery. Clinically the vascular systems of two individuals could be safely united. The speaker described his technique. In pernicious anemia the transfusion of blood had no effect on the course of the disease. In six cases of carcinoma transfusion was tried, but reports on these cases were not yet ready. It was thought that in cases of chronic suppuration it might have been possible to produce good results by means of a fresh supply of leucocytes through transfusion, but the effects were negative. Transfusion was tried in some cases of tuberculosis, but the experiments were too recent to report upon. It was hoped to be able to transfer immune and protective bodies from one individual to another. Six cases of chronic hemorrhage in gastric ulcers were relieved by transfusion. In severe jaundice due to carcinoma of the liver the hemorrhage was entirely controlled by means of transfusion and the patient's life was prolonged several months The therapeutic value of

transfusion was positive in acute hemorrhage and in shock, in which it was more valuable than any other method of treatment. Its value was negative in strychnine poisoning and diphtheria toxemia, and was still undetermined in chronic suppuration and malignant disease.

Stated Meeting, Held June 18, 1907.

Dr. Glentworth R. Butler in the Chair.

Presentation of a Case of Ichthyosis Simplex.—Dr. George F. Little of Brooklyn presented this case and detailed its history.

History of a Case of Infantile Scorbutus.—Dr. Eugene La F. Swan of Brooklyn read this paper.

Infantile Scorbutus.—Dr. John Lovett Morse of Boston read this paper. He said that almost every physician who had not the opportunity of observing many cases of infantile scurvy had in mind, as a picture of this disease, an infant, pale and ill-nourished, with spongy bleeding gums and showing the other classic symptoms of this disease. The milder cases were generally overlooked and were mistaken for difficult dentition. Of thirty cases seen by the speaker, besides the latter diagnosis, diagnoses of rickets, Pott's disease, hip disease, periostitis, gout, syphilis of the cord, acute nephritis, uric acid diathesis, and arsenical poisoning had been made. In most cases the physician was not acquainted with the disease infantile scurvy. The more definite symptoms were preceded by loss of appetite, malaise, pallor, failure to gain in weight. In only one-fourth of the cases were there bleeding from the gums and hematuria. In one-half of the cases was there tenderness in handling the little patient. The suddenness of onset and the severity of the cases varied. In one case, after a fall, loss of power in one leg suddenly developed. There were three groups of cases. In one group the cases were characterized by tenderness on handling, usually in the legs, and gradually increasing until the child ceased to use its legs. The thigh was flexed on the abdomen and the leg on the thigh. This class of cases was mistaken for rheumatism and paralysis. In some cases swelling of the gums appeared before the appearance of the teeth, and in other cases after their eruption. In some cases hematuria persisted for weeks or months, and the diagnosis of acute nephritis, tumor of the bladder, uric acid diathesis, etc., was made. If not treated these cases went on to bad and worse. There appeared swellings in the extremities, due to subperiosteal hemorrhages in the diatheses. These occurred most frequently in the lower portion of the femur, next in frequency in the upper part of the tibia, and then in the lower part of the humerus. The bone was not affected. These extremely severe cases were mistaken for osteomyelitis and acute superficial edema. Sometimes the hemorrhages occurred over the bones of the skull. There was no such expression of abject terror in any other condition in infants. Hemorrhages also occurred in the skin, roof of the mouth, eyelids, and intestinal wall, giving symptoms of tumor. Hemorrhage also occurred into the bone marrow. In spite of the hemorrhagic diathesis, external bleeding was unusual. Hematuria occurred in one-third of the cases. It was usually stated that scurvy was not accompanied by fever. There were many exceptions to this rule. There were cases having a temperature of 103° to 105° without complications. This caused confusion in diagnosis. Early diagnosis was possible in cases presenting anorexia, malaise, disturbed digestion, followed by loss of color, tenderness in legs and arms. Purplish cutaneous spots and hematuria sometimes preceded these. The legs were three times as frequently affected as the arms. The order of the appearance of symptoms varied. The onset was either sudden or insidious, with mild symptoms stretching over weeks or months before the condition was recognized. Most of the cases occurred during the second six months of life. The patient's surroundings had no direct influence on the disease. There was no relation between this disease and rickets. It sometimes occurred in breast-fed infants, but was most frequently found in infants fed on artificial foods. Next in frequency it was found in infants fed on overheated milk. It occurred in children fed on a milk mixture that was too weak. Absence of freshness in the milk was another cause. As to the cause of the disease it was variously assigned by different authors. Stokes attributed it to the destruction of the ferments in the milk, and Cohns to disturbance in absorption of calcium. Certain authors saw no connection between this disease and the sterility of the food, and saw in it a manifestation of autointoxication occurring in chronic dyspepsia. This argument was not convincing. The disease affected tissues that were young and in process of active growth. The local changes and the hemorrhagic diathesis were most marked. The bones were vulnerable points of attack. Hemorrhages occurred beneath the periosteum of the diaphysis, and into the marrow, the changes in the latter causing atrophy of the bone and ease of fracture. In the differential diagnosis the most important point was that the case improved rapidly on the treatment for scurvy. Rheumatism practically never occurred at this age. If it did occur, then the swellings were over the joints and not over the diaphises, and rheumatism was also accompanied by fever, while scurvy was not, nor was rheumatism accompanied by bleeding gums or hematuria. In periostitis and osteomyelitis there were tenderness and swelling in one extremity, and usually over one bone. There were all the signs of acute inflammation, always accompanied by high fever (which, however, did not rule out scurvy); leucocytosis was always present, but there were no bleeding gums. In hip disease there was limitation of motion in the hip, which was also swollen. Acute infectious arthritis of the hip gave the same symptoms as those of osteomyelitis and periostitis. In almost every case of scurvy a history of acute traumatism was usually elicited, so that some difficulty existed in ruling out traumatism as the cause of the symptoms. In paralysis there was a real loss of power in the extremity, which loss was not due to pain. In paralysis swelling did not occur. In infantile paralysis the onset was sudden; in scurvy it was slow. It was hard to understand how scurvy could be confounded with difficult dentition when the swelling developed about teeth that had already erupted. The spongy and bleeding gums were practically never seen in difficult dentition. Sometimes in scurvy hematuria was the earliest and only symptom. In infants hematuria was rare, except as a manifestation of scurvy. The therapeutic test of scurvy was the administration of fresh orange juice. The latter was taken more readily by the babies than lemon juice. It was best to give a definite amount, about two tablespoonfuls, daily; a larger amount gave no better results. It was given one hour before each feeding. Fresh beef juice was less rapid in its effect than fresh fruit juice. It was frequently necessary to change the food. Some modification of cow's milk was necessary, but it was never to be sterilized. Many patients recovered with a mere change of the food, but recovery was slow. Improvement sometimes took place on a less suitable food. Drugs were not necessary. It was sometimes necessary to immobilize the limb. The pain and tenderness were the first to yield; the gums, later. The disappearance of swelling about the bones was slow. Improvement was noticed within a week; some cases were entirely well in five days. Recovery was almost complete in three weeks.

Typhoid Fever in Infancy and Childhood.—Dr. Louis C. Ager of Brooklyn read this paper. He referred to the fact that for a long time the prevalence of typhoid in early life was overlooked. This was due to the marked differ-

ence from the adult type. Every case of continued or remittent fever in children was to be regarded with suspicion, and the Widal test repeatedly tried, if necessary, before typhoid was excluded. The general practice of the Widal test would probably show that infants under two years were subject to typhoid more often than was at present suspected. As late as 1900 Dr. Northrup had insisted that infants under two years were not susceptible to typhoid, he and others basing this conclusion upon a review of several thousand autopsy records which failed to show a single case of typhoid in a child under two years. Since the compilation of these statistics two important advances had been made. First, the Widal test, and second, the recognition that in young infants autopsy findings after typhoid were too diverse to be of diagnostic value. In a recent analysis of 145 cases of typhoid fever in children, over seven per cent. were under two years. After this age typhoid fever became much more common. Typhoid fever was less frequent in childhood than in early adult life, but the difference had been greatly exaggerated in the past. As children were as frequently exposed to typhoid infection as adults, they were in some way able to resist that infection, either by means of a specific immunity, or by means of conditions in the digestive tract unfavorable to the development of the bacillus. These conditions were possibly either the ease with which the intestine emptied itself, or else the fact that the prevailing bacteria of the infantile small intestine were of the lactic acid group, the colon bacillus rarely occurring above the colon until a mixed diet took the place of milk. As regarded the mode of infection, milk was most frequently at fault. The pathological lesions in children were much less marked than in adults, which probably accounted for the shorter period of pyrexia. Extensive ulceration of the aguimated glands was very unusual, and cases were on record in which no intestinal lesions were found. For accurate diagnosis the Widal test was essential; it was to be applied at frequent intervals throughout the disease or until a diagnosis was established. The diazo reaction was obtained earlier, but it was also obtained in a variety of intestinal toxemias in children. There was no one clinical symptom that was always present, and there was no symptom of typhoid that might not be found in other diseases. Typhoid was usually prevalent when children were affected. The younger the child the more irregular were the symptoms. Lobar pneumonia with delayed physical signs closely simulated typhoid. Age was an important factor in the symptomatology. Under three years the disease often had the appearance of a subacute gastroenteritis with mild cerebral symptoms, the temperature being very irregular, often remittent, the stools green and watery, tympanites slight or absent, and delirium unusual. Emaciation was rapid and prostration was extreme. The more frequent type of typhoid of children was like the mild typhoid of adult life. In most cases the spleen was moderately enlarged by the second week, but owing to its mobility and softness very careful palpation was needed to recognize it. Diarrhea was not as frequent as in the adult and was rarely severe. Moderate constipation was often present. The eruption varied greatly. The temperature at the onset was apt to be higher than in the adult, and during the first week remained high. The diurnal variations in the temperature curve were a frequent cause of a mistaken diagnosis of malaria. The temperature pulse ratio, if properly interpreted, was of great diagnostic and prognostic importance, sounding the alarm of the various complications, particularly perforation, hemorrhage, or pneumonia, before other signs appeared. The most important characteristic of the course of the fever in children was its usual short duration. The ordinary typhoid delirium was unusual. If the fever was prolonged beyond two weeks the myocardium soon gave evidence of degenerative changes. Bronchitis was so common in typhoid as to constitute a symptom rather than a complication. Pneumonia not infrequently accompanied or followed typhoid. The nervous system was frequently the seat of complications in typhoid. These were meningeal irritation, mild neuritis, and chorea; otitis, suppuration of joints, and tubercular infection also occurred. Intestinal hemorrhage occurred in three per cent. of the cases, and the mortality was nearly fifty per cent. Intestinal perforation was rarer. Myocardial degeneration was one of the most dangerous results of typhoid fever. It was more easily overlooked and more lasting than the other complications. In the speaker's experience the death rate was under four per cent. In the treatment the question of diet was the most important problem. The patient was to be fed exactly as in any other form of acute ulcerative ileocolitis. One of the most tenacious and pernicious of medical superstitions was the idea that typhoid spelled milk diet. It was logical to stop the milk in typhoid just as in any of the hot weather disturbances of the digestive tract in children. Instead, for the first few days was to be given nothing but plenty of cold drinks, plain or carbonated, and cold tea, which was slightly stimulating. Later dextrinized gruels, hot or cold broths, beef juice, raw egg whey, and ice cream made with whey or malted milk, and the various proprietary foods furnished ample nourishment. In mild cases, with the drop in the temperature at the end of a week or ten days, it was wise to begin with peptonized milk, and then add milk toast, soft eggs, and bread and butter as they were demanded. Inanition fever was cured by feeding, not by starvation. For headache, restlessness, and fever, hydrotherapy was usually successful. Cold immersion baths were not well borne, but frequent lukewarm sponging was distinctly soothing and brought the blood to the surface where it was cooled by radiation. The ice cap relieved headache, produced sleep, and had a definite effect upon the temperature. Coal tar products were to be avoided. For the enterocolitis the most useful drug was castor oil, which was soothing and astringent, and carried off putrefactive products. The use of the antifermentatives was based upon reason and was justified by clinical experience. The speaker had a growing prejudice against alcohol as a stimulant, justified by recent English studies as to its effect on the liver of the child. If it was indicated, pure alcohol diluted was better than the unknown proprietaries like brandy and whiskey. Aromatic spirits of ammonia in doses of 20 to 10 minims was better. In the choice between strychnine and digitalis it was necessary to remember that the former influenced the heart through the spinal ganglia, while the latter acted directly upon the myocardium and the blood-vessels. The latter action was an advantage in the face of the tendency toward vasodilatation in typhoid. In sudden alarming collapse the tincture of capsicum in oil or water administered per rectum acted more powerfully and quickly than any other drug tried. For a rapid and irritable heart due to the fact that the patient was tired from lack of sleep, codeine in small doses was the best remedy. In case of hemorrhage collapse was not to be allowed to go beyond control, and blood pressure had to be kept at the lowest possible limit of safety. In children codeine phosphate controlled the situation about as well as morphine. Adrenalin was still recommended, but it had no systemic action when administered by mouth. In case of perforation the one justifiable course was operation.

The speaker emphasized three points: 1. The fact that typhoid in children was usually a mild disease was no excuse for not recognizing and saving the severe cases. 2. What the child absorbed from the intestinal tract, not what the nurse forced into it, was the sole determining factor in diet. 3. A belief in therapeutic simplicity was no excuse for drug ignorance and inactivity in typhoid fever or in any other disease of childhood.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yalen.) Large 8vo, 854 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

Morris's Human Anatomy. By Henry Morris, M.A. and M.B. Lond., F.R.C.S. Eng., and J. Playfair McMurrich, A.M., Ph.D. 4to, 1,540 pages, illustrated, muslin. P. Blakiston's Sons & Co., Philadelphia.

Alte und Neue Gynäkologie. By Professor Dr. Gustav Klein. Folio, 174 pages, illustrated, paper. J. F. Lehmann's Verlag, Munich.

Pharmacology and Therapeutics. By Reynold Webb Wilcox, M.A., M.D., LL.D. 8vo, 885 pages, muslin, $3 net. P. Blakiston's Son & Co., Philadelphia, Pa.

Clinical Anatomy. By Daniel N. Eisendrath, A.B., M.D. Large 8vo, 535 pages, illustrated, muslin, $5 net. W. B. Saunders Company, Philadelphia, Pa.

International Clinics. Edited by W. T. Longcope, M.D., Philadelphia, Pa. Large 8vo, 296 pages, muslin. J. B. Lippincott Company, Philadelphia, Pa.

Practical Nursing. By Anna Caroline Maxwell and Amy Elizabeth Pope. 12mo, 523 pages, muslin. G. P. Putnam's Sons, New York.

Third Annual Report of the Henry Phipps Institute. Edited by Joseph Walsh, A.M., M.D. 4to, paper. Henry Phipps Institute.

The Principles and Practice of Modern Surgery. By Roswell Park, A.M., M.D., LL.D. (Yale.) 4to, 1074 pages, illustrated, half leather. Lea Brothers & Co., Philadelphia.

A Manual of Hygiene and Sanitation. By Seneca Egbert, A.M., M.D. 8vo, 408 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

Practical Diagnosis. By Hobart Amory Hare, M.D., B.Sc. Large 8vo, 616 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

Merck's 1907 Index. Large 8vo, 471 pages, muslin. Merck & Co.

The Cause and Prevention of Beriberi. By W. Leonard Braddon, M.B., B.S., F.R.C.S. Large 8vo, 544 pages, muslin; price, $6. Rehman Company, New York.

The Climatic Treatment of Children. By Frederick L. Wachenheim, M.D. 8vo, 400 pages, muslin; price, $2.50. Rehman Company, New York.

Der Einfluss der Blutsverwandtschaft der Eltern auf die Kinder. By Prof. Dr. E. Feer. 4to, 32 pages, paper. Verlag von S. Karger, Berlin.

Insanity and Allied Neuroses. By George H. Savage, M.D., F.R.C.P. 16mo, 624 pages, illustrated, muslin; price, $2.75 net. W. T. Keener & Co., Chicago.

Human Anatomy. Edited by George A. Piersol. 4to, 288 pages, muslin, illustrated. J. B. Lippincott Co., Philadelphia.

Rontgen Rays and Electro-Therapeutics. By Mihran Kirkor Kassabian, M.D. Large 8vo, 545 pages, illustrated, muslin. J. B. Lippincott Co., Philadelphia.

Mental and Sick Nursing. By Robert Jones, M.D. 12mo, 222 pages, muslin. The Scientific Press, Ltd., London.

Progressive Medicine. Edited by Hobart Amory Hare, M.D. Large 8vo, 200 pages, illustrated, paper. Lea Brothers & Company, Philadelphia.

The Teachings of Thomas Henry Huxley. By Irving Wilson Voorhees, M.S. (Princeton), M.D. (Columbia). 12mo, 85 pages, muslin. Broadway Publishing Company, New York.

Diseases of the Genitourinary Organs and the Kidneys. By Robert H. Greene, M.D., and Harlow Brooks, M.D. 8vo, 536 pages, illustrated, half morocco, $6.50 net. W. B. Saunders, Philadelphia.

Peculiar Psychiatrie. By Dr. H. Schafer. 8vo, 151 pages, paper, $2.50. A. Stuber's Verlag, Würzburg.

Heart Disease and Blood Pressure. By Louis Faugères Bishop, A.M., M.D. 120 pages, 12 mo, muslin, price $1. E. B. Treat & Company, New York.

Obstetrics. By J. Whitridge Williams. Large 8vo, muslin, 950 pages, illustrated. D. Appleton & Company, New York.

Febre Amarella. By Dr. Zeferino Meirelles. 12mo, paper, 265 pages. H. Garnier, Rio de Janeiro.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending October 12, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	332	143
Diphtheria	272	23
Measles	114	4
Scarlet Fever	164	5
Smallpox	..	..
Varicella	22	..
Typhoid Fever	163	32
Whooping Cough	14	3
Cerebrospinal Meningitis	11	8
Malarial Fever	..	..
Totals	1092	218

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended October 11, 1907:

SMALLPOX—UNITED STATES.

		Cases.	Deaths
California, San Francisco	Sept. 15–21	1	..
Indiana, Anderson	Sept. 1–30	2	..
Elkhart	Sept. 22–28	2	
Iowa, Davenport	Sept. 1–30	2	
Michigan, Detroit	Sept. 22–28	6	
Saginaw	Sept. 22–28	1	..
Missouri, St. Joseph	Sept. 20–26	1	
Montana, Six Counties	Aug. 1–31	7	..
Ohio, Cincinnati	Sept. 29–Oct. 4	2	..
Oregon, Twelve Counties	April 1–July 31	42	..
Nebraska, Omaha	Feb. 1–Sept. 30	44	..
Texas, Temple	Sept. 22–28	2	..
Washington, La Crosse	Sept. 22–28	1	..
Milwaukee	Sept. 22–28	4	..
Spokane	Sept. 22–28	1	..

SMALLPOX—FOREIGN.

Africa, Lorenz Marquez	July 1–31	..	5
Sierra Leone	Aug. 1–31	2	1
Austria, Galicia	Aug. 1–31	4	..
Monrovia	Aug. 18–31	1	..
Vienna	Sept. 1–7	35	6
Brazil, Para	Sept. 14–21	5	6
Canada, Halifax	Sept. 22–28	1	
China, Hongkong	Aug. 18–24	1	1
Shanghai	Aug. 10–25	1	10
	Cases foreign,	Deaths native	
Columbia, Cartagena	Sept. 11–17	..	Present
Ecuador, Guayquil	Sept. 1–7	..	2
Egypt, Cairo	Aug. 11–19	..	1
India, Bombay	Aug. 27 Sept. 3	..	1
Madras	Aug. 24–30	..	3
France, Paris	Sept. 8–14	5	1
Toulon	Aug. 1–31	2	..
Italy, General	Sept. 6–19	38	
Java, Batavia	Aug. 18–24	3	
Madeira, Funchal	Sept. 9–15	3	
Malta, Valletta	Sept. 8–14	2	
Mexico, Aguas Calientes	Sept. 15–28	..	2
Persia, Mash-Had	July 1–31	..	Present
Rasht	July 1–31	..	"
Shiraz	July 1–31	..	"
Tibre z	July 1–31	..	"
Peru, Lima	Sept. 7	..	1
Portugal, Lisbon	Sept. 7–14	3	..
Russia, Libau	Sept. 1–7	1	..
Odessa	Sept. 1–7	1	
Riga	Sept. 8–14	1	
Warsaw	Aug. 4–17	..	7
Spain, Barcelona	Sept. 11–20	..	3
Denia	Aug. 1–31	2	
Malaga	Aug. 1–31	..	7
Valencia	Sept. 8–15	22	1
Turkey in Europe, Constantinople	Sept. 9–15	..	3
Turkey in Asia, Bagdad	Aug. 11–21	..	Present

CHOLERA.

China, Shanghai	Aug. 19–25	3	18
	Cases among foreigners.	Deaths among natives.	
India, Bombay	Aug. 28–Sept. 3	..	53
Calcutta	Aug. 18–24	..	25
Madras	Aug. 24–30	..	20
Moulmine	July 7–27	42	
Rangoon	Aug. 18–24	..	5
Japan, Fukuoka Ken	To Sept. 9	84	
Mon	To Sept. 9	408	114
Hiroshima Ken	Sept. 1–9	2	
Hyrogo Ken, Kobe	To Sept. 9	5	2
Oita Ken	Sept. 1–9	4	
Okugori Ken	Sept. 1–9	27	
Yamaguchi Ken	Sept. 1–9	92	
Shimonoseki	To Sept. 4	30	
Korea, Seoul	Sept. 26	..	Present
Straits Settlements, Singapore	Aug. 4–17	..	92

YELLOW FEVER.

Brazil, Manaos	Sept. 1–14	..	3
Para	Sept. 15–21	6	3
Costa Rica, San Jose	Sept. 15–21	1	Imported
Cuba, Cienfuegos	Oct. 3–4	2	..
Total from	Aug. 3–Oct. 4	64	16
Habana	Oct. 7	1	..
Palos	Oct. 3	2	1
Ecuador, Guayaquil	Sept. 5–14	..	1

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Original Articles.

EXPERIENCES WITH THE BEAD TEST FOR ASCERTAINING THE FUNCTIONS OF THE DIGESTIVE APPARATUS.

By MAX EINHORN, M.D.,

NEW YORK.

PROFESSOR OF INTERNAL MEDICINE AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL.

In two previous papers* I have dealt with the physiological conditions of several nutritive substances in the stomach and bowel, as shown by the bead test; later I also used the test for examining the functions of the digestive apparatus.

I would now like to detail my latest experiences with the bead test and thereon discuss a few new points.

From October, 1906, to May, 1907, I used the bead test frequently and have grouped the results in a table.

On examining this table we can divide the items into two large groups: A. Diseases of the digestive tract (1-68). B. Diseases of other organs (69-109).

Group A. We first have twelve cases of achylia gastrica with 14 tests. Motility was normal in six, accelerated in five, and considerably retarded in one. In seven the digestive functions were fairly good, in five they were bad, *i.e.* most of the substances were returned unchanged.

In 15 cases of hyperchlorhydria decreased motility was shown by 4, increased by 2, the rest showed normal motility. The digestive functions were good in 4, whereas they were disturbed in eleven cases; 3 suffered from a lack of fat digestion, 3 from a lack of starch digestion alone, whereas in 4 a combination of impaired fat and starch digestion occurred.

Case 17, nervous gastralgia and colitis, and case 18, atony of the stomach with cardiac arrhythmia, show normal digestive functions. In 3 cases of chronic gastritis (33, 34, 35) motility was accelerated twice, normal once, whereas the digestive power was good with the exception of starch, which was slightly disturbed.

In 6 cases of chronic enteritis (36, 44, 46, 47, 48, 49) there was normal motility in 3, accelerated in one, and retarded in two. The digestive function was good in two, impaired in four; in one case there was a diminution in the power of fat digestion, in one of fat and starch digestion, in two of starch digestion only.

In five cases of chronic constipation (37, 38, 43, 50, 51) there was normal motility in one and retarded motility in four. In four the digestive function was good, and in only one (43) fat digestion was impaired.

In two cases of atony of the stomach with migraine (40, 41) both motility and digestive function were good. In one case of atony of the stomach and periodical vomiting (42) motility was normal and the power of digestion for fat and starch diminished.

Two cases of grave chronic gastroenteritis (52, 57) showed at first accelerated motility and poor digestive power; later, after treatment, a more normal motility and considerably better digestion.

In one case of enteralgia (54) there was normal motility and disturbed digestion for fat and starch.

Three cases of colitis (55, 56, 60) all showed a retarded motility but good digestion.

Case 61, obesity and intestinal dyspepsia, showed retarded motility and poor proteid digestion.

Two cases of ulcer of the stomach (62, 63) showed in one normal and in one retarded motility; in one there was found a disturbed starch digestion, in the other disturbed fat digestion.

Three cases of splenomegaly (64, 65, 66) showed in one normal, in one accelerated, and in one retarded motility. In two fat digestion was impaired. In one starch digestion.

Case 67, nervous gastralgia, showed retarded motility, but good digestion.

Case 68, flatulency, showed increased motility and disturbed starch digestion.

Group B. A case of sciatica (69) showed good motility and digestion; a case of myelitis (70), good motility and somewhat impaired starch digestion.

A case of pneumonia (71) after the crisis showed retarded motility and good digestion.

A case of arteriosclerosis (72) showed retarded motility and good digestion.

Three cases of grave malaria (73, 74, 75) showed good motility in two, retarded in one, whereas the digestive function was disturbed in all as regards fat and in two for starch.

Two cases of diabetes mellitus without coma (76, 77) showed normal motility in one, retarded in one, with good digestion. One case of diabetes mellitus with slight coma and some fever (78) showed considerably retarded motility (11 days) and diminished fat digestion.

One case of splanchnoptosis (79) showed good motility and digestion.

In six cases of typhoid fever (80, 81, 83, 84, 85, 86) there was increased motility in one, retarded in one, and normal in four. The digestive function was absolutely poor in two cases, whereas in four there was a disturbance of either starch or fat digestion or both. Fish bone was found in five, whereas thymus was present in all. Case K (81, 82) was particularly interesting, because all the substances were here recovered during the fever stage, whereas a week after the occurrence of normal temperature the digestion was considerably better.

A case of gallstones without jaundice (87) showed normal motility and digestive functions.

Three cases of jaundice (88, 89, 90) showed in one normal, in two retarded motility. Fat digestion was disturbed in all, starch digestion in one.

*Max Einhorn: A New Method of Testing the Functions of the Digestive Apparatus. Medical Record, February 10, 1906. And Further Remarks on the Digestive Bead Test for Ascertaining the Functions of the Digestive Apparatus. *Journal of the American Medical Association.* February 2, 1907.

TABLE OF THE NEW CASES EXAMINED WITH THE BREAD TEST. (October, 1906, to May, 1907.)

No.	Name	Disease	Beaustring when found	Result	Remarks
1	Mrs. And.....	Achylia gastrica.....	After 36 hours	Everything disappeared except ½ thymus. Nuclei not found.	
2	B.....	" "	" 89 "	Catgut, fishbone, meat disappeared; fat present; the other heads were lost.	
3	Mrs. Ac..... XII, 29, '06.	" "	" 22 "	Everything disappeared except thymus and ½ potato.	Ultramarine disappeared
4	Mrs. Ac..... III, 25, '07.	" "	" 24 "	Everything disappeared except thymus, meat, potato. Nuclei present. Fishbone was not used.	
5	Mrs. F.....	" "	" 23 "	Everything disappeared except thymus and ½ potato. Nuclei disappeared.	Ultramarine a trace.
6	S.....	"	" 24 "	Everything disappeared except thymus and trace potato. Nuclei gone.	Ultramarine a trace.
7	Dr. J. T. R.....	" "	" 27 "	Everything disappeared except thymus and ½ potato.	
8	Dr. St.....	" "	" 23 "	Everything disappeared except thymus, fat, fishbone and ½ potato.	Ultramarine a trace.
9	Mrs. W.....	" "	" 20 "	Everything disappeared except thymus, meat, potato. Nuclei gone.	
10	Mrs. McE.....	" "	" 26 "	Thymus, potato, ½ fat, ½ meat present. Nuclei present. Fishbone and catgut gone.	
11	E. S. N..... X, 14, '06.	" "	" 21 "	Thymus, meat, fishbone, catgut, ½ potato present. Nuclei and fat disappeared.	Ultramarine unchanged. Thread with potass. permang.; discolored.
12	E. S. N..... XI, 20, '06.	" "	" 19 "	Thymus, meat, catgut, potato present. Fat, fishbone disappeared.	Ultra marine present.
13	Mrs. H.....	" "	" 24 "	Everything disappeared except ½ thymus. Nuclei gone.	
14	Mrs. W. R. B....	" "	" 34 "	Everything disappeared except ½ potato.	
15	Mrs. Sch.....	Atonia ventriculi Hyperchlorhydria.	" 38 "	Everything disappeared.....	Zinc sulphide ½ present.
16	K.....	Hyperchlorhydria.....	" 36 "	" "	
17	C. S. P.....	Gastralgia nervos. Colitis	" 43 "	" "	Ultramarine disappeared.
18	McE.....	Atonia ventriculi. Arrhythmia cordis.	" 26 "	" "	" "
19	Br.....	Atonia ventriculi. Hyperchlorhydria.	" 44 "	Everything disappeared, except ½ fat.	
20	Mrs. A.....	Atonia ventriculi. Hyperchlorhydria.	" 34 "	" " " fat.....	Ultramarine disappeared.
21	St.....	Hyperchlorhydria.....	" 102 "	" " " " and ½ thymus. Nuclei gone.	
22	A.....	Atonia ventriculi. Hyperchlorhydria.	" 34 "	Everything disappeared except ½ thymus. Nuclei gone.	Ultramarine present.
23	M.....	Hyperchlorhydria.....	" 52 "	Everything disappeared except a trace of thymus.	Ultramarine disappeared.
24	C.....	Hypersecretion continua chronica.	" 22 "	" " " ½ thymus, ½ potato and nuclei.	Ultramarine disappeared.
25	Dr. G.....	Atonia ventriculi Hyperchlorhydria.	" 18 "	Everything disappeared except ½ thymus and trace potato. Nuclei gone.	Ultramarine disappeared. Potass. permangan. thr'd discolored.
26	Mrs. D.....	Hyperchlorhydria.....	" 38 "	Everything disappeared, except thymus. Nuclei partially present.	Ultramarine disappeared.
27	L.....	Hyperchlorhydria. Dilatatio ventriculi.	" 46 "	Everything disappeared except fat and fishbone..	
28	C.....	Hyperchlorhydria.....	" 33 "	" " " thymus and fishbone. Nuclei gone.	Ultramarine present.
29	G.....	"	" 24 "	Everything disappeared except fat, ½ thymus, ½ potato. Nuclei gone.	
30	M.....	" Insufficiency of mitral valve.	" 28 "	Thymus fat, ½ potato present. Everything else, including nuclei, disappeared.	
31	Dr. R. III, 25, '07.	Hyperchlorhydria. Dilatatio ventriculi. Colitis.	" 18 "	Thymus, meat, fishbone, potato, present. Fat, catgut, nuclei disappeared.	
32	Dr. R., IV, 15, '07.	Hyperchlorhydria Dilatatio ventriculi. Colitis.	" 27 "	Everything disappeared.	
33	St.....	Gastritis chronica	" 12 "	" " except ½ potato.	
34	Dr. B.....	" "	" 36 "	" " " trace thymus and trace potato. Nuclei gone.	
35	Mrs. J.....	" " Enteritis chronica.	" 17 "	Everything disappeared, except fat and ½ potato.	
36	T.....	Enteritis chronica. Atonia ventriculi.	" 30 "	" " " trace thymus. Nuclei gone.	
37	I.....	Atonia ventric. Constip. spastica.	" 47 "	Everything disappeared except ½ thymus. Nuclei gone.	
38	R.. IX, 20, '06.	Dilatatio ventriculi. Constip. spastica.	" 50 "	Everything disappeared except trace fat.	
39	R.. IX, 20, '06.	Dilatatio ventriculi. Constip. spastica.	" 50 "	" " " trace thymus. Nuclei gone.	Ultramarine disappeared.
40	Rev. K.....	Atonia ventriculi. Migraine	" 36 "	Everything disappeared.	
41	Mrs. McG.....	Anemia, migraine. Atonia ventriculi.	.....	Everything disappeared, fat, bead was not recovered.	
42	W.....	Atonia ventric. Periodic vomiting. Constip. spast	After 26 hours	Everything disappeared except fat and potato.	
43	Miss K.....	Constipatio spastica. Coli.	" 46 "	Everything disappeared except thymus and fat.	Thread grayish blue.
44	Dr. F., X, 12, '06	Enteritis chronica.....	" 54 "	" " " " fat.....	Ultramarine disappeared.
45	Dr. F., X, 25, '06.	" "	" 65 "	" " " " ½ thymus. Nuclei gone.	Ultramarine disappeared.
46	Miss M.....	Enteroptosis. Dilatatio ventric. Enteritis chr.	" 20 "	Fishbone, fat, and ½ potato present, everything else disappeared.	
47	McN.....	Enteritis chron. Dilatatio ventriculi.	" 28 "	Trace thymus, ½ potato present. Everything else, including nuclei, disappeared.	Ultramarine disappeared.
48	P.....	Enteritis chron.....	" 22 "	Thymus and ½ potato present. Everything else, including nuclei disappeared.	Ultramarine present.
49	Dr. B.....	Enteritis chronica. Hyperchlorhydria.	" 38 "	Everything disappeared.....	Ultramarine disappeared.
50	R.....	Constipatio.....	" 34 "	Thymus present. Nuclei and everything else disappeared.	Ult'amarine pres't. Potassis. permang. Thread disc'l'r'd.
51	Mrs. St.....	Constipatio spastica.....	" 56 "	Everything disappeared.....	Ultramarine disappeared.
52	Mrs. K., I, 29, '07	Gastritis chronica. Enteritis chr. Dilatatio ventric.	" 15 "	Thymus, potato, meat, catgut, fishbone, present Fat and nuclei disappeared.	Ultramarine disappeared.
53	Mrs. K., II, 1, '07	Gartritis chronica. Enteritis chr. Dilatatio ventric.	" 30 "	Everything disappeared except thymus and fat.	
54	Miss. D.....	Enteralgia.....	" 20 "	Potato, ½ thymus, ½ fat present. Everything else, including nuclei, disappeared.	Ultramarine disappeared.
55	Mrs. M.....	Colalgia, enteritis, membranacea. Constipatio.	" 00 "	Everything disappeared.	
56	O.....	Colitis.....	" 43 "	" "	
57	O'D., I, 24, 07...	Gastritis chron. Enteritis chronica.	" 14 "	Thymus, potato, meat, present. Nuclei and everything else disappeared.	Ultramarine present.
58	O'D., II, 2, '07...	Gastritis chron. Enteritis chronica	" 26 "	Thymus, and ½ potato present, Nuclei and everything else disappeared.	
59	OD., III, 12, '07	Gastritis chron. Enteritis chron.	" 64 "	Everything disappeared.	
60	Mrs. B.	Colitis, neurasthenia.....	" 55 "	½ thymus present; nuclei and everything else disappeared.	
61	Mrs. S.	Adipositas. Dyspepsia intestinalis.	" 46 "	Thymus, meat, fishbone present. Potato, catgut, nuclei disappeared. Fat bead not found.	

TABLE OF THE NEW CASES EXAMINED WITH THE BREAD TEST. (October, 1906, to May, 1907.)—*Continued.*

No.	Name	Disease	Beaustring when found	Result	Remarks
62	A.	Ulcer of stomach	After 22 hours	Thymus, potato present. Nuclei and everything else disappeared.	
63	S	" " "	" 42 "	Fat and ½ thymus present. Nuclei and everything else disappeared.	
64	A.	Splenomegalia	" 71 "	Thymus and fat present. Nuclei and everything else disappeared.	
65	K.	"	" 18 "	Thymus and potato present. Nuclei and everything else disappeared.	
66	G.	"	" 34 "	Fat and fishbone entirely, thymus and nuclei partially present. Everything else disappeared.	Ultramarine present.
67	Mrs. N.	Gastralgia	" 38 "	Everything disappeared.	
68	Dr. E.	Flatulence	" 20 "	" " except potato.	
69	N.	Sciatica	" 23 "	" " Thymus and potato beads not found.	Ultramarine present.
70	F.	Myelitis	" 26 "	½ thymus, ½ potato nuclei partially present. Everything else disappeared.	
71	L	Pneumonia	" 92 "	Everything disappeared	1 day after crisis.
72	B.	Arteriosclerosis	" 45 "	" "	
73	P.	Malaria	" 18 "	Fat, ½ thymus, ½ potato present. Everything else disappeared.	
74	K.	Malaria	" 27 "	Fat, thymus, ½ potato present. Nuclei and everything else disappeared.	Free from fever.
75	W.	Malaria	" 41 "	Fishbone, fat, ½ thymus present; everything else disappeared.	
76	K.	Diabetes mellitus	" 65 "	½ thymus present. Nuclei and everything else disappeared.	
77	Mrs. W.	" "	" 24 "	Everything disappeared.	
78	L.	" "	" 204 "	½ thymus, ½ fat present. Nuclei and everything else disappeared.	
79	Mrs. A.	Enteroptosis. Nephroptosis on both sides Hepat's.	" 32 "	Trace of thymus and trace fat present. Nuclei and everything else disappeared.	
80	Ch.	Typhoid	" 18 "	Thymus, fishbone, potato present. Nuclei and everything else disappeared.	Temperature remitting.
81	Kr., IV, 5, '07.	Typhoid	" 41 "	Everything present.	Temperature remitting.
82	Kr., IV, 13, '07.	Typhoid	" 19 "	Fat, fishbone, ½ thymus, ½ potato present; everything else disappeared.	Temperature normal for ≦1 week.
83	K.	Typhoid	" 16 "	Thymus, fishbone, meat, ⅔ potato present. Nuclei and everything else disappeared.	Fever stage.
84	D.	Typhoid	" 102 "	Fishbone, fat, thymus present. Nuclei and everything else disappeared.	Fever stage.
85	P.	Typhoid	" 22 "	Fishbone and thymus present. Nuclei and everything else disappeared.	At the height of disease.
86	Ki.	Typhoid	" 21 "	Fat and ½ thymus present. Everything else disappeared.	
87	Mrs. L.	Cholelithiasis	" 34 "	Trace potato present. Everything else disappeared	Ultramarine present.
88	A.	Cholelithiasis, icterus	" 23 "	Potato, ½ thymus, ½ fat, a few nuclei present. Everything else disappeared.	
89	Mrs. Sch.	Icterus	" 40 "	Everything disappeared, except trace fat.	
90	B.	"	" 40 "	Fat, ½ thymus present. Nuclei and everything else disappeared.	
91	L., XII, 8, '06.	Icterus, hepatitis	" 18 "	Everything present; nuclei partially	Ultramarine present.
92	L., XII, 18, '06.	" "	" 28 "	Everything disappeared except fishbone, potato, thymus and ½ fat.	Ultramarine present.
93	L., I, 9, '07.	" "	" 16 "	Everything present, except catgut. Nuclei gone.	
94	M.	Cirrhosis of liver, ascites	" 59 "	" "	
95	Z., II., 27, '07.	Cirrhosis of liver, ascites and general miliary tuberc'l's.	" 19 "	" present.	
96	Z., III, 11, '07.	Cirrhosis of liver, ascites and general miliary tuberc'l's.	" 22 "	" " nuclei partially.	
97	D.	Cirrhosis of liver. Pleurisy	" 37 "	Everything disappeared except fat and ½ thymus.	
98	M.	" " " Icterus, ascites.	" 18 "	Fishbone, potato, thymus, ½ fat present. Nuclei, catgut, meat, disappeared.	
99	B.	Cirrhosis of liver	" 90 "	Everything disappeared, except trace fat and trace thymus.	
100	D., XII, 10, '06.	Cirrhosis of liver.. Ulcer of stomach.	" 30 "	Everything disappeared, except trace potato	Ultramarine disappeared.
101	D., XII, 18, '06.	Cirrhosis of liver. Ulcer of stomach	" 33 "	" " " ½ fat and trace potato.	Ultramarine disappeared.
102	Mrs. St.	Cancer of stomach and liver, icterus.	" 17 "	Thymus, potato present. Everything else, including nuclei, disappeared.	Ultramarine present.
103	C., IV, 10, '07.	Tumor of liver, icterus	" 18 "	Everything present, except catgut and nuclei	HCl + Ac = 56.
104	C., IV, 20, '07.	" " " "	" 38 "	Thymus, fat, fishbone, nuclei, present. Everything else disappeared.	
105	C., IV, 30, '07.	" " " "	" 46 "	Fat, fishbone, ½ thymus, present. Nuclei and everything else disappeared.	
106	W.	Aneurysm of aorta	" 92 "	Everything disappeared, except fat and fishbone.	
107	R.	Pleurisy, eosinophilia	" 62 "	Fishbone, thymus present. Nuclei and everything else disappeared.	
108	Gr.	Trichinosis	" 16 "	Everything disappeared, except fat and fishbone.	
109	G.	Delirium tremens	" 19 "	" present, except fat. Nuclei gone.	

A case of syphilis of the liver with chronic jaundice (91, 92, 93) showed normal, occasionally increased, motility, and poor digestive function, as nearly everything returned unchanged.

Six cases of cirrhosis of the liver (94, 95, 97, 98, 99, 100) showed delayed motility only twice. The digestive function was good in two, poor in one (complicated with miliary tuberculosis), as all substances returned unchanged, and in three digestion was insufficient for fat and carbohydrates or for fat alone.

Case 102, cancer of the liver and stomach with jaundice, showed increased motility and disturbed starch digestion.

A case of malignant tumor of the liver with chronic icterus (103, 104, 105) showed accelerated motility once, retarded twice, and usually bad digestive functions. Once the thymus nuclei were well preserved.

Case 106, aneurysm of the aorta, showed considerably retarded motility and poor fat digestion.

Case 107, pleurisy and eosinophilia, showed retarded motility but good digestive function. A case of trichinosis (108) showed accelerated motility and poor fat digestion.

A case of delirium tremens (109) showed somewhat increased motility and an absolutely poor digestive function, as everything was found unchanged except fat; the nuclei had also disappeared.

From the above facts we can gather that the bead test gives a true picture of the digestion; thus at the height of the disease we frequently find a worse state of digestion than during convalescence. The results are not always the same in the same disease, as they are influenced by the individual peculiarities of the patient.

Marked disturbance of the digestion (for nearly all nutritive substances) is found in barely half of

the cases of achylia, in delirium tremens, in some grave cases of gastroenteritis, and sometimes in typhoid fever.

A diminution in starch digestion is a very frequent occurrence and is often found; disturbances of proteid digestion alone, however, are very rare.

FIG. 1.—Thymus gland, squeezed out; nuclei distinctly visible all over.

In purely nervous affections, pure colitis, and constipation the digestive function is generally very good.

In connection with the bead test I would like to mention a few points concerning the testing of the digestive function. In making the test it is of importance to have specific substances for the various sections of this long canal. Schmidt has suggested two such substances, connective tissue for the stomach and nuclei for the pancreas.

Concerning the connective tissue, I have shown in my former papers that it can also be digested in the bowel, as was evidenced by various catgut experiments. Schmidt, however, maintains that catgut is different from raw connective tissue.

FIG. 2.—Thymus gland (after passing through the digestive tract) squeezed out; no nuclei present; only detritus.

To decide this point the following experiment was made: One piece of raw connective tissue was placed in 5 c.c. of filtrate of stomach contents, and another equally large piece of raw connective tissue in 5 c.c. of diluted trypsin solution one to three. They were kept at blood temperature. After one hour the connective tissue in the gastric filtrate had disappeared. After 24 hours about one-tenth of the connective tissue was still present in the trypsin solution; after 48 hours scarcely a trace was found.

This shows that the gastric juice attacks connective tissue much more intensely; that connective

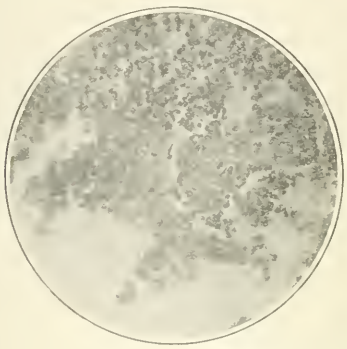

FIG. 3.—Thymus gland section; nuclei visible all over.

tissue may, however, also be digested by solutions of trypsin, although only very slowly.

This also coincides with the clinical observations of Lewinski.* The latter has described several cases of achylia, in which the examination of the feces according to Schmidt's method showed good connective tissue digestion. On the other hand, persons with normal stomach secretion were found to have a poor digestion of connective tissue.

The digestion of fish bones may be accomplished without the aid of stomach juice, as described in a former paper of mine and as may be seen from the table (Cases 1, 2, 3, 5, achylia with disappearance of fish bones).

As these food substances (connective tissue, catgut, fish bone) have not proved sufficiently reliable for the presence or absence of gastric juice, I tried other indicators. Of several substances that I used for this purpose (potassium permanganate thread, thread impregnated with stannous ferrocyanide ($Sn_3[Fe(CN)_6]_2$) and ferrous phosphate ($Fe_3(PO_4)_2$),

FIG. 4.—Thymus gland section after passing through the digestive tract of patient L.; nuclei almost all destroyed.

zinc sulphide, etc. Ultramarine blue has proven the most suitable. Ultramarine blue represents a blue pigment, which in the presence of HCl is dissolved with the evolution of H_2S gas, but is un-

*J. Lewinski. Sahlis' Desmoidprobe und Schmidt's Bendegehsprobe, *Münch. med. Woch.*, 1907, N. 9.

changed in alkaline or neutral media. Ultramarine blue would be an ideal indicator for HCl, if organic acids would not also dissolve it. They do this, however, although to a less degree than HCl, and for this reason ultramarine blue is not a positive indicator for HCl. Still I would like to report my experiments with ultramarine blue, as frequently the presence of HCl coincides with the disappearance of ultramarine.

The test was made in the following manner: A small quantity (0.01 gram) of ultramarine was placed into the thymus bag (which in this case was made of linen instead of gauze); thus the digestive capsule contained the usual six substances and ultramarine blue.

TABLE OF CASES IN WHICH ULTRAMARINE BLUE WAS USED.

16 cases with free HCl....ultramarine disappeared.
6 cases with free HCl.....ultramarine present.
3 cases of achylia gastrica....ultramarine present.
3 cases of achylia gastrica....ultramarine (trace) present.
1 case of achylia gastrica..ultramarine disappeared.
4 cases with unknown stomach secretion .....ultramarine present.

It is evident that ultramarine blue cannot be relied upon as an indicator for free HCl. It failed to dis-

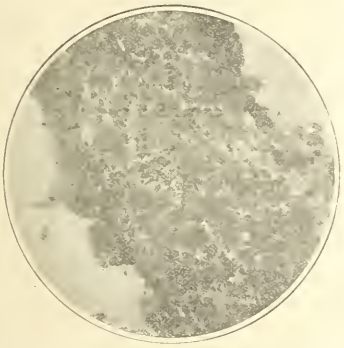

FIG. 5.—Thymus gland section after passing through the digestive tract of Mrs. McE., with achylia gastrica; numerous nuclei still unchanged.

appear six times although HCl was present, and once it disappeared entirely in a case of achylia gastrica.

The fact established by Schmidt, that nucleins are destroyed, not by the gastric but by the pancreatic juice, was also made the subject for experiment as follows:

I. March 8, 1907. A piece of raw thymus is placed into 5 c.c. of gastric filtrate (HCl + acidity 84) and kept at blood temperature in a test tube. After 24 hours one-quarter of thymus is present, the other parts have disintegrated. The connective tissue has disappeared, the nuclei are well preserved. Forty-eight hours later the nuclei are well preserved.

II. April 29, 1907. A small piece of raw thymus is kept at blood temperature in the following solutions: (*a*) in a solution of pancreon (0.3 to 5.0 water); (*b*) in a similar solution of pancreon with the addition of HCl (2-1000); (*c*) in a similar solution of pancreon, with the addition of lactic acid, (2-100). After 24 hours all the thymus pieces are unchanged; the nuclei are well preserved. After 48 hours macroscopically all the pieces unchanged; in (*a*) the nuclei have partially disappeared, in (*b*) and (*c*) they are well preserved.

III. May 2, 1907. A piece of raw thymus is kept at blood temperature in the following solutions: (*a*) in a trypsin solution (one part to three parts of water); (*b*) in a trypsin solution with the addition of HCl (2-1000); (*c*) in a trypsin solution with the addition of lactic acid (2-1000).

After 24 hours all the pieces look unchanged and the nuclei are well preserved; after 48 hours *a* feels more spongy and the nuclei have partially disappeared; *b* and *c* are unchanged and the nuclei are well preserved; after 72 hours the nuclei in *a* have almost entirely disappeared; in *b* and *c* they are well preserved.

These experiments show that Schmidt's opinion that pancreatic juice, and not gastric juice, digests the nuclei is correct.

In using the nucleus test Schmidt makes use of pieces of raw meat tied up in a silk bag. After recovering the latter in the stool, sections are made of the muscle, and these are examined microscopically for nuclei.

Instead of meat I have used thymus for the nucleus test, as this gland consists almost entirely of nuclei, and thus shows the nucleus digestion better. At first I used to have sections made from the remains of the thymus. As the examination consumed a good deal of time (1 to 2 days), I later simply made a smear preparation from the thymus direct and examined this for the presence of nuclei. Numerous comparisons between sections and smears have always given the same results. The latter method is therefore sufficient. I append a picture obtained by making a smear from the normal thymus (Fig. 1) and also the picture of a smear from a piece of thymus that has passed through the intestinal canal (Fig. 2).

I also add three illustrations from photographs of thymus sections: Fig. 3 represents the normal thymus; Fig. 4, thymus after passing through the intestinal canal of Z. (patient with cirrhosis of the liver and miliary tuberculosis); Fig. 5, thymus after passing the intestine of Mrs. McE. (achylia gastrica); in the latter there are numerous nuclei present.

Although the nucleus test is very interesting, still I do not think that the lack of pancreatic secretion can be diagnosed from the presence of nuclei. For patient McE. certainly had no disease of the pancreas, yet nuclear digestion was absent. In the case of Dr. C. (see table, Cases 103, 105), the nuclei were well preserved on one day, whereas later, shortly before death, the nuclei disappeared. In the case of a very grave lesion of the pancreas this would hardly be possible.

We may assume that occasionally, but very rarely, pancreatic juice, owing to the presence of other substances (perhaps HCl or organic acids, etc.) may be impeded in its action upon the nuclei. We can plainly see this in our experiment, when we add HCl and lactic acid to the trypsin. In Dr. C. such an explanation would probably hold good, because at the time when nuclear digestion was absent the patient had a normal gastric juice (HCl + acidity 56); later the acid was absent altogether, although nuclear digestion was present. Chronic jaundice existed in this case during the entire time the patient was under observation.

In conclusion I would like to say that the method of testing the digestive function of the intestinal canal by means of the bead string is very simple and handy and I feel it is time now that it should be made use of in the diagnosis and treatment of intestinal diseases.

SOME EXAMPLES OF CHEMICAL SYNTHESIS AS APPLIED IN THE PRODUCTION OF REMEDIAL AGENTS.

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Probably there is not another science which, since the middle of the last century, has undergone as radical a transformation as the practice of medicine and the closely related teachings of materia medica. This is not surprising, in regard to the latter, when we consider the remedial agents which were passed down from the days of antiquity and continued to be prescribed up to that period. With few exceptions, these remedies were so fearfully and wonderfully made that they could not withstand the sober investigations of a thoughtful observer for any length of time. Nevertheless a favorable change would hardly have taken place without the brilliant rise of physiology in the last decades. The works of Johannes Müller, Virchow, Dubois-Raymond, Ludwig, Billroth, Carpenter, Dalton, Foster, Flint, Kirke and others formed the basis of the teachings of the normal function of organs, and of cellular pathology, essentially contributing to the knowledge of the disturbances caused in the organs by disease. This recognition in its turn awakened the endeavor to counteract these disturbances, which had become thoroughly known, by means of appropriate remedies, with the idea that these remedies were to affect the diseased organ alone; as far as possible remaining indifferent to the rest of the organism. The possibility of finding bodies with these sharply defined specific properties had become less remote since chemistry had succeeded not only in the isolation and preparation of certain physiologically active substances occurring in plants, but also in the accurate determination of their chemical composition (morphine, quinine, atropine, hyoscyamine, etc.).

By further chemical research, more extensive information was obtained concerning certain substances which occur in the animal organism or are excreted by it. Thus, Rouelle discovered uric acid in the urine, and Wöhler prepared this substance synthetically a few years later, or in 1828. Since the synthetical preparation of organic substances from the elements had proved impossible up to that time, the prevailing opinion was that the chemical elements in living bodies were subject to other laws than those of the so-called inanimate realm. It was assumed that organic substances were formed in the organism only under the influence of a special "vital force," and that their artificial preparation, after the manner of inorganic substances, would not prove feasible.

Wöhler's discovery was of the utmost significance in so far as it served to contradict and refute the assumption of a special force concerned in the formation of organic bodies. It furnished the demonstration of the fact that the structure of inorganic bodies does not essentially differ from that of organic bodies; that the properties of the organic compounds are based only upon the character of their essential constituent, carbon; and that all the chemical compounds produced by the vital processes of plants and animals may be prepared by synthesis, or in an artificial manner, from the individual elements.

Based upon these facts, and after the chemical composition of the majority of bodies serving as remedial agents had been determined, it became the endeavor of chemists, in conjunction with pharmacologists, to discover the origin and mode of action of individual remedies. For this purpose, it was necessary to proceed to the chemical decomposition of the known remedial agents in order to determine to which part of the molecule the specific effect is due. These studies of the action and analysis of products served in their turn as a guide for the construction of new remedial agents, to be prepared by way of synthesis, since proof was furnished to the effect that there invariably exists an absolutely definite connection between the constitution of a given chemical body and its action. Certain modifications in the human organism, as for instance the diminution of a febrile rise of temperature, depend upon the presence of definite groups of atoms in the frequently highly complicated molecule of the agent employed. Accordingly it was found that the employment of a remedial agent for medical purposes means the utilization of definite groups occurring in its molecule; and further, that it is not always necessary for the entire molecule of individual chemical substances found in nature, to participate in the action. When constructing a chemical body which is to serve as a remedial agent, we provide only efficient groupings within it, or we may add to other groups in order to weaken the overstrong action of the fundamental substance. In the remedial agents found in nature, which are not constructed for the purpose of serving as remedial agents, but whose chemical structure, due to certain physiological actions of plant life, is accidentally available for therapeutic purposes, whereas the entire body as such may participate in the action, the pharmacological effect in the majority of cases is probably dependent only upon a portion of the molecule. It follows that it is by no means necessary to produce by way of synthesis precisely the body occurring in nature, but that it suffices to obtain substances, the action of which is identical with that of the natural ones, or even surpasses it, if possible, without, however, giving rise to untoward side effects. With increasing experience as to the action of individual chemical groups, the path became more clearly outlined for the steps of chemists and pharmacologists towards the systematic construction; in other words, the synthetic preparation of new bodies having pharmacologically valuable properties, and destined to serve as remedial agents. Synthetic chemistry in particular was expected to profit by the pharmacological study of the numerous classes of substances, in such a way as to prepare and discover new bodies, possessing new therapeutical properties not supplied by nature. It is worthy of note that most people, laymen and physicians alike, do not possess the proper perception of what is meant by synthetic remedies, and they often indulge in erroneous ideas concerning their preparation. Whenever conversation turns upon the origin of a new synthetically prepared product, brief comments are generally heard to the effect that it is an anilin derivative, or it is obtained from coal-tar. These summary remarks lead to the conclusion that there can hardly be anything more simple on earth than the synthetic preparation of remedial agents, since all that has to be done is either slightly to modify anilin by some chemical reaction, or to fish the desired substance in some way from a barrel of coal-tar. This naturally leads to the belief that these products ought to be enormously cheap, since they were obtained from easily accessible materials, or even from refuse products.

This view is absolutely erroneous, however. The majority of synthetically prepared remedial agents have nothing in common with either anilin or coal-tar, not even when these substances have been employed in the preparation of some one agent, for the reason that as a rule they have undergone such profound changes in regard to their constitution and properties, through chemical processes of transform-

ation, that the resulting terminal product can no longer be designated as an anilin derivative or as a product obtained from coal-tar, in the ordinary sense of the word.

The amount of mental and manual labor, as well as the perseverance, required for the preparation of a practically useful synthetic remedy can really be estimated at their true value by the professional man only. In order to obtain practically applicable products, thorough collaboration is required on the part of the chemist, the pharmacologist, and the clinician. Neither is it enough for the chemist to prepare a single product, for his work must take into consideration all the possible combinations, and he must build up all sorts of preparations, since sometimes an apparently insignificant change in the position of the atomic groups towards each other, or the exchange of one such group for another, may assume a decisive importance for the practical applicability of the substance.

The pharmacologist in his turn has to test the substances prepared by the chemist, in regard to their therapeutic applicability, by means of animal experiments. This test, however, must not stop at the determination of the effect upon individual organs exerted by these manifold bodies, the chemical constitution of which sometimes differs very slightly; but the individual bodies must further be compared with each other and with other well-known remedies, in regard to their action. Only the most minute comparative examinations permit the selection of the substance, the clinical examination of which holds out the best prospects of success. These pharmacological experiments do not require much time, but they are a source of considerable expense, because investigations of this kind can be carried out only in well-equipped institutions, which are provided with all sorts of instruments and apparatus. It is only after the pharmacological examination of a given chemical substance has furnished definite data as to its possessing new therapeutically valuable properties, or at least certain advantages over similar older remedies, that this particular substance can be passed on to clinical examination.

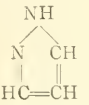
Clinical experiments with a new remedial agent in their turn must extend over a considerable number of carefully selected cases. Neither is it possible to reach a conclusive estimate as to the applicability of the preparation before the end of a prolonged period of time, 1 to 1½ years. In the majority of cases, it follows from the clinical experiments that the remedy after all does not behave in the human organism as should have been expected from the theoretical considerations and preliminary tests, and that its introduction into practice must accordingly be refrained from.

Although under such conditions the tedious and expensive work of the chemist and pharmacologist has not proved remunerative, it has nevertheless not been entirely in vain, since it has served to contribute to our knowledge and experience in the field of materia medica, and has shown how to avoid future failure.

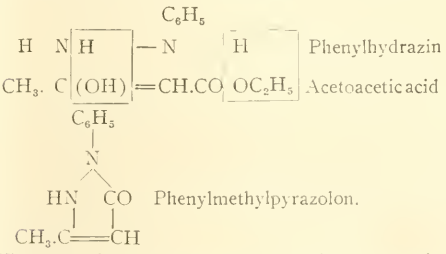
The above reflections, which suggest that the preparation of useful synthetic medicinal products is by no means so easy as is generally assumed, will be supplemented by some typical examples illustrating the synthetical course of a few of the best known remedial agents:

We will begin with the antipyretics. These fever-reducing agents are also analgesics; among the most prominent of them are antipyrin, acetanilid, phenacetin, lactophenin, etc. As antipyrin is the oldest of these products and perhaps more generally known and used by the physician, we will use it as an illustration, the proceeding being for the several preparations much alike.

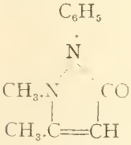
The specific antipyretic action of quinine caused Filehne to investigate the physiological action of antipyrin, as prepared by Knorr, which had originally been supposed to possess a constitution similar to that of quinine. This view was found to be erroneous, however, and is explained only by the incorrect interpretation prevailing at that period, in regard to the structure of quinine. Knorr assumed the body discovered by him to be a dimethyloxyquinidin. The physiological effect of antipyrin certainly favored the assumption that a body which was chemically analogous to quinine had been produced by way of synthesis. Later on, however, Knorr himself was enabled to show that his idea concerning the constitution of antipyrin had been erroneous, this constitution being actually based upon a new ring, the pyrazol-nucleus.



Basic substances for the preparation of antipyrin are benzol on the one hand, and acetic acid on the other. The benzol is converted into nitrobenzol by the action of nitric acid, and from the nitrobenzol anilin is obtained through treatment with reducing agents, such as iron and hydrochloric acid. Diazobenzol is obtained from anilin by means of nitric acid, and in its turn is reduced to phenylhydrazin. The acetic acid serves to prepare acetic-acid-ethyl-ester from which aceto-acetic acid ester is obtained by the action of metallic sodium. The condensation of the phenylhydrazin with the aceto-acetic-acid results in the production of a new body, phenyl-methyl-pyrazolon, through the splitting off of a molecule each of water and alcohol:



When one of the hydrogen atoms at the nitrogen is substituted by the methyl group, however, through treatment with methyl iodide, the result is phenyldimethylpyrazolon:



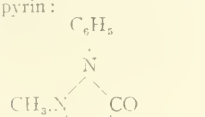
Antipyrin is known to possess antipyretic properties. This apyrexia sets in without the phenomena of collapse, and persists for a long time. Although anilin has entered into the preparation of antipyrin, the latter does not cause any damage of the blood pigment, as is frequently observed under the employment of direct anilin derivatives, such as for instance acetanilid.

Like all the febrifuges hitherto produced, antipyrin does not possess the specific effect of quinine upon malaria. On the other hand, Germain Sée

first pointed out a property of antipyrin, in which it far exceeds quinine, the typical febrifuge, namely its remarkable action as a nervine. It not only possesses the property of producing local anesthesia, but neuralgic pains may be aborted by its internal administration. According to Hénocque, hemorrhages subside more rapidly when the wound is treated with antipyrin than under the employment of chloride of iron or ergotin. The same investigator showed that antipyrin causes contraction of the vessels, retraction of the tissues, and coagulation of the blood. The fact that phenyl (mono) methylpyrazolon, the intermediate product in the preparation of antipyrin, possesses no particular febrifuge effect, is of especial interest because of the relation between its constitution and physiological action. The characteristic physiological action of antipyrin appears only through the introduction of the methyl group at the nitrogen. It is also very remarkable that only those bodies which are derived from pyrazolon have an antipyretic effect, while the isopyrazolons are poisonous.

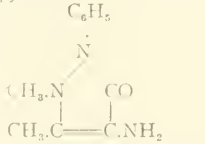
It has been seen that antipyrin is characterized as containing in its molecule the group NCH_3, which is also found in morphine and all the natural alkaloids having a strong narcotic action. The successful introduction, by means of substitution, of this group or one chemically related to it, into the antipyrin molecule, could but be expected to result in a remedy superior to antipyrin. Among compounds prepared according to this idea, dimethylamido-pyrazolon was prepared by Stolz in 1803.

It differs from antipyrin by the hydrogen atom in the pyrazolon ring being replaced by the group $N(CH_3)_2$, thus representing the dimethyl-amido-antipyrin:

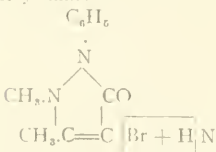


The substitution was made at the pyrazolon ring rather than the benzol ring, because the higher homologues of antipyrin, for instance tolipyrin, the preparation of which starts, not from benzol, but from toluol, possess no advantage to antipyrin.

Dimethyl-amido-pyrazolon (pyramidon) is obtained by allowing nitric acid to act upon antipyrin and then reducing the nitroso-antipyrin thus obtained. This results in the production of amido-antipyrin.



The amido-antipyrin is methylated into dimethylamido-antipyrin by means of methyl iodid, or the antipyrin is converted into brom-antipyrin by means of bromin. The brom-antipyrin is then heated with dimethylamin:

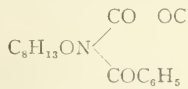


Phenacetin, phenocoll hydrochloride, and lactophenin differ but slightly in their chemical construction, phenacetin being an acetate of para-amido-phenatol, having the formula $C_6H_4(OC_2H_5).NH.(CH_3CO = C_{10}N_{13}NO_2)$. In lactophenin the acetic acid group is replaced by a lactic acid group. It has the formula $C_6H_4(OC_2H_5)$ $(HH.CH_3.CHOH.CO = C_{11}H_{15}NO_3)$. Phenocoll is represented thus: $C_6H_4.OC_2H_5NH(CH_2NH_2CO)HCl = C_{10}H_{14}O_2N_2HCl$.

The synthesis of these several products is quite similar to that of others of like character.

We will next take up the local anesthetics, and first give the chemistry of cocaine, following with a brief description of its substitutes made through chemical synthesis.

Together with other alkaloids cocaine is found in the leaves of erythroxylon coca, being as to its chemical constitution the methyl ester of benzoyl-ecgonin.



By means of various chemical reactions, cocaine may be split up into ecgonin, benzoic acid, and methyl alcohol; from these substances it may be reconstructed by converting the ecgonin, which has the properties of an acid, into the methylester, by means of methyl alcohol and hydrochloric acid, the methylester being benzoylated with benzoic acid anhydrid; or the ecgonin may be bonzoylated in the first place, after which the benzoyl-ecgonin is converted into the methylester. Neither ecgonin, its methylester, nor benzoyl-ecgonin presents an anesthetic action, this property appearing only in the benzolated ester of ecgonin. From the alkaloids contained in the coca leaves, in addition to cocaine, ecgonin may be obtained by means of chemical separation, the ecgonin being then synthetically converted into cocaine, so that ultimately more cocaine is obtained from the coca leaves than was originally contained in them as such.

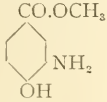
Among the decomposition products of cocaine, the methyl alcohol and the benzoic acid are readily accessible, but the more highly complicated ecgonin can be obtained synthetically only by a very difficult and devious method, so that synthetic cocaine cannot be prepared at remunerative rates. It is not only the presence of the benzoyl group which is required for the occurrence of the cocaine action; this is dependent upon the position and linkage of the hydroxyl and carboxyl groups.

The plainly evident and carefully studied connection between the constitution and the action of cocaine, and the importance which it had acquired in surgery, induced chemists to prepare other bodies having an analogous action, upon the basis of actual results. There were several circumstances which prompted investigation in this direction. On the one hand, the price of cocaine was and still remains a very potent factor, largely due to the manner of its production; and, on the other, professional experience promptly showed that we are dealing with a highly poisonous body, the dangerous character of which is further increased by the fact that a number of otherwise perfectly healthy individuals are particularly sensitive and possess a distinct idiosyncrasy towards cocaine. The systematic attempts to obtain useful substitutes for cocaine were based upon the accurately known composition of this body. As mentioned above, the benzoyl remnant in the cocaine (C_6H_5CO) has been found essential for the production of local anesthesia, since the cocaine lost this effect as soon as this remnant had been split off, and *vice versa*, certain bodies inefficient in them-

selves acquired the faculty of acting as local anesthetics, as soon as benzoyl had been introduced into them synthetically.

Einhorn and Heinz examined a large number of benzoylated compounds, including the benzoylated ester of the amido-benzoic acids, which in part presented the desired results up to a certain degree. Upon close inspection, however, it was found that the benzoyl remnant was of no importance in these bodies, for the nonbenzolated esters of the amido-benzoic acids in themselves were found to possess the local anesthetic effect to a far greater degree.

The m-amido-benzoic-acid-methyl-ester (orthoform) is obtained by first introducing carbonic acid into phenol, which results in the production of p-oxybenzoic acid (isomer of salicylic acid). Through the action of nitric acid, this is converted into m-nitro-p-oxybenzoic acid, from which the m-nitro-p-oxybenzoic-acid methyl-ester is prepared by means of methyl alcohol. From the latter, through treatment with reducing agents, the m-amido-p-oxybenzoic-acid methyl-ester (orthoform) is finally obtained, with the following formula of constitution:



The synthetic preparation of para-amido-benzoyl-diethyl-amino-ethanol-monohydrochlorate, known as novocain, starts with p-nitrobenzoic acid, which is converted into p-nitro-benzoyl chlorid, this being allowed to act upon diethyl-amino-ethanol $HOCH_2CH_2.N.(C_2H_5)_2$. This results in the production of p-nitro-benzoyl-diethyl-amino-ethanol through the action of zinc and hydrochloric acid.

In order to obtain the basic constituent of novocain, the diethyl-amnio-ethanol, ethyln-bromid is boiled with water and potassium carbonate, resulting in the production of ethyln-glycoll, which is distilled in flowing hydrochloric acid, converting it into ethyln-chlorhydrin $HOCH_2CH_2Cl$. From the latter diethyl-amino-ethanol is obtained by heating with diethylamin.

Diethylamin is obtained from diethylanilin $C_6H_5N(C_2H_5)_2$, nitric acid being allowed to act upon it, which results in the production of p-nitroso-diethyl-anilin $NOC_6H_4N(C_2H_5)_2$. When the latter is boiled with caustic soda, there results diethyl-amin $HN(C_2H_5)_2$, which is distilled over, while p-nitroso-phenol is left behind.

Benzoyl-ethyl-tetramethyl-diamino-propan hydrochlorid (alypin) is made by the action of dichlor-acetone on ethyl-magnesium bromid from which ethyl-dichlor-hydrin is obtained. From this through the action of dimethylamin, ethyl-tetramethyl-diamino-propanol is produced. The product is treated with benzoyl chlorid and neutralized with hydrochloric acid to form the hydrochloride.

Beta-eucain, the trimethyl-benzoyl-hydroxy-piperidin; stovain, benzoyl-ethyl-dimethyl-amino-propanol hydrochlorid, and other like substances, are synthetically prepared.

In addition to the antipyretics and analgesics, anesthetics, etc., here mentioned, numerous antiseptics, astringents, antilithics, hypnotics, antispasmodics, etc., are prepared in the chemists' laboratory, many of them praiseworthy remedies, but unfortunately most of them of minor importance to the physician.

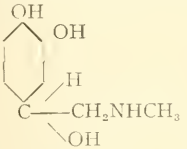
The active principles of the suprarenal will be mentioned in conclusion.

It has been shown by recent investigations on the part of physiological chemists that the suprarenal bodies contain a substance possessing to a high degree the power of increasing blood pressure. This effect is referable in the first place to a vascular constriction caused by the substance, and this accounts at the same time for its marked astringent and hemostatic properties.

The active substance of the suprarenal bodies, which was first isolated by J. J. Abel, of Johns Hopkins, was not a commercial product. Later, Aldrich and Takamine, each working independently of the other, were able to obtain the substance in a marketable shape, which they named adrenalin. Von Fürst in Germany arrived at like results, designating his product suprarenin. Like substances, suprarenalin, adnephrin, adrenin, etc., have been made, all from the gland.

These preparations found such extensive application in the various branches of medicine that probably by this time every physician is familiar with them from personal experience. No other remedy has excited the interest of physicians, pharmacologists, physiologists, and chemists to the same degree, from its very first appearance as suprarenin, the proper chemical designation for the active principle; therefore the most thorough investigations have been conducted for the purpose of determining its chemistry.

After the views of investigators had for a long time been considerably at variance, experiments led to conclusions that suprarenin has the following formula of constitution:



This furnished the basis for the synthetical construction of suprarenin. After many chemists had in vain endeavored to obtain it, this was at last accomplished by Dr. Stolz. His discovery ended the long series of purposeful painstaking labors, and with it chemical industry has won a triumph in the field of medical synthesis, which seems to be unique at the present time.

The individual phases of the synthetical preparation of suprarenin are as follows: First, brenzcatechin is obtained from benzol or phenol by converting them into phenol sulfo acid, and blending this with potassium. When the brenzcatechin is heated with chloracetic acid there results the production of chloraceto-brenzcatechin $HO_2C_6H_3.COCH_2.Cl$. When methylamin is allowed to act upon this body, the methyl-amino-aceto-brenzcatechin is obtained, $(HO)_2C_6H_3COCH_2NHCH_3$, a substance having a certain external resemblance to suprarenin and possessing a weak action upon the rise of blood pressure. It differs from suprarenin only by containing two atoms of hydrogen less than that substance. By suitable treatment with reducing agents, the methyl-amino-aceto-brenzcatechin may be converted into the o-dioxy-phenyl-ethanol-methyl-amin $(HO)_2C_6H_3CHOHCH_2NHCH_3$, which is identical in its chemical properties with natural suprarenin. Like this, it contains an asymmetric carbon atom, but is optically inactive, since it constitutes the dextrorotatory form of dioxy-phenyl-ethanol-methyl-amin; whereas natural suprarenin is levorotatory. In its physiological action the synthetical compound differs neither qualitatively nor quantitatively from suprarenin obtained from the suprarenal bodies.

These explanations, which are for the purpose of giving an idea of the course of medical synthesis, may possibly contribute towards the dissipation of

the uncalled-for prejudice prevailing against the employment of synthetic remedies. It certainly cannot be denied that chemistry, in conjunction with pharmacology, has supplied the physician with many useful medical agents which he would hardly care to lose from his stock of remedies.

Notwithstanding the fact that the large chemical manufacturers who work upon a serious scientific basis will put a new medical agent upon the market only after the pharmacological, physiological, and clinical tests, conducted on the part of authorities, have demonstrated that the offering of the new remedy corresponds to the actual need of modern therapeutics, it still remains the physician's task to consider these remedies as they appear from the chemico-pharmacological point of view. He will then be enabled to estimate whether the new remedy fills a gap in his stock of remedies, or whether it represents merely an imitation of familiar medicinal agents, of which it may be predicted that no new therapeutic effect is to be obtained.

The extension of his pharmacological knowledge will enable the physician to distinguish what is new and good from what is new and superfluous. Under these conditions, he will not lay both heedlessly aside, as is often done at present, but he will make use of the new and the good for the benefit of his patients, as well as for his own renown.

To have accomplished a synthesis of a principle which is represented only in the glands of animals is to be regarded as but a little short of the marvelous, or, as it would have been considered but a decade or two since, miraculous. Having succeeded in producing in the laboratory this principle, why not a synthetic thyroidin and active principles of other glands? And why should we stop there? The secrets hitherto concealed in Nature's workshop are being wrested from her, and we are warranted by past achievements in predicting further developments even more marvelous. The veil which has hitherto hidden the works of Nature has been rent, thus allowing those near to observe her methods. There will be no jealousy or selfish desire to possess alone the secrets of this hitherto unapproachable workshop. Apprentices are to be had, eager, earnest workmen, who will give their lives to the work, and, unorthodox and heretical as it may sound, it is nevertheless true that these same earnest men will do the work better than it has hitherto been done. It is for us to stand afar off and view the work that is being done, see the edifice reared which shall blaze the way for future generations, as did the works of Levoisier and Dalton. We may admire and cheer the workman, or criticise and demean him, but it matters not in either event: the structure will be completed. The antagonism to scientific achievements which has been apparent since the days of Galileo will only serve to make the truth more resplendent.

127 West Eighty-third Street

SOME PHASES OF HOSPITAL PROGRESS*

By S. S. GOLDWATER, M.D.,

NEW YORK

COMMISSIONER OF THE MUNICIPAL HOSPITALS

It is the function of the Committee on Hospital Progress to report history in the making. The difficulties of the task will be readily appreciated by anyone who has tried to keep in touch with hospital work in this country during the past year, and also will endeavor to select from the mass of observed or recorded facts those which are in organic relation to the development of the whole hospital body.

In the preparation of the report on hospital progress it is the function of other members of the committee to deal with the definitely outlined fields of hospital construction, medical organization and medical education, and the training of nurses. The duty of reporting on the more general subjects of hospital efficiency and the economics of administration rests upon me, and in presenting these subjects I shall endeavor to include such facts or occurrences as fall within the period under observation and appear to be capable of affecting the efficiency of hospitals generally. Such facts are:

(a) The growth of hospital extension work (comprising under this term all those branches of hospital work beyond the wards which have their common root in the newer conception of the hospital patient as a social unit).

(b) The growth of cooperation among organized medical charities, including the formation of permanent hospital leagues, as well as the organization of looser associations of hospital workers, and the study of hospital needs of given districts as a means of enabling the hospitals of such districts to understand the character of the needs which, collectively, they should satisfy.

(c) The approach toward that uniform method of accounting which ultimately will do so much for the enlightenment and guidance of hospital workers and hospital supporters.

(d) The attempt to establish a proper balance between municipalities or the public purse and those voluntary hospitals which by their work call forth generous private gifts and thereby lighten the burden of municipal taxation.

(e) The recognition of the personal and social needs of hospital employees, and the beginning of welfare work in their behalf.

(f) The establishment of the first chair of Hospital Economics designed for the training and instruction of hospital superintendents in the principles of their work.

The Growth of Hospital Extension Work.—The time is still within the recollection of the youngest hospital workers when the words "cured," "improved," and "unimproved" ended the story of the hospital's beneficence in the case of every patient who left the hospital alive. To-day the most progressive hospitals frankly accept a larger measure of responsibility and are ready either by the freer employment of their own resources or by bringing into play the resources of others, to extend their usefulness into the homes of patients whose illness has reduced dependents to a condition of destitution, and to assist the patients themselves, when ready for discharge, toward a return to social or industrial activity.

So far as the special needs of convalescents are concerned, it may be said that these needs, though as yet but sparingly provided for, are now at least everywhere recognized. A hopeful sign is the great emphasis laid upon the special claims of the convalescent in a large number of recent hospital reports—for the recognition of a need is the first step toward getting it attended to.

The president of the Presbyterian Hospital of New York makes the interesting suggestion that hospitals unite for the establishment of convalescent branches in common. He says: "If adequate provision were made for convalescents in the country, permanent cure would be far more cer-

*Report of the Committee on Hospital Progress, presented at the Ninth Annual Meeting of the American Hospital Association, Chicago, Ill., September 18, 1907.

tain and the length of stay of patients in our city hospitals could be so much diminished as to greatly increase hospital accommodation, without any increase in hospital plant. It may be that some plan of cooperation could be worked out which would give our hospitals this resource in common at a minimum cost, and thus not only increase their working capacity but also probably make a considerable reduction in the daily cost per patient."

To an appreciable but insufficient extent the needs of convalescents discharged from New York hospitals have been met by the establishment of the Loeb Memorial Home for Convalescents, caring for about one hundred patients, at East View, Westchester county, N. Y., and by the use as a convalescent hospital for women and children during the winter months of the Seaside Hospital of St. John's Guild, at New Dorp, S. I., a hospital formerly carried on only during the summer months for the care of sick children and infants.

Of interest in this connection is the confirmation of the reports concerning the Burke Foundation, the trustees of which, on the death of John Masterson Burke, a nonagenarian, will assume control of a fund of four million dollars, which is to be used largely in the interest of hospital convalescents.

A further event of great significance to the hospitals of New York is the establishment of the new Seaside Park by the City of New York—a tract of some four hundred acres of ocean beach stretching for nearly a mile along the south shore of Long Island, within the limits of which sites are to be set aside at nominal rental, on long leasehold, for the use of charitable societies wishing to build convalescent hospitals. For the guidance of other municipalities which may wish to emulate the example of the City of New York, I quote the following section of the bill under which the new park has been established: "With the approval of the Sinking Fund Commissioners, the Board of Estimate and Apportionment shall have the power whenever it shall deem it of public interest, to withdraw from the jurisdiction of the Park Board such portion or portions of said property, and to allow the use of said portion or portions so withdrawn for a period of thirty years, with the privilege of renewal for a period of twenty years, by any charitable or benevolent society of the City of New York that will erect a convalescent hospital or hospitals and provide for the care therein of residents of the City of New York, provided such building or buildings are so located and constructed as in the judgment of the Board of Estimate and Apportionment shall not disfigure said park or interfere with the purposes of public use and recreation.

For the long-neglected convalescents a brighter day seems to be dawning—a time in which his needs will be studied and recognized and in which his course toward recovery will be safeguarded and assured. In the meantime, while waiting for convalescent homes and branch hospitals, what can we do for the individual patient which we do not yet do? At least we can make his acquaintance and try to satisfy his individual needs. The introduction of a friendly visitor or social nurse into the wards of Bellevue Hospital a year ago was the first attempt to do this work in a large general hospital; the example of the progressive administration which has done so much for Bellevue has since been followed by Mount Sinai and other institutions. The advent of the social nurse has been widely noticed and everywhere approved. "Nothing can signalize more cheeringly the growing humanity of our public institutions," is the comment of an editorial writer in *Charities*.

In the opinion of Dr. Samuel T. Armstrong, General Medical Superintendent of Bellevue and Allied Hospitals, "the experiment (of having a nurse visit each patient admitted to the wards to learn whether it is necessary or practicable to refer the patient or the destitute family of the patient to some of the many charitable organizations of the city) has proved quite successful. Daily the nurse sees each new patient and by a tactful and brief interview learns whether anything more than medical or surgical treatment is needed to benefit the patient, and if further help is advisable she communicates by letter or telephone, and sometimes by personal interview, with the particular agency that is best fitted to aid. This has resulted in sending convalescents to country homes, in securing provisions for destitute families, in obtaining employment for those discharged from treatment who are without funds, in uniting separated families, in the further treatment of alcoholics, and in much other beneficence."

While welfare work is thus gaining its first foothold in large general hospitals, it is only just to say that for some years a number of special hospitals have been carrying on similar work. In March, 1906, the Ladies' Auxiliary of the Lying-In Hospital of the City of New York announced that during the preceding year 323 destitute and homeless cases had been reported through its In-Patient Committee, which committee maintained during the year a friendly visitor in the wards. There could be no broader policy than that of this committee, whose endeavor it is to see "that no woman should leave the hospital without receiving such help as she may require." The self-appointed work of this committee is "to find homes for those who are homeless, to provide clothes, food, and fuel when necessary, to make arrangements for placing the infant in a day nursery should the mother have to go out to work by the day, and in every way to give such assistance as is necessary and wise in each individual case."

Further examples of extension work by hospital and dispensary are afforded by the activities of paid and volunteer workers in connection with the Out-Patient Department of the Massachusetts General Hospital; by the growing work of the Department of Visiting Nurses of Vanderbilt Clinic; by the visiting nursing conducted by the Presbyterian Hospital and Dispensary of New York, and by the home visiting of the medical and nursing staff of the Babies' Hospital.*

The Movement Toward Cooperation.—The past year has witnessed the organization of several new associations of hospitals and hospital workers, as well as the further development of the work of associations previously in existence.

On April 1, 1907, forty-nine hospital superintendents attended the meeting at Toronto, Ontario, from which sprang the new Canadian Hospital Association, with plan and purpose similar to those of the American Hospital Association.

On May 16, 1907, the West Virginia Hospital Association held its first annual meeting at Hunting-

*I cannot refrain from calling attention here to the excellent and, so far as I know, the first comprehensive published statement of the social aspects of hospital work from a theoretical standpoint, an essay from the pen of a former associate of the present writer in the work of Mt. Sinai Hospital—Sidney E. Goldstein. This article appeared in *Charities*, on May 4 and 18, 1907, under the caption, "The Social Function of the Hospital."

ton, W. Va.; a prominent place in its program was accorded to "Uniformity and Cooperation Among Hospitals."

In October, 1906, the Hospital Association of Philadelphia, the mother of local hospital associations in this country, gave evidence of its broad social spirit by appointing a committee to confer with a similar committee of the Society for the Prevention of Social Diseases, to consider subjects affecting the public health.

Since 1902 the superintendents of the State charitable institutions of New York have met several times each year at the office of the Fiscal Supervisor of State Charities, for the purpose of considering joint contracts for supplies.

In Michigan a joint meeting of the boards of trustees of the five State hospitals for the insane is held twice each year. The joint board, as it is called, agrees upon a scale of salaries and a per capita allowance for the different hospitals according to their different needs.

In Colorado the president of the State Medical Society, at the last annual convention of that body, announced that letters had been addressed to each of the principal hospitals in Denver suggesting that a Board of Hospital Councilors be created by the appointment of one or more representatives from each hospital, and that this board be asked to devise means to control common hospital abuses.

The Hospital Conference of the City of New York, aiming to increase its efficiency, at the close of 1906 appointed a permanent Committee of Investigation, subdivided into smaller committees for the special investigation of the following subjects: (a) Hospital expenditure; (b) uniform accounting; (c) State inspection and municipal aid; (d) the distribution of hospitals and of hospital beds in relation to the needs of the community; (e) ambulance service; (f) paying patients; (g) treatment of patients in their own homes; (h) cooperation of hospitals with each other and with other relief agencies (i) dispensaries; (j) medical organization and medical education.

Without attempting to appraise the value of each step and incident in the cooperative movement, it must be acknowledged that the joint activities just enumerated show that a widespread cooperative movement exists. Evidently there is growing up among hospital workers something akin to the class consciousness of the industrial workingman, but the consciousness of a class which aims to develop a solidarity based upon no desire of group advancement, but upon the common wish to work more effectively for the health and happiness of others. And there is no doubt that notable gains will spring from the growing cooperative movement. But if the efficiency of any group of hospitals is to be enhanced by cooperation, the ground must first be prepared by a study of the hospital needs of the community to which the hospitals belong. This is recognized by the City of New York, which wishes to improve and if possible to perfect its municipal hospital service (the condition of which at present is quite as chaotic as that of the voluntary hospital service of the city) and which hopes that valuable results will follow from the investigation that is now being conducted by the Hospital Commission appointed by Mayor McClellan in 1906. The Mayor's commission was created for the avowed purpose of devising a comprehensive plan for the reorganization of the municipal hospital system. The commission has wisely decided that before formulating its recommendations it will ask for information on hospital administration from the mayors of all cities in America and Europe having a population of over 100,000.

While the Mayor's commission is studying the hospital needs of the city from the standpoint of the municipality, an investigation of the present and future hospital needs of the city is being privataly conducted by the State Charities Aid Association, which has already to its credit many valuable services rendered to the hospital and other charitable institutions of the city and State of New York. A study of the medical charities of Greater New York has also been made during the year by Miss Lattimore, a student in the New York School of Philanthropy, whose observations were summarized in the *New York State Journal of Medicine* during the earlier months of the year.

The dearth of reliable facts concerning hospitals is well known and applies to many municipalities besides New York. It is proper, therefore, to repeat the suggestion, made by Miss Aikens last year, that our own Association might in the course of time, when its financial condition and numerical support warrant, undertake the establishment of a central bureau of hospital statistics for the collection of data of common interest to the various communities and for the development of exact and useful methods of tabulating statistics of hospital administration.

Uniform Accounting.—The advantages of uniform accounting itself, far from spreading with the rapidity of wildfire, creeps along at snail's pace. Its active supporters are, unfortunately, but a handful, and their painstaking and convincing work deserves stronger countenance. The uniform system proposed by four New York hospitals has now been officially endorsed both by the American Hospital Association and by the Hospital Conference of the City of New York. To hasten its adoption, however, there seems to be need of some such new stimulus as outspoken public criticism, a weapon which can be wielded with good effect only by a powerful and respected press. It is my conviction that the welfare of hospitals would be promoted by the publication, in a fearless and independent organ of hospital progress and of administrative efficiency in philanthropic work, of a critical analysis of the reports of hospitals claiming public support. If the weakness and insufficiency (I will not say the disingenuousness) of some of these reports were brought to the notice of the public, the hospital managers concerned might be induced to see the wisdom of rendering a fuller and more satisfactory account of their stewardship. In the meantime, the movement toward uniformity can be aided by the prompt consideration and the emphatic endorsement of the uniform system (already sanctioned by this Association) by State and local associations and conferences wherever and whenever organized.

State and Municipal Aid to Private Hospitals.—The long-expected increase in the per capita per diem rate granted to voluntary hospitals caring for charity patients in New York City has at length been granted. Such hospitals now obtain, subject to strict regulations, an allowance of 70 cents per day for adult medical cases, 90 cents per day for adult surgical cases, and 45 cents per day for children. (The new rates average about 14 per cent. more than those which previously prevailed.) A comparison of these rates with the daily cost of maintaining ward patients in the hospitals affected, shows that while the municipal government of the City of New York is willing to cooperate with

private hospitals which relieve it of the necessity of caring for a considerable number of charity cases, its appropriations toward the support of such institutions are eminently judicious and are by no means calculated to relieve the supporters of such hospitals of their voluntarily assumed obligations. An analysis of the work done by thirty-nine hospitals connected with the Hospital Saturday and Sunday Association for the fiscal year ending September 30, 1905, shows that 969,897 days of free treatment were given by these hospitals during the period named, and that the current expenditures of the hospitals, for maintenance alone, amounted to over $2,600,000. The appropriations from the City Treasury toward the support of these hospitals during the same period was only $293,000.*

New York is not the only section of the country in which the appropriation of public funds for the partial support of hospitals privately managed is now sanctioned by public opinion and by law. A comparison of the methods followed in making such appropriations, therefore, will not be out of place. The two principal methods according to which such appropriations are made, are the lump sum subsidy system, exemplified in the practice of the Commonwealth of Pennsylvania, and the per capita contract system, one form of which prevails in the City of New York. (The lump sum subsidy system formerly prevailed also in the District of Columbia, but the contract system has since been adopted in lieu of the older method, with results which appear to be entirely satisfactory to the District Board of Charities.)

During the years 1903 to 1905 (appropriations being made for two years at a time) the State of Pennsylvania set aside for the support of one hundred and seventy-six private charitable institutions the sum of $4,657,000, equal to $2,328,500 per year. This sum was distributed among the various beneficiaries without any restrictive or guiding statutory provisions.

Such appropriations are made in Pennsylvania by act of legislature, and theoretically the sums set aside are supposed to bear some relation to the needs of the institutions concerned and to the amount of work done or to be done by such institutions according to the opinion of the State Board of Charities; in practice no such relation exists. It is customary for institutions seeking aid to petition the State Board of Charities, and subsequently, by their representatives, to appear before that Board to support their claims by argument and for the purpose of furnishing any further information the Board may desire. In a report made to the Hospital Association of Philadelphia, from which I shall take the liberty to quote, Mr. Firth explains that "the petitioners appear in considerable numbers and are often subject to long delays before they are reached, with not much possibility of the Board being able to give any one petitioner a full and detailed hearing. Upon no systematic plan, so far as is known, the board decides upon the amount it will recommend that the Legislature shall grant to each applicant. The applicants then move upon Harrisburg. They interview and seek to bring friendly influence to bear upon members of the Legislature to induce favorable action upon their petitions. The Legislature may, and does, appropriate to other institutions and in other amounts than those recommended by the Board of Public Charities. The unequal and seemingly inequitable distribution of public funds that always results from the practice now governing has caused many good citizens to condemn the entire policy of the State and to advocate confining the use of State funds to the support of institutions owned and operated by the State."

That inequality in the distribution of hospital funds to the hospitals of Pennsylvania does exist is shown by the following figures, taken from recent reports of four Pennsylvania hospitals chosen at random:

Total days free treatment of ward patients.	Estimated cost of treating free patients.	State appropriation for maintenance for the year.	State allowance figured upon a per capita per diem basis.
Hosp. A, 20,590	$48,930	$37,500	$1.82
Hosp. B, 29,690	53,693	50,000	1.68
Hosp. C, 18,734	35,000	12,500	.66
Hosp. D, 49,629	66,162	6,875	.13

These figures relate to appropriations for maintenance; inequalities just as glaring appear among the appropriations for special purposes, as for buildings, improvements, etc.

The practice of the State of Pennsylvania in this matter is apparently far removed from any idea of justice. Planted in the soil of selfishness, the seed of favoritism produces no wholesome fruit. Such a system is bound to result in dark and vicious relations between State officials and private institutions which claim honorable recognition as philanthropic enterprises. In strong contrast to the conditions just outlined is the healthier system which, after many abortive attempts, has finally come into being in New York.

In the report on public appropriations to private charities made to the Comptroller of the City of New York in 1899 by a committee of the State Charities Aid Association, the following principles were enumerated: "(1) All institutions and societies should receive the same payment for the same class of inmates; (2) the city should make all payments to hospitals at a per capita rate instead of making an appropriation of the gross amount; (3) the city should make no appropriations for the maintenance of hospital patients, except such as are accepted as proper public charges by the Department of Public Charities after due investigation of the circumstances of such persons; and should pay for such persons only for such periods of time as are approved by the Department of Public Charities; (4) when the city maintains institutions in its own Department of Public Charities for special classes of cases, and these institutions are not filled, the city should not pay for the same class of patients elsewhere." The substance of these recommendations, as the following quotations will show, has been incorporated in the rules and regulations under which the City of New York now carries on its admirable system of cooperation with charitable institutions, and particularly with hospitals founded and maintained chiefly by voluntary contributions.

Under the rules of the Board of Estimate and Apportionment (which controls the municipal budget) all appropriations for charitable institutions are made subject to the following conditions:

"*a.* The accounts of all charitable institutions receiving public moneys must be so kept as to show receipts and disbursements in such form as shall be satisfactory to the Comptroller, showing the addresses of the parents, guardians, or nearest relatives of inmates, and other information designed to facilitate inquiry into their financial inability to provide for such inmates.

*A few of the hospitals connected with the Hospital Saturday and Sunday Association did not apply for the municipal appropriation to which they were entitled.

"*b*. All institutions receiving public moneys must be at all reasonable times open to the visitation and inspection of duly authorized representatives of the Department of Public Charities and the Department of Finance.

"*c*. Where appropriations are made upon a per capita basis, no payment shall be made for inmates of private charitable institutions unless the same shall have been accepted by the Commissioner of the Department of Public Charities as a proper charge against the city, and, except in emergency cases, the Commissioner of Charities shall not accept as proper charges against the city inmates capable of paying for their own support, or for whose care adequate provision can be made in public institutions. The city shall not become liable for any payment to a charitable institution in excess of the appropriation which may have been made to such institution, notwithstanding any per capita rates of payment that may have been fixed for the inmates thereof.

"*d*. All institutions receiving money from the city are required to state specifically the amount so received, as from the City Treasury, in their printed annual reports.

"*e*. No money may be paid to any private charitable institution which pays any salary to or gives any consideration, financial or of any kind, for services to, or that has any business dealing with, or secures goods or merchandise, directly or indirectly, from any officer or trustee or member of its Board of Managers.

"*f*. Where the city is paying 50 per cent. and upwards of the cost of maintenance of an institution, the Board of Estimate and Apportionment requires representation in the board meeting of that institution, with the right of taking part in all business transactions.

"*g*. The rates of payments to private charitable institutions, unless otherwise specially provided for, are fixed for the various classes of hospital inmates as follows:

"For infants under two years of age, and in infants' hospitals also between the ages of two and five, per day	$0.45
For maternity cases, per case	18.00
To hospitals for medical treatment, per day	.70
To hospitals for surgical treatment, per day	.90"

It must not be supposed, however, that these admirable rules have always obtained in the relations between private hospitals and the City of New York. Where all is now governed by common sense and justice, at an earlier day inequality, injustice, and unreason ruled. Only ten years ago some hospitals received per capita sums, others gross amounts, while a few hospitals received both per capita allowances and a gross amount, and the unguarded appropriations of the city were in a fair way to transfer a considerable number of hospitals from the basis of private support to that of public support. The danger of this movement to the community became so great that the report of the State Charities Aid Association, already alluded to, went so far as to declare that the plan of granting subsidies to private institutions had "inherent grave dangers which it was impossible to obviate, and that no plan could be devised which would insure wholly satisfactory results." There appears to day to be no justification for so extreme a view. Under the prevailing system in New York the private hospitals which cooperate with the city, almost without exception, obtain by their own efforts from private sources the bulk of the moneys expended by them upon plant and for maintenance, and by their continued existence and activity tend to diminish the burden of taxation for the support of the sick poor.

Wages and Welfare of Hospital Employes.—The welfare of the lower grades of hospital workers has rarely received at the hands of hospital managers such careful attention as would seem to be demanded both by the interests of the workers themselves and by the dependence of hospital efficiency on a stable and competent household organization. During the past year this subject has received special consideration from the trustees of Bellevue and Allied Hospitals and from the Commissioner of Charities of the City of New York, whose conclusions have been recorded in official reports and correspondence.

In a communication addressed to the Municipal Civil Service Commission, Commissioner Hebberd, in July, 1906, reports that hospital helpers are employed in the Department of Charities in the following numbers, at wages less than $20 per month: 36 at $5, 10 at $6, 5 at $7.50, 2 at $8, 343 at $10, 197 at $12, 250 at $12.50, 65 at $15, 11 at $16, 10 at $20.

The records of the Department of Charities show that out of 1,683 appointments in this class of workers made during a period of six months, 1,062 were dismissed for cause, 473 resigned, and only 187 were retained and promoted for good conduct. "While occasionally a fairly suitable man or woman can be had at $10 per month," writes Commissioner Hebberd, "it is impossible to manage satisfactorily the affairs of a department like this upon the supposition that any number of good employees can be had at this rate of compensation. What we are really getting to care for the sick and infirm are persons of poor character, many of them addicted to drink and others recently discharged from the workhouse. Their services are unsatisfactory and cost more in the end than would be the case if reasonable wages were paid. These cheap helpers take up not only as much dormitory space and consume as much food as good workers, but they are careless and wasteful. Having practically nothing by way of wages to lose, it is exceedingly difficult to exert any influence over these workers, particularly as so many of them are quite glad of a good excuse to get intoxicated."

Commissioner Hebberd asks for a reform in the schedule of salaries in the hospitals of his department, on the following basis: Men, first year $20, second year $25, third year (and thereafter unless promoted to a higher grade), $30; women, first year, $15, second year $20, and third year (and thereafter unless promoted to a higher grade), $25. Precisely the same schedule as that recommended by Commissioner Hebberd has been adopted by the Board of Trustees of Bellevue and Allied Hospitals, one of the three great branches of the municipal hospital service of the City of New York. This board adopted a resolution declaring that if its appropriation permitted, it would pay "a minimum of $15 per month to women employees and $20 to men, with maintenance, during the first year of service; $20 and $25 respectively during the second year of service, and $25 and $30 during the third year." In adopting this resolution the board stated its conviction that the permanent retention of an

efficient and desirable class of hospital attendants and employees is possible only on the condition of paying a wage approximately equal to that which would be given for similar service in the best private institutions.

As a further means of attracting to the service of the hospital a desirable class of workers, clubs have been organized among both the male and female employees of Bellevue Hospital, which provide social attractions and wholesome recreation for workers, some of whom if left to themselves would inevitably drift toward the street and the saloon.

Few hospitals, perhaps, without either contracting their work or finding new resources, can afford to put into effect at once the liberal wage scale to which the municipal hospitals of New York now stand committed. But while we may not have the means immediately to follow in the footsteps of these leaders in liberality, we cannot fail to commend the spirit in which the proposed reforms have been conceived, and to approve the policy which demands that if sacrifices are to be made for the support of public and private hospitals, such sacrifices must not be forced upon unwilling, low-salaried hospital workers, but should come either from the State itself, through the humane use of its resources for the support of its weaker members, or from prosperous individuals who are willing to devote a share of their surplus income to the relief of the distressed. A sense of justice demands that the wages of hospital workers be fixed on a basis consistent with their social needs, even if the total cost of hospital maintenance be thus increased.

A Chair of Hospital Management and Economics.—In closing this report I desire to call attention to the Chair of Hospital Management and Economics established in the Spring of this year by the new Brooklyn Post-Graduate Medical School. The new chair has been filled by the appointment of Dr. John J. Fitzgerald, General Medical Superintendent of the Department of Public Charities of the City of New York, who announces that instruction will be given "in methods of hospital construction, with illustrations as to detail and management; in the classification of patients, and the principles of hospital economy, etc."

Furthermore, I am in a position to announce that one of the three great universities which have medical schools in the City of New York is prepared to establish a department for the training of hospital superintendents in the principles and practice of hospital administration, and to arrange for the coordination of this department with two of the schools of the university in which cognate subjects are now taught, just as soon as means are provided for placing the new department upon a sound financial footing.

Thus approaches the realization of a hope long cherished by many of the members of this Association that the technical training of hospital superintendents might be undertaken by an educational body of dignity, learning, foresight, and influence, not for the greater glory of those who are already engaged in the labor of hospital administration, but for the greater efficiency and better social service of their successors.

Automobile Accidents.—A report issued by the Safe Roads Automobile Association shows that between June 21 and September 21 of this year forty-one persons were killed and 313 injured as the result of automobile accidents in Massachusetts, so far as they were recorded by the Association.

PSYCHIATRY AND ITS IMPORTANCE.*

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Psychiatry is an important branch of general medicine, and in presenting the subject I wish to discuss the medical, the sociological, and the economical factors involved.

The defective and abnormal classes are markedly on the increase, and it behooves not only the physician but the citizen and legislator to do whatever is in the power of each to bring about an amelioration of existing conditions. In 1892 the ratio of the committed insane to the general population in New York State was 1 to 377. In 1905 this ratio had fallen to one insane in every 299 of the general population. The epileptics are, also, a numerous defective class, and the ratio is about one epileptic to every 500 of the general population. What the ratio of other defectives is to the general population I am not in a position to speak with authority.

The study of psychiatry, as a practical science, aims to determine, and to apply, the remedies best qualified to procure normal thinking and normal conduct, and, as has been said by a prominent author, "the actual cure of a case of alienation is a matter of secondary importance in comparison with the discovery of methods for preventing its spread."

There seems to be an indifference on the part of the great majority of the public concerning this important subject, and I dare say exceedingly few of our citizens are informed as to the scope and methods of the study of the most afflicted of mankind. This, however, should not be a source of much wonder when we stop to consider that it is only within the past few years that the general welfare of those suffering from mental disease has awakened the medical profession at large. It is also recently that any effort has been made to have a properly equipped hospital at the disposal of physicians for the study and treatment of disorders of the mind. In Europe a number of the large universities have connected with them specially equipped psychiatric hospitals and clinics. In this country, with one exception, no university has connected with it a psychiatric hospital.† The exception is Ann Arbor, where there has been established a psychopathic ward in connection with the Medical Department. Notwithstanding the fact that Ann Arbor is the first university in this country to establish a psychopathic hospital and clinic, the State of New York stands foremost in the line of advancement. Under the wise control of the State Commission in Lunacy some years ago, a Pathological Institute was founded in connection with the State Hospital system. It has done, and is now doing, splendid work under the direct management of Dr. Adolf Meyer. Again, the State of New York has under consideration the establishment of a psychopathic hospital in the city of New York. This hospital will not be connected directly with any university, yet it will be in a place where every possible endeavor may be made for solving problems in psychiatry, and where proper study and care may be given to all forms of alienation. Notwithstanding this, it behooves the profession at large,

*Read at the annual meeting of the Dutchess County Medical Society, January 9, 1907.

†It should be stated that Pavilion "F" of Albany, N. Y., is connected with the Albany Medical College and the course of instruction in psychiatry in this college is in connection with the Pavilion and all the medical students are given an opportunity to see and to study a number of cases of insanity.

as well as the public-spirited citizen, to insist that psychopathic hospitals and clinics be attached to our great medical universities, and that mental diseases be studied in our colleges in the same way as physiology, anatomy, general medicine, etc., are studied.

Again, each and every county in the State should have special hospitals erected for the reception of urgent and early cases of insanity. The lack of such hospitals at the present time is a great source of worry to friends and relatives in the commitment of this class to the hospitals. There is no proper place of detention. There is no place for temporary observation, and under the present system much harm is often done by delay in giving acute cases proper and early treatment. In support of this contention I have to state that in the Hudson River State Hospital, during the past fiscal year, there were admitted 525 cases, and the average duration of insanity in these cases, previous to admission, was three years. The number discharged during the year as recovered was 103, and in this number the duration of insanity, previous to admission, averaged seven months. The mere fact that these 103 recoverable cases remained without the hospital, or without proper treatment, for seven months is quite a commentary upon the way the public manifests its general indifference.

If each town or city of ten thousand or more inhabitants had a psychopathic ward or hospital many incipient cases of nervous and mental disease would receive early care and attention; also many borderland cases would come to such a hospital for advice, and thus there would be fewer wrecks to be cared for in the hospitals for the insane, and the ultimate good derived would be of great benefit to the communities and the State at large. In New York City plans are being formulated for the expenditure of between $25,000,000 and $30,000,000 for general hospitals, and so far as I have been able to ascertain not one dollar is being spent by the city for a psychopathic hospital. Just think of Greater New York, with a population of some 4,000,000 people, with all its wealth and all of its charity, and yet with no properly equipped hospital for the study and care of the most afflicted of the race! New York has a Psychopathic Ward in Bellevue and one in Kings County Hospital, but these wards are merely for temporary detention—until cases are diagnosed—then comes commitment to a hospital for the insane or discharge, as the case may demand. Albany has its Pavilion "F" for certain acute cases, and is doing good work, but aside from these places mentioned I am not aware of any other places, in this State at least, properly equipped for even temporary detention of early and suspected cases of mental disease.

The average duration of the insane life in the hospitals of this State is between ten and twelve years. It is computed by some prominent authorities that each earning individual is worth at least $150 to the State. To maintain each individual in the hospitals for the insane in this State costs about $200. The life of the insane being from ten to twelve years, it is easy to compute what an enormous expense the State must necessarily bear in properly caring for this class. The yearly cost for the committed insane, in this State, amounts to about $6,000,000. With this yearly cost and the constantly increasing number of the insane, what a problem for the sociologist!

The sociologists and the charities are doing a great deal towards the upbuilding and the uplifting of the race. Laws are being made that will tend to improve the general social and moral tone; laws as to compulsory education, laws as to child labor, laws as to hygiene and health. The question of a standard of living also claims the attention of the social worker and our reformatories are doing good work.

But what can be done from the standpoint of the sociologist that will be of use to the race from the standpoint of the student of psychopathology? We should influence the general public to arise to the necessity of the occasion by a process of education. Adapt our educational system to the demands of the child—the youth. Build up special training schools, that each child may be taught, and each may develop, along natural lines. These training schools would tend to do away with class distinction, which seems to be so prominent a feature in our present social system. We must teach health and hygiene. We must assist in raising the standard of living. We should regulate immigration by barring all defectives of whatever nature, and there should be segregation and sterilization of all incurable defectives which are so great a menace to society.

Intermarriage of defectives should be forbidden, and we should make just and utilitarian laws, the enforcement of which would redound to the good of our whole social fabric. Hysterical sentimentality should have no part in preventing the solution of a question that means so much for the ultimate good of the race.

I am quite aware that to do this requires time, a process of education and considerable money, but the general public never raises a hue and cry about the expenditures of money for educational and charitable purposes, provided it is wisely spent. The public is always ready to respond to such calls—but, gentlemen, look out for the legislator! He will howl and rage—and yet how pliable this same legislator becomes when the general public makes a demand! When the constituents speak, the legislator is as "clay in the hands of the potter."

From a medical standpoint the problems in mental disease can be solved only by assiduous study, close, critical, and painstaking observation, and satisfying results by experiments. Theoretical psychology and philosophy will not solve the problems at issue. They must be approached from various points of view: the psychological, the clinical, the physical, the chemicophysical, and the anatomicopathological. Thus we see the absolute necessity of having hospitals properly equipped for the treatment, study, and final solution of all questions involved in psychiatry.

The questions as to how to meet all the conditions connected with these problems are of great importance, and the future will have to solve many of them, but the present generation may lay the foundation upon which to build, and whatever is done must be by the cooperation of the physician with the layman; by the general education of the public.

The processes of prevention begin at home, around the family circle. It is here that the family physician can wield a mighty influence by giving proper advice to the fathers and mothers concerning the rearing and the education of the young, so that the children will not be forced into gaining knowledge along unnatural and abnormal lines. It is at the family hearthstone that the youth should be properly taught in regard to sufficient outdoor exercise, proper nourishment, and personal hygiene. Some authorities maintain that our present school system is an abnormal one and that the system is the cause of a great deal of nervous and mental trouble. On the other hand, high authorities main-

tain the adverse, that the fault is not so much in the system, which is adapted to the normal child, as it is in the fathers and mothers in desiring children who are backward to be pushed forward—to be kept up with the brighter ones.

Medically, the most important point in the study of these cases is the careful observation of symptoms and the proper analysis of such, and before we can really recognize incipient mental defect we must be able to form at least an approximate estimate of what is normal. Each and every case is one unto itself. The question involved is not whether a person is abnormal from what is considered our standpoint of the normal, but whether or not a person's normal condition has become abnormal.

When the physician is called upon to examine a patient, he has to determine if the patient is suffering from mental or physical illness, or both, and what are the demonstrable abnormalities present—he has to determine the cause of the illness, so as to form a rational course of treatment. Lastly, he has to study the case with such care and accuracy as to lead to a comprehensive knowledge of the disorder and to conclusions that are warranted by the facts obtained.

It is always extremely difficult for the hospital physician to obtain truthful records in cases of physical disorders, and such being the case you will readily appreciate how much more difficult it is to make a proper and reliable record of those afflicted with any form of mental disorder. The general practitioner has a better chance to get at many of the facts necessary for a complete understanding of the case than anyone else, and the hospital physician looks to the general practitioner for assistance, and the more observant and the more accurate one is the easier it will be to assist in the final outcome of the case. In the description of cases a confused terminology should be avoided. Simple, direct, and accurate description of what is seen and what is found should be made.

In the examination of a patient, we begin with the *family history.* Here we obtain all the information possible concerning the family, especially concerning hereditary tendencies in the ancestor, direct or collateral. If such a tendency is found we attempt to trace the probable cause, the age at which this ancestor, progenitor, or collateral was affected, and the environment in which he lived. These facts should be recorded in such a medical way as to be plain to any physician who might desire information. If no mental disorder is admitted, we should search for symptoms of mental stigmata, such as eccentricities of character, suicide, alcoholism. We should also inquire into the causes of death of any members of the family, and carefully note such causes as apoplexy, tuberculosis, heart disease, nervous affections, skin diseases, etc. The parents of the individual should receive consideration as to whether they are blood relatives; whether one or both of them are alcoholics, and whether there is any marked discrepancy in their ages. We should trace, if possible, any history of syphilis, rheumatism, bone disease, epilepsy, neuroses, etc. From family history we turn to the *personal history.*

This should include gestation, birth, infancy, and childhood. We should trace the development up to puberty, especially concerning convulsions, infectious diseases, impressionability in general, and whether the child was bright and learned readily, and whether it began to talk and walk at its proper age. The mental and physical state of the patient prior to the onset of puberty having been recorded, it is important to contrast the condition at puberty and afterward. The patient's general view of life should be taken into account, and it should be noted, if possible, "whether all the faculties developed harmoniously or whether intellectual progress took place along certain limited lines." Then we come to the *present condition* of the patient, and search for causes, stating definitely whatever may be found. All physical symptoms, the onset of the trouble, and the present illness, should be noted as clearly in detail as in a case of some infectious disease. A complete physical examination should be made and all signs of physical stigmata looked into. A minute examination must be made of the eyes, the nose, the ears, the teeth, the mouth, the gums, the secretory and excretory organs, the extremities, the genitalia, the heart, lungs, etc. Then our attention is given to the higher sensory organs and to the sensibilities. Next the cutaneous and the deep reflexes, the motor functions, the trophic disturbances of the skin, and finally the *testing of the mental state.*

The testing of the mental state will prove a most difficult problem, and will require very great patience and painstaking care, and we must remember to record only facts—clear and to the point. Arbitrary use of words should not be tolerated. In performing this duty we look for defects of judgment and intellect, for disorders of attention, of sensations, insane ideas—hallucinations, illusions, delusions, disturbances of association, of consciousness, of memory, of volition, of emotion, and of conduct.

After the mental and physical questions are thoroughly gone into we should make an examination of the sputum, blood, urine, and in many cases of the cerebrospinal fluid. Lumbar puncture, if made, should be under proper antisepsis and the spinal fluid drawn into a sterilized tube and then examined chemically and microscopically. This is often of great assistance in making a diagnosis of general paresis, of tabes, and of infectious cerebrospinal meningitis.

Until within very recent years the medical profession has been hampered by old ideas concerning the classification of mental diseases and the faults and traditions have continued to cling to us. For years and years nearly all forms of mental disease have fallen into three prominent classes: mania, melancholia, dementia, and the subdivisions of the same. Since the time of Hippocrates almost every prominent writer on mental diseases has had a classification of his own, and especially is this so since the time of Pinel, Esquirol, and Cullen. No classification, however, has been satisfactory. At the present time the majority of the leading alienists have dropped the old terminology and have placed cases with certain symptom-complexes into special groups. These groups have been given a provisional terminology merely for the sake of keeping order among facts. These groupings are based entirely upon certain fundamental traits and symptom-complexes. They are of great assistance to the medical profession and to the student of psychiatry, for whom they have certain definite meanings, and we are now better able to prognosticate and to treat the various psychoses.

Dr. Henry A. Cotton, assistant physician at the Danvers Hospital, one of the State asylums of Massachusetts, has been elected to succeed Dr. John W. Ward as medical director of the State Hospital for the Insane in Trenton, N. J. Dr. Ward recently resigned as the result of the investigation of affairs at the hospital, though it is claimed that he was not responsible for the alleged abuses reported to exist there.

RUPTURE OF THE LIVER; OPERATION; DEATH.

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The importance of the location of the solution of continuity in cases of rupture of the liver, and the relationship which this bears to the probable outcome as regards the feasibility of surgical treatment, renders the case here reported of value. In a general way, it may be said that the location of the rupture usually corresponds to the site where the causative force was applied. It may also be said that, although the right lobe of the liver is the most protected portion, it is also the part most frequently ruptured. Waring of London, in his rather comprehensive work on the "Surgery of the Liver," states that Mayer reported 85 cases of rupture of the liver, in 54 of which the lesion was in the right lobe, and that Ogston reported that in 26 cases the right lobe was ruptured in 11.

The degree of force required to rupture the capsule of Glisson is considerable. This fact renders the coexistence of complicating injury to contiguous or more distant parts or organs exceedingly liable, and unless uncomplicated rupture of the gland is made the basis of an opinion as regards the mortality, conclusions from the statistics may lead to error.

My case was one of uncomplicated rupture of the liver, the lesion occurring in an exceedingly unfavorable portion of the organ as regards the application of methods of repair, and in consequence it had a fatal outcome. However, the case is submitted on the ground that no reasonable conclusion as to the utility of means of relief can be arrived at as the result of reporting only successes, and again, and more important perhaps, for the reason that the clinical picture presented by the patient was anything but classic as regards the symptoms which one had a right to expect when viewed from the viewpoint of the conditions confronting us upon celiotomy.

M. K., a Hungarian, aged 29, was admitted to Harlem Hospital on June 30, 1907, at noon. The previous morning (twenty-four hours before) he had fallen a distance of about eight feet, striking the lower portion of his right chest on the edge of a pile of lumber. The injury caused him considerable pain, but he managed to reach his home, which was quite a distance from where the injury was received, without assistance. During the night he vomited the contents of the stomach, the pain in his side became more severe, and the day following his injury he was admitted to the hospital. On admission, a linear contusion, corresponding to the area of contact with the lumber pile, was discovered extending obliquely downward and backward, beginning over the anterior portion of the seventh rib and reaching to the tenth rib about on the level with the posterior axillary line, that is, directly over the right lobe of the liver. Temperature, 99° F. in rectum; pulse, 88. The abdomen was moderately distended; no broken ribs; some rigidity, most marked over the upper segment of the right rectus abdominalis muscle. The face was pinched, but there was no pallor, nor was thirst a marked symptom. In the night the patient vomited six times. Urine was voided, but the bowels did not move.

On July 1, about fifty hours after receipt of the injury, the patient came under my observation. At this time the pulse rate was 90, temperature 99° F., the face anxious, respiration 24, abdomen moderately distended and tender, the rigidity extending over entire abdomen. This certainly was not a picture of progressive hemorrhage. Indeed, the house surgeon thought the man's condition was rather better than when admitted. However, the anxious expression of the face, the distention and rigidity of the abdomen, together with the history of the character of injury received, the presence of the contusion, as stated above, and the fact that at the end of fifty hours there was still present the evidence of some abdominal lesion led to the belief that a rupture of the liver existed and justified celiotomy. An incision through the middle of the right rectus was made, extending from the costal cartilages to opposite the umbilicus. The abdomen was full of dark fluid blood. Exploration reveaed an irregular rupture in the liver substance, situated low down in the right lobe, and so far posteriorly as to preclude repair by sewing or cautery, or indeed by any method which involved direct manipulation. The rupture was about three inches in length, and, by passing the hand down to it three fingers could be readily introduced for a considerable distance into the liver substance. There was still some oozing from the wound, but this was not so active as to cause immediate alarm. The cavity of the abdomen was freely flushed out with hot saline solution, a Mikulicz tampon was passed down to and into the wound, and slender ribbons of gauze were carefully packed into it. This seemed to control bleeding, and temporary approximation with through-and-through silkworm gut sutures was made. The patient came off the table in moderate shock; pulse, 98; respiration, 32. The tampon seemed to interfere with respiration to a considerable extent. At nine o'clock that evening the pulse had risen to 120, respiration 40, temperature 102° F.; at midnight, temperature 103° F., pulse 120. Eleven hours after the operation the patient died. At time of death the pulse was 120, respiration 45, temp. 105°.

The case presented some unique features; there was at no time any evidence of shock, nor at any time the classic picture we generally regard as indicative of progressive internal hemorrhage. Neither the rate nor the character of the pulse indicated it; the temperature was at no time subnormal, there was no thirst, no restlessness, and no air hunger. It is of course to be borne in mind that the wound in the liver substance was at a location where there are not many large blood-vessels, both the portal and arterial circulation entering farther forward, and being distributed by means of smaller branches toward the periphery, and more so is this true in respect to the particular portion of the organ involved in the trauma in this instance. What we may believe that happened is that the trauma which ruptured the liver was practically a blunt force which drove the ribs against the liver substance and ruptured it. The absence of the symptoms indicative of hemorrhage may be ascribed to the theory that the oozing was gradual and there was an accommodation of the body functions to the withdrawal of circulating fluid in this manner.

That death supervened so promptly after operative interference does not argue well for the technique employed, yet there was no other available under the circumstances. The persistent rise of temperature after the operation and up to the time of fatal outcome would argue strongly against the assumption that the bleeding had not been arrested by the measures employed. Hyperpyrexia toward the end of life is generally regarded as an exaggerated or disturbed metabolism. What connection there is between this phenomena and rupture of the liver is perhaps to be explained by the peculiar function the liver has as an internal secreting organ.

15 WEST EIGHTY-EIGHTH STREET.

The Pathology of General Paralysis of the Insane.—W. Ford Robertson declares that the etiology and pathogenesis of this disease have hitherto remained a profound mystery. There has recently been noted a growing dissatisfaction with the syphilitic hypothesis. There exist many weighty arguments against the view that general paralysis and tabes dorsalis are essentially syphilitic in their origin. There is unquestionable evidence that the general paralytic suffers from an active bacterial toxemia. Syphilis doubtless plays an important part, but it is merely that of weakening the general and local defences against bacteria. The writer then describes in some detail investigations which he offers as evidence that a diphtheroid bacillus, either an attenuated form of the Klebs-Löffler bacillus, or more probably an altogether distinct microorganism, is the specific etiological factor in general paralysis and tabes dorsalis. According to Orr and Rows tabetic lesions of the cord can be produced by the absorption of toxins from peripheral septic foci. The writer concludes by saying that the general paralytic defends himself and often with success for some time by manufacturing specific bacteriolytic antibodies. He believes it worth while to produce such antibodies in suitable lower animals in order that they may be used as therapeutic agents.—*The Scottish Medical and Surgical Journal.*

Enuresis: With Special Reference to Its Etiology and Treatment.—James Burnet does not regard bedwetting as pathological until the period of infancy has been passed. Every case of this kind that is brought to a physician for treatment should be most carefully investigated, as no permanent result can be expected from remedies unless the ultimate cause has been accurately determined. The writer believes that enuresis is most frequent in nervous children, many of whom are of a rheumatic heredity, and that in a few patients other causes, local it may be, or general, contribute to its onset. He does not think that adenoids, phimosis, or oxyurides conduce to its onset. However, he is strongly of the opinion that constipation is a potent factor. If, after the examination has been made, and no local exciting agent, nor any rectal or urinary abnormality apart from constipation and hyperacidity of the urine be found, a thorough evacuation of the bowels should be obtained by the administration of calomel, castor oil, or preferably by means of a large olive-oil enema. The foot of the bed should be raised, and the patient should rest on one side, and not upon his back. The elimination of starchy food from the diet is helpful in some cases. A diet consisting largely of eggs, milk, fish, and fruit is advantageous in these cases. Nothing should be given the child to drink two hours before retiring. The patient should empty both the bowels and bladder just before going to bed. Drug treatment the writer considers secondary to the more general treatment. Strychnine with tincture of belladonna may be given. A spinal douche night and morning with cold water, followed by rough towelling of the skin is advisable. Treatment of the disturbance of the bladder or any other condition giving rise to this affection may be necessary.—*Treatment.*

The Treatment of Uric Acid.—James F. Goodhart declares that to him the presence of uric acid in the urine seems to be an absolute puzzle. He insists that "acidity" is brought about in several ways; at least it does not attach itself exclusively to any one class of food. If, however, any one should be banned on this account he would suggest the carbohydrate group and not the flesh group. In many, perhaps in most cases, diet is not the initial fault. He cannot detect the predominant evil influence of meat in causing the appearance of uric acid in the urine. He argues against the rich or mixed living which is so common. He thinks that perhaps rich gravies, sauces, spices, and pepper may have an adverse influence. He believes that those who are inclined to the passage of uric acid should be careful as to the consumption of unadulterated starch, and sugar, and fat, including cream. He thinks also that these articles of diet are probably digested more easily earlier in the day than later. Salt is another article of diet not above suspicion. Of some of the acid fruits he thinks the same. Vinegar is indigestible either in itself or in its influence on other foods if taken in any thing more than a mere flavoring quantity. Wine also is more prone than food to call out erratic tendencies on the part of the digestive processes. In a large number of cases the formation of uric acid is first of all a nervous aberration by which all the natural digestive processes are upset, uric acid being the result of the imperfect combustion. Such patients should observe strict moderation in all things apart from tonics, cures at watering places, and change of scene and air, the use of half a dram of bicarbonate of potash in a tumbler of water at bedtime is one of the most useful remedies.—*The Practitioner.*

Transmissibility and Curability of Cancer.—William Seaman Bainbridge, after reviewing the evidence concerning the theories of heredity, congenital transmission, and infectiousness or contagiousness as causal factors in the production of cancer, concludes that heredity and the congenital transmission of cancer are subjects which require much more study before any definite conclusions can be formulated concerning them; that the contagiousness or infectiousness is far from proved; that evidence in support of the theory is so incomplete and inconclusive that the public need not be alarmed concerning it; that the danger of the accidental acquirement of cancer is far less than that of typhoid fever, syphilis, or tuberculosis; that in the case of cancer there is much more danger to the attendant of septic infection, of blood poisoning from pus organisms, than from any possible acquirement of cancer; that the communication of cancer from man to man is so rare, if it really occurs at all, that it can practically be disregarded; that in cancer, as in all other disease, attention to diet, exercise, and proper hygienic surroundings is of the utmost importance; that cancer is local in its beginning; that, when accessible, it may, in its incipiency, be removed by radical operation so perfectly that the chances are overwhelmingly in favor of its nonrecurrence; that once it has advanced beyond the stage of cure, in many cases suffering may be palliated and life prolonged by surgical means; that while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest means of cure.—*Boston Medical and Surgical Journal.*

The Thymus and Death in the Course of General Anesthesia.—André Lapointe ranks among the conditions that render anesthesia dangerous abnormal persistence of the thymus gland after birth. It is associated with hypertrophy of the lymphatic organs and the lymphadenoid tissues. The author has found in literature 33 examples of sudden death under general anesthesia in such persons, and to them adds two observed by himself. The dominant symptom is the presence of a large thymus. The evolution of this gland consists of a period of growth, followed by one of regression ending normally in the second year of life, abnormally from the fifth to the twenty-fifth year. There are vestiges of the gland even in the most advanced age. Histological changes go on that are curious; at first they are epithelial, later fatty changes go on. Persistent thymus is only one feature of the *status lymphaticus*. There is almost always enlargement of the lymphatic glands, and exuberant adenoid tissue in the pharynx, and in the Peyer's patches of the intestine. Sometimes the thyroid is also hyperplastic, and there is corpulence combined with the other changes. The form of anesthetic used seems to have no effect on the occurrence of sudden death in such subjects. The respiration becomes slowed, and the pulse imperceptible; then the heart stops and the pupils dilate rapidly. Artificial respiration will cause a few breaths after the stoppage of the heart. The theory of compression of the trachea and great vessels by the thymus is hardly tenable as a cause of death. No compression has been found at the autopsy in any case. Hyperthymization, that is that the thymus throws into the circulation toxic substances that create a pathological excitation of the cardiac nervous centers, which react reflexly, is also proposed. On this supposition it is advisable to lessen all nervous excitations before the operation by the use of drugs. In every case in which there are evidences of the *status lymphaticus*, scopolamine-morphine solution should be injected so as to produce a calm sleep, and then anesthesia should be begun during the sleep.—*Le Progrès Médical.*

Asymmetrical Pelves in Obstetrical Practice.—Fieux describes asymmetrical pelves as true oblique-oval pelves, Naegele's pelvis, and pseudo-oblique-oval pelves. The first are rare, and due to lack of development of one wing of the sacrum and iliac bone, from ankylosis of the synchondrosis. Commoner are those due to lack of development of one side of the pelvis due to some lesion of one limb producing limping. Scoliosis combined with lateral curvature may also cause it. The anteroposterior dimensions are normal provided rickets is not combined with it. The diagnosis is easier in Naegele's pelvis, since it may be seen by external examination, while in the other form it is only discovered by vaginal examination under chloroform. In Naegele's pelvis one hip and one buttock are overdeveloped and the others are flattened. In the pseudo-oblique-oval form under chloroform the hand reaches the innominate line on the deformed side and finds it horizontal and pointing to the body of the first sacral vertebra. In the less marked deformities natural deliveries are possible, while in severe forms interference is necessary. The forceps is of little use; version is better; symphyseotomy or cesarean section are often needed.—*Journal de Médecine de Bordeaux.*

MEDICAL RECORD.

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BLOOD CULTURES IN TYPHOID FEVER.

THE truth that typhoid fever is a preventable disease has been well impressed upon the present generation of physicians. It is certainly true that a pure milk and water supply, proper sewer construction, and other sanitary measures, will spare any community the frightful epidemics of a few years ago with the enormous economic losses accompanying the unnecessary sacrifice of human life and health. But the physicians of a community, in their more limited sphere of action, can independently contribute very much to the disappearance of this scourge by such handling of all suspicious, as well as frank cases of typhoid fever as will give the least opportunity for the spread of the disease from such individual foci of infection. The possibilities of such work are shown by the brilliant record of Robert Koch in Trier, where the isolation and cure of some seventy cases of the disease existing on his arrival rendered the community typhoid-free for the time being. The proper treatment of all excreta, the instruction of the attending nurses and relatives in their conduct, the administration of urinary antiseptics to convalescents, are all methods toward such end, but perhaps the most important of all is the diagnosis of each new case at the earliest possible moment. Only with such diagnosis the proper precautions may be instituted and their importance impressed upon those surrounding the patient.

In this connection the use of the Widal agglutination reaction has led to a great advance over the methods of the purely clinical era that preceded the present laboratory and bacteriological methods of diagnosis; of late the custom of making routine blood cultures in all suspicious cases has brought us nearer to the prompt and sure diagnosis of the disease, positive results having been obtained in from 70 per cent. to 100 per cent. of the cases examined. The present desideratum, however, is such simplification of this valuable method as will enable the attending physician to do the work in his laboratory, though lacking the facilities of a well-appointed hospital. In No. 27, Vol. VI, of *Russkii Vratch*, Dr. Padlevsky describes his experience with one such method, namely, the use of bile recommended by Conradi and Kayser to enrich the culture medium. The bile was obtained fresh from the slaughter-houses and then sterilized by steam for half an hour on three successive days. About 1 c.c. of blood obtained from the veins of the arm was mixed with twice the amount of bile and then incubated for from 16 to 24 hours. The mixtures were then examined in smears and hanging drops and transfers were made to agar and other media. The growth on these appeared some five or six hours later, and therefore a diagnosis could be made in from 30 to 32 hours after the blood was first taken. In 119 cases examined positive results were obtained in the first week of the disease in 92.3 per cent., during the second week in 72.4 per cent., during the third week in 66.6 per cent., and in 33.3 per cent. in the fourth week.

Of greater interest is the more extensive and original work of Dr. Klodnitzky appearing in the same and successive numbers of *Vratch* (Nos. 27, 28, 29, Vol. VI). His method of bacteriological examination of the blood is founded upon the claim that it is not the enriching of the media by such elements as bile, peptone, etc., that leads to the growth of the bacteria, but the destruction of the red blood corpuscles accompanying the laking of the blood and the abolition of such bactericidal properties as these formed elements of the blood may possess. Accordingly, he simply mixed the blood with sterile water, using this as the first medium because of the hemolysis thus produced. Cultures were obtained in 73 per cent. of the one hundred cases of typhoid fever examined; as the work was done in the Kharbin laboratory during the recent Russo-Japanese war, and was hampered by all the difficulties attending an experimental laboratory in time and place of war, these results compare very favorably with those obtained by other methods. They are important, moreover, by supporting the theory of the bactericidal influence of the erythrocytes or their products, which may have a wider application than the blood culture work alone.

These two papers show the direction in which bacteriologists are at present working in simplifying the positive diagnosis of typhoid fever at the earliest moment possible, facilitating thus the treatment of the disease and the prevention of epidemics. With further progress it may be hoped that bacteriological examination of the blood in suitable cases may enter as much within the province of a practitioner as the search for malarial organisms in the blood of patients suffering from intermittent fever.

WHAT HEALTH DEPARTMENTS CAN DO TO SECURE PURE MILK.

THIS was the title of an extremely interesting paper read last week at the meeting in Buffalo of the health officers of the State by Dr. Thomas Darlington, Health Commissioner of New York City. The paper not only was interesting in its account of the praiseworthy efforts of the Health Department to safeguard the consumers of milk in this city, but also presented an unanswerable argument for the municipal pasteurization of the bulk of the city's milk supply. "The problem of a pure milk supply for a city is solved," Dr. Darlington said, "when the Department of Health can guarantee that all milk sold within the city limits is drawn from perfectly healthy and normal cows, housed in comfortable and sanitary quarters, milked by a clean and healthy person into a sterile container, quickly cooled, transported, and delivered to the consumer in a sealed package." So far we are in perfect accord with the Health Commissioner, and when such perfection is reached we shall advocate the destruction or the storage of

all pasteurizing apparatus. How far we are at present from such perfection, Dr. Darlington was at haste to demonstrate.

The daily milk supply of New York, he said, amounts to 1,750,000 quarts, gathered from over 35,000 farms, and shipped from about 700 creameries located in six States. The supervision of these 35,000 farms is entrusted to sixteen inspectors, or one to something over 2,000 farms. Each of these officers inspects on an average ten farms a day, which, allowing for time in traveling between the different farms, would give him perhaps thirty minutes for each farm. If even such brief visit could be made every week, or every month, there would be some ground for confidence that the rules of the Health Department were strictly followed, and that the river of milk flowing into the city was reasonably pure. But each farm is visited, not every week nor every month, but only once a year. For three hundred and sixty-four days out of the three hundred and sixty-five the farmer is secure from prying eyes and an inquisitive nose, and can amuse himself, after morning prayers, with a reading of the Department's dairy rules, printed on linen and hanging on the wall of his milk shed. The faith that would accept such inspection as a guarantee of purity in the milk supply would move Mount Everett to Central Park.

The efforts of the Health Commissioner to secure a pure milk supply for this city are deserving of all praise, and we have no will to belittle them. He has accomplished wonders with the small force of inspectors at his command, and the refusal of the Board of Estimate to give him the money to increase this force is shortsighted and deplorable. Nevertheless, with as many inspectors as the most liberal and hygienically farseeing Board could possibly allow him, competent supervision of these 35,000 farms will be impossible. An army of five hundred men at least would be needed to make the inspection efficient, and even if so many intelligent and competent men could be found for the work, the expense would be such as no Board of Estimate would or could ever sanction. The most that can be hoped for from the most thorough inspection possible is that the milk supplied to the city shall be macroscopically clean—free, that is, from admixture of manure and other gross impurities—and containing only a few thousands of the ubiquitous bacteria to the cubic centimeter. Even then there could be no certainty that the milk would be always absolutely sterile as regards the bacilli of tuberculosis, typhoid fever, and diphtheria, to say nothing of occasional accidental contamination with other pathogenic germs. With the best inspection possible under existing, or any practically conceivable conditions, the great bulk of milk delivered in New York every morning will only be fit for pasteurization—and even that is as yet far from realization. Nevertheless, our present milk supply can be rendered reasonably safe by pasteurization, which kills the existing germs even if it does not destroy the toxins already formed or prevent subsequent growth when not kept cool and in sealed receptacles. The only safety for the consumers of milk in this and other cities throughout the country lies in municipal pasteurization, conducted under constant supervision of the Health Department, of all except an insignificant fraction of the milk supply. Even that fraction would be made safer by heating for twenty minutes to 155° Fahrenheit and subsequent cooling of the sealed bottles containing it to 40°. In pasteurization only, supplemented by conscientious and thorough inspection, will be found a solution of the problem of a pure milk supply.

PRIMARY TYPHLITIS.

THERE is considerable diversity of opinion as to whether inflammation of the cecum occurs independently of similar involvement of the vermiform appendix, some denying the occurrence of such a condition, while the majority at least admit its possibility. The weight of evidence further seems to support the latter position. The recognition of this fact is of prime importance, as ablation of the appendix may fail to relieve the symptoms in a given case, while omission to take account of the lesions in the cecum may result in unanticipated disaster. In illustration of this statement, Dr. G. A. McWilliams, writing in the *Annals of Surgery* for June, reports the case of a man, 48 years old, who presented symptoms of acute appendicitis, with encapsulated abscess. At operation the appendix was found practically normal, while the cecum was enlarged, thickened, and congested. Accordingly, this portion of the bowel was resected and anastomosis established between the ileum and the colon. Although the patient reacted well from the operation, he died on the following day as a result of acute dilatation of the heart. Post-mortem examination disclosed a condition of primary acute suppurative inflammation of the cecum, with secondary inflammation of the appendix.

From the conditions present in the case reported, in conjunction with a study of the literature of the subject, the conclusion is reached that primary acute and chronic typhlitis does occur independently of appendicitis, dysentery, tuberculosis, actinomycosis, or carcinoma, and may be idiopathic in origin or depend upon coprostasis. The condition may, in the presence of a normal appendix, lead to perforation, with the formation of perityphlitic abscess or general peritonitis. The symptoms of primary typhlitis are usually identical with those of appendicitis, and the indications for operation are similar in the two conditions. Primary typhlitis is rare in comparison with the frequency of appendicitis. The differential diagnosis of inflammatory typhlitis from tuberculosis, carcinoma, and actinomycosis may be impossible at operation, and in such an event a section of the cecum should be removed for microscopical examination. The recurrence of symptoms after removal of the appendix may be due to attacks of typhlitis, and the treatment for this condition consists in regulation of the diet and the employment of oil enemata, etc. The danger from primary typhlitis consists in the liability to rupture of an ulcer and to the development of appendicitis. Purgatives are held to be contraindicated in the presence of inflammation of structures in the right iliac fossa, because of the danger of superinducing rupture of an ulcer in the cecum or appendix, or of breaking up adhesions about an abscess. The treatment of primary typhlitis consists in abdominal section, removal of the appendix, closure of any perforation if possible, invagination of any threatening perfora-

tion of the cecum, drainage of the right iliac fossa, and the removal of a section of the wall of the cecum for microscopical examination for purposes of diagnosis.

A CURE FOR EXPERIMENTAL NAGANA.

From the time that European nations began to colonize Africa, it was found that their colonies could develop only when certain diseases, which killed many persons each year, could be cured or prevented. Investigators soon found that trypanosomes were not, as first supposed, harmless parasites found in the blood of rats, but were the cause of several animal diseases as well as of sleeping sickness. Like the malaria parasites, these are transmitted by the bites of insects which have sucked the blood of infected individuals or animals. Since a specific remedy for malaria existed, reasoning from analogy, suggested that there should also be one for the trypanosomes. Up to the present time preparations of arsenic have been the only ones which have given any satisfactory results. Sodium arsenate gave doubtful results, its injection causing abscesses and ulcers. Atoxyl was tried, and, while not causing abscesses and giving some good results in sleeping sickness, was not found altogether satisfactory. Ehrlich and Shiga tried trypan-red, parafuchsin, and malachite-green, none with perfect results. In short, all the remedies cured but few animals and produced only a temporary effect in others, often inducing a fatal poisoning instead of a cure.

Loeffler and Rühs instituted a series of experiments in the laboratories at Greifswald (*Deutsche medizinische Wochenschrift*, August 22, 1907) on rabbits, guinea-pigs, and rats with nagana trypanosomes of marked virulence, the latter killing an untreated animal in five to six days. Atoxyl and trypan-red were tried separately and combined, with no better results than other observers had obtained in other trypanosome diseases. They then tried sodium arsenate intraperitoneally, as it caused abscesses when given subcutaneously. They found that the preparation varied in strength, and hence only used that prepared according to the Ziemssen method; this cured some animals, while others were not cured, and still others died of arsenic poisoning. The sodium arsenate was then tried in combination with atoxyl with good effect upon the trypanosomes, although many more animals died of arsenic poisoning than when the sodium arsenate was used alone. Atoxyl being neutral, they attributed this more deadly action to the diminished alkalinity of the mixture. They then first neutralized the sodium arsenate with acids before mixing it with atoxyl when they found the effect of the mixture still more poisonous, but still effective as regards the trypanosomes; when the mixture was made acid the effect was again more marked, nearly all the animals dying on whom the treatment was tried. From these experiments they concluded that arsenous acid was the active drug in the mixture, and this was now tried alone. A one tenth per cent. solution was prepared, of which 0.012 to 0.018 gram for each kilo of weight would kill a guinea-pig when given by mouth, 0.004 to 0.006 gram being enough to cause the trypanosomes to disappear from the blood for five days. When this dose was given five times, at five-day intervals, all infected animals were cured and healthy animals did not develop the disease when injected with trypanosomes, provided the arsenous acid treatment was carried out first. All animals were cured, and none died of arsenic poisoning, while in reality less arsenic was injected than when the other preparations were used. They usually began with a smaller dose when the animals were very sick. Loeffler and Rühs believe that as this remedy cures and acts as a prophylactic in nagana it might also be of avail in the other trypanosome diseases.

LOW-FREQUENCY ALTERNATING CURRENTS IN THE TREATMENT OF ATONY OR DEGENERATION OF MUSCULAR TISSUE.

It is not many years since the electrical treatment of certain diseases, generally of nervous origin, was initiated. D'Arsonval is perhaps still the greatest authority on the subject, and his works remain text-books. At first, in fact, up to quite a recent date, high-frequency currents were the vogue, and currents of prodigious rapidity were employed. Of course, high frequency currents are still widely used, but there now seems to be an increasing tendency on the part of those who practise electrotherapeutics to rely more than formerly upon low-frequency currents for the relief of certain well-defined disorders of the nervous system.

Dr. Reginald Morton, who is medical officer in charge of the electrical department of the London Hospital, at which hospital is the largest installation of light and electric appliances for the treatment of disease of any institution in Great Britain, read at the recent meeting of the British Medical Association a paper dealing with the efficacy of low-frequency alternating currents. He said that a current slowly undulating and periodically reversing its direction had always appealed to him as a therapeutic agent possessing great possibilities. High-frequency currents with their thousands and tens of thousands of reversals per second, were at one end of the scale, and low-frequency currents, with one to four or six reversals per second, were at the other end of the scale. He thought that high-frequency currents were finding their level, and if the electrical reactions of muscles so affected were tested, it would be usually found that there is a prolonged latent period, a prolonged period of contraction, and it might also be found that there was a prolonged period of relaxation. It must also be borne in mind that there is normally a longer latent period and a longer period of contraction in unstriped involuntary muscle than is found in healthy voluntary muscular tissue.

It has seemed to Dr. Morton, in treating such cases, that to get the best results something more stimulating should be employed than the constant current, but if it was decided to use a variable or undulating current, one should be selected in which the successive waves should not follow one another too rapidly. The low-frequency sinusoidal current possessed all the advantages of the constant current and few of its disadvantages.

At the London Hospital are arrangements by which a constant current, a sinusoidal current of

about 15 cycles per second, and another of about 1 or 2 cycles per second, are instantly, and at all times available, and Dr. Morton's experience has been that the sinusoidal currents are more and more used with good results. Certain cases greatly benefited by the application of these currents are those of an atonic condition of unstriped muscle, among which may be included the atonic dyspepsias and constipation due to atony of the colon.

THE EPIDEMIC OF INFANTILE PARALYSIS.

Many communities, among them the city of New York, are suffering this autumn from a rather severe epidemic of anterior poliomyelitis. As usual, the great majority of sufferers are children, yet in the present visitation not a few young adults have been attacked. The disease has ever been a mystery as regards its etiology, from the time it was first recognized as a pathological entity by Duchenne. Many of its features would stamp it as an acute infectious disease, but its microbial cause, if such exists, remains to be discovered. It is at times such as this, when the disease is rife and physicians, warned by its prevalence, are in position to make an early diagnosis, or at least to suspect its presence, that the opportunity is at hand to solve the mystery of its causation.

Physicians, especially those whose practice is mainly among the poor—though the present epidemic is by no means confined to this class—should be suspicious of every case of undefined pyrexial disease in a child, and should subject it to a thorough bacteriological examination. We are informed that the directors of the Rockefeller Institute and of the Research Laboratory of the Department of Health, if requested by the attending physician, will gladly undertake to have lumbar puncture performed and a bacteriological examination made of the cerebrospinal fluid. This will be done without expense to the patient's family or medical attendant. Doubtless the same will be done by the neurologists and bacteriologists connected with other research laboratories in this and other cities.

We would call attention also to the collective investigation undertaken by the New York Neurological Society and the Pediatric Section of the New York Academy of Medicine, announcement of which is made elsewhere in this issue of the Medical Record. In order to make this investigation of value, the cordial cooperation of the practising physicians of the city is essential. Although the epidemic is apparently on the wane, there is still time for the collection of much valuable information and of data affording matter for productive study.

If as many fresh cases could be seen and studied every week as there are old cases brought in the same period of time to the orthopedic institutions of the city for treatment of the resulting paralytic deformities, a long step would be taken toward a solution of the etiological riddle of infantile paralysis.

Uncontrollable Vomiting of Pregnancy.

It is rather curious that it is only within the last fifty years or so that this affection has received much attention from obstetricians; at least the writings of the earlier authorities, who certainly were not deficient in powers of observation, contain but few and brief references to this complication. Apparently it is becoming more prevalent unless, as Freund suggests in the *Deutsche medizinische Wochenschrift*, October 3, 1907, the diagnosis is made more frequently than in former generations, because the limits of "uncontrollable" are much more widely set than was formerly the case. Freund, although he attaches due weight to the various theories of intoxication and reflex causation that have been advanced, and even points out a new source of the latter, viz., congestive conditions in the nasopharynx, is inclined to lay much stress on the psychical factor, which he regards as of great significance. The nervous form of so-called uncontrollable vomiting, he says, is the most frequent, and this in most cases is curable through psychical and dietetic treatment. This is to be carried out by a more or less protracted period of rectal feeding, during which nothing is taken by mouth, while the patient is isolated from family and friends, and is cared for only by attentive, but not unduly sympathetic strangers. In some cases the purely psychical nature of the affection has been demonstrated by the prompt relief afforded by a fictitious operation supposed by the patient to be an abortion, and which was not followed by a relapse when the truth became apparent. For the few cases in which abortion must actually be resorted to as a last resort, he recommends performing the operation at one sitting, and as quickly as possible. He urges greater efforts at prophylaxis, however, early in the pregnancy by the careful search for, and removal of, all possible sources of reflex irritation, and especially by a suitable psychical régime, in which of course the personality of the physician is of paramount importance.

The Influence of Diet in Tuberculosis.

Although the importance ascribed to the management of the diet in tuberculosis is justified both by practice and theory, there is still a great deal to be learned in regard to the actual manner in which modifications of the character of the food influence metabolism in general and the resistance to disease in particular. An interesting contribution to this aspect of the science of dietetics is furnished by Weigert (*Berliner klinische Wochenschrift*, September 23, 1907), who fed dogs and guinea-pigs on diets of different kinds, and then analyzed the bodies of the animals. In this way he was able to determine that the chemical composition of the animal body is susceptible of modification by variations in diet, and especially that the percentage of water fluctuates according to the type of feeding. Young animals and those receiving a preponderatingly carbohydrate diet exhibit the greatest water content, while animals fed largely on fatty food manifest an increase both in nitrogen and mineral ash. One series of the author's experiments was devoted to investigating the dietary conditions in tuberculosis. For this purpose two sets of young pigs were fed for some time on fatty and carbohydrate foods respectively, and were then inoculated with perlsucht bacilli. The results were strongly in favor of the fatty regimen, for the animals that had received only food of this description were at autopsy found in better general condition and with less extensive tuberculous lesions than the members of the other group that had been nourished on sugars and starches. This result is in accord with clinical experience, and the author's conclusion that an insufficiency of fatty foods among the poorer population is a contributing factor in the spread of tuberculosis, is only a confirmation of what has long been recognized empirically.

News of the Week.

Collective Investigation of the Poliomyelitis Epidemic.—A committee has been appointed by the New York Neurological Society to cooperate with a committee appointed by the Section on Pediatrics of the New York Academy of Medicine in a collective investigation of the present epidemic of anterior poliomyelitis. The members of these committees are anxious to make a thorough investigation of, and to collect all the data relative to, the epidemic of poliomyelitis of 1907 in New York City and its immediate vicinity. To this end they must have the cooperation of all those who have had, or will have, an opportunity of studying this disease in hospital or private practice. Physicians willing to assist in this work will kindly inform the Secretary, Dr. Edwin G. Zabriskie, 37 West Fifty-fourth Street, New York City, who will send them history forms so as to secure uniform records. Physicians who cannot collaborate with the committee will confer a favor by reporting to the Secretary the number of cases of poliomyelitis they have treated during the past six months. The joint committee wishes to state most emphatically that due credit will be given to everyone who contributes to this collective investigation, and that the publication of the committee's report will in no wise interfere with any article or articles to be published on this subject. Moreover, the committee's report will surely not be printed earlier than a year from date, so that medical men will have ample time to publish their articles long before the committee will have its report ready. Signed: B. Sachs (Chairman), E. G. Zabriskie (Secretary), J. R. Hunt, J. F. Terriberry, L. Pierce Clark, of the Committee of the Neurological Society; L. E. La Fétra, Herman Schwarz, L. C. Ager (Brooklyn), of the Committee of the Section on Pediatrics of the New York Academy of Medicine; Simon Flexner, for the Rockefeller Institute; C. F. Bolduan, for the Department of Health, New York City.

Harvey Society Lecture.—The first lecture in the present course will be delivered by Professor E. O. Jordan of Chicago University on Saturday evening, October 26, at 8:30 P.M. Subject, "The Problems of Sanitation."

The Herter Lectures at the Johns Hopkins University.—These lectures will be given at the end of April, 1908, by Professor Edward A. Schäfer, who holds the chair of physiology in the University of Edinburgh.

The Hospital Conference of the City of New York will hold a meeting to which the public is invited at the Academy of Medicine on Wednesday evening, October 30, 1907. Dr. W. Gilman Thompson will deliver an illustrated lecture on "Modern European Hospital Construction."

Measles in a Pennsylvania City.—It was discovered last week that a large proportion of the children attending the public schools of Allegheny were suffering from measles. In one school alone two hundred and fifty cases of the disease were found, and the school was closed. The Superintendent of the Board of Health has issued a warning to parents announcing that he would prosecute all persons found sending their children to school when they knew that they were suffering from measles.

Plague in San Francisco.—Plague is decreasing in San Francisco, and no additional cases have been reported since the middle of the month. There have been seventy verified cases, with forty-three deaths, thirty-two suspects are under observation, seventeen patients have been discharged as cured, and ten patients are under treatment.

Cholera in Russia.—Although the disease continues to advance and new provinces are being officially included in the danger zone, the authorities are feeling more hopeful, as they attribute the spread of the disease to the exceptionally mild autumn weather, and expect the epidemic will be checked with the advent of winter.

To Examine the Eyes and Ears of School Children.—The State Department of Health has sent to each of the 446 incorporated villages in the State a complete set of forms with instructions for the examination of the eyes and ears of school children in the public schools of those villages. It is proposed to have the teachers carry out the examinations under the cooperation of the local health officers, though it must be admitted that the value of statistics obtained in this way will be open to serious criticism.

To Bar American Canned Goods.—The Mexican national Board of Health contemplates issuing an order prohibiting the sale of imported canned goods in Mexico. An official investigation has resulted in the charge that American manufacturers and dealers in these goods have used Mexico as a dumping ground for adulterated and impure stock since the pure food law went into effect. It is alleged that much sickness has lately been caused in Mexico from the consumption of imported canned goods.

Milk Dealers Fined.—Thirty retail milk dealers were fined from $10 to $50 each in the Court of Special Sessions last week for selling adulterated milk. Thirteen wholesale milk dealers were also arraigned on charges of having unclean cans, but the court held that the retailers should have cleaned them before sending them back, and the wholesalers were all discharged.

Pasteurized Milk Plants in the United Kingdom.—Mr. Nathan Straus of this city has offered to present the cities of Dublin and Liverpool with pasteurizing plants for the preparation of milk to be used in infant feeding.

Admission of Homeopathic Graduates.—At a largely attended business meeting of the Philadelphia County Medical Society held October 16 an amendment to the by-laws was adopted making eligible for membership any reputable graduate of not less than a year's standing from a medical school legally authorized to confer the degree of doctor of medicine, who has complied with the requirements of the medical examination laws, and who abjures all sectarian designations.

Entertainment of German Scientists.—It is reported that the citizens of Dresden and the public press have objected to the money spent by the municipality in providing for the entertainment of those attending the seventy-eighth Congress of German Men of Science and Physicians held in Dresden last month, and have severely criticised the practice of public entertainment on such occasions. The city of Dresden appropriated for the purposes of the Congress the sum of 20,000 marks, of which 14,000 marks was spent for entertainment.

Liverpool School of Tropical Medicine.—The Liverpool School of Tropical Medicine has received from the British Government an additional grant of $2,500 a year, increasing the resources of the institution to $5,000 a year for five years.

Bequests to Boston Institutions.—Among the charitable bequests made by the will of the late Miss

Florence Lyman of Boston, the Carney Hospital of Boston is to receive $30,000 and the St. Mary's Infant Asylum $25,000. The Carney Hospital is also to receive a share of the residuary estate.

Gifts to a Philadelphia Hospital.—A gift of $10,000 has been awarded by the executors of the Dulles estate to the Woman's Hospital of Philadelphia for the building of a children's ward in memory of Mary Cheves Dulles. The hospital has also received the sum of $5,000 from the estate of Miss Rebecca White, in whose memory the managers will endow a bed.

Two New City Hospitals.—Contracts for two new hospitals have been awarded by the Commissioner of Charities. One of them will be on Staten Island and the other at Coney Island. The former will consist of eight buildings, for which an appropriation of $2,000,000 has been made. The institution will be known as the Sea View Hospital, and is to be at Spring Valley, Manor Road, Staten Island. When completed the hospital will accommodate 800 patients. The pavilions will be four stories in height and of reinforced concrete. The new Coney Island hospital will be located on Ocean Parkway, and will cost $328,475. This building will be four stories in height and of reinforced concrete. It will be used for acute and general medical cases.

Henrotin Memorial Hospital of Chicago.—This institution will be opened on or about November 1. It is a six-story structure of reinforced concrete, with sixty rooms for patients, the result of long planning by the late Dr. Fernand Henrotin. The president of the Association (Polyclinic Hospital Association), Dr. John H. Chew, states that the prices will be similar to those of other hospitals, and that the institution will be open to the patients of all reputable physicians.

The Dunning Institutions will probably soon be turned over by Cook County to the State of Illinois for an insane hospital. The county will have a new poor farm and infirmary, and its Dunning Hospital for the Insane will be given over to State control. These prospective changes are the outgrowth of an exhaustive inquiry made into the conditions existing at the Dunning poorhouse.

Dr. Henry A. Cotton, assistant physician at the Danvers Hospital, one of the State asylums of Massachusetts, has been appointed to succeed Dr. John W. Ward as medical director of the State Hospital for the Insane in Trenton, N. J.

Dr. William L. Estes of South Bethlehem, Pa., surgeon to St. Luke's Hospital, celebrated on October 18, with appropriate ceremonies, the twenty-fifth anniversary of his connection with the hospital.

Alvarenga Prize.—The College of Physicians of Philadelphia announces that the Alvarenga Prize for 1907 has been awarded to Dr. William Louis Chapman, Providence, R. I., for his essay, entitled "Post-operative Phlebitis, Thrombosis, and Embolism." The next award of the prize, amounting to about $180, will be made on July 14, 1908. Particulars may be obtained from Dr. Thomas R. Neilson, secretary of the College of Physicians of Philadelphia.

Meriden (Conn.) Medical Society.—The following officers were elected at the annual meeting of this society held on October 10: *President,* Dr. E. W. Smith; *Vice-President,* Dr. H. A. Meeks; *Secretary and Treasurer,* Dr. H. D. Lockwood.

Wright County (Minn.) Medical Association.—At the annual meeting of this organization held in Buffalo on October 12, officers were elected as follows: *President,* Dr. A. M. Ridgeway of Annandale; *Vice-President,* Dr. C. L. Larsen of Buffalo; *Secretary,* Dr. John T. Catlin of Buffalo; *Treasurer,* Dr. A. L. Hill of Monticello.

Vermont State Medical Society.—Officers were elected as follows at the ninety-fourth annual meeting of this organization held in St. Johnsbury on October 11: *President,* Dr. G. H. Gorham of Bellows Falls; *Vice-President,* Dr. J. F. Blanchard of Newport; *Secretary,* Dr. C. H. Beecher of Burlington; *Treasurer,* Dr. B. H. Stone of Burlington. Next year's meeting will be held in Rutland.

Ottawa County (Mich.) Medical Association.—Officers as follows were elected at the annual meeting of this society held in Holland on October 9: *President,* Dr. H. J. Poppen of Holland; *Vice-Presidents,* Dr. A. Leenhouts of Holland and Dr. N. H. Kassaiban of Coopersville; *Secretary,* Dr. E. D. Kremers of Holland; *Treasurer,* Dr. W. G. Winter of Holland.

Southern California Homeopathic Medical Society.—At the seventeenth annual meeting of this organization held in Los Angeles on October 9, officers were elected as follows: *President,* Dr. Francis Kellogg of Los Angeles; *Vice-Presidents,* Dr. Walter Nichols of Pasadena and Dr. J. H. Kirkpatrick; *Secretary and Treasurer,* Dr. F. S. Barnard.

Idaho State Medical Society.—At the meeting of this organization held in Boise on October 4, the following were elected as officers: *President,* Dr. Kleinman of Shoshone; *Vice-President,* Dr. J. C. Woodward of Fayette; *Secretary and Treasurer,* Dr. E. E. Maxey of Boise.

Pensions for Mothers.—A lecturer of the University of Chicago, in a recent public address, advocated the pensioning of mothers by the State. The pension, he said, should increase in amount up to the third child, and then decrease until the advent of the sixth, when it should cease.

For a Koch Institute.—A committee has been formed in Germany, with the Prussian Minister of State as chairman, for the purpose of collecting funds to found an institution in honor of Dr. Robert Koch, on a plan similar to that of the Pasteur Institute in Paris and the Lister Institute in London. It is intended that the institution shall be devoted to research into the means of checking the diffusion of tuberculosis, and that it shall be a permanent memorial of the discovery of the tubercle bacillus by Professor Koch twenty-five years ago.

Tuberculous Cattle on Randall's Island.—The herd of thirty-two cows, the source of the milk supply for the institutions on Randall's Island, New York City, has been found to be infected with tuberculosis and will be destroyed.

Obituary Notes.—Dr. Wm. H. Noble, surgeon to the Western Maryland Hospital at Cumberland, died on October 15 at Narbeth, Pa., at the age of forty-seven years. He was graduated from the University of Maryland School of Medicine in the class of 1883. He resided for a time in the city of Philadelphia, where he was connected with several of the hospitals.

Dr. Henry Joseph Bradley died of heart disease at Philadelphia on October 16, at the age of thirty-eight years. He was graduated from the Medico-Chirurgical College in the class of 1891.

Dr. Thomas A. York of Brooklyn died on October 17 of heart disease, at the age of thirty-eight years. He was a graduate of the Long Island College Hospital, and for thirteen years had been connected with the Brooklyn Health Department.

Dr. Dean W. King of Boulder, Col., died on October 2, at the age of seventy-five years. Dr.

King began practice in Boulder in 1879, and had served as army surgeon with the rank of major in numerous campaigns against the Indians.

Dr. W. S. Laton of Minneapolis, Minn., died suddenly of apoplexy on October 6, at the age of fifty-five years. He was born in Owl's Head, Me., and had practised in Minneapolis since his thirtieth year, making a specialty of diseases of the nose and throat.

Dr. I. C. Williams of Cheboygan, Mich., died on September 27, at the age of fifty-six years. He had practised in Cheboygan for about fifteen years.

Dr. Lila Tenney of Oakland, Cal., died suddenly of heart failure on October 5.

Dr. T. R. Humphrey, said to be the oldest of the pioneer physicians of southern Minnesota, died at his home in Sleepy Eye on October 11, at the age of ninety-four years. Dr. Humphrey was born in Jericho, Vt., and practised medicine for some time in Boston. In 1858 he went to Lacrosse, and six years later removed to Minnesota, settling in Brown County.

Dr. Collister P. Huston died in Challis, Idaho, on October 10, at the age of thirty-five years. He was a native of Boise, and had lived in that city until about five years ago, when he removed to Challis.

Dr. H. A. McSwain of Fayetteville, N. C., died in Rocky Mount on October 8, at an advanced age. He had practised for many years in Fayetteville, and was well known in the northern part of Cumberland County.

Dr. Sigmund Lesser of Davenport, Ia., died of pneumonia on October 9, at the age of sixty years. He had resided in Davenport since 1867.

Dr. M. LeRoy Wenger of Reading, Pa., died on October 1, at the age of fifty-four years, after a lingering illness. Dr. Wenger's father was a physician, and he was a native of Lancaster County. He was graduated from Bellevue Hospital Medical College in 1874, and, after practising for a time in New York, he settled in Reading. He was compelled to give up active work some years ago owing to failing health.

Obituary.

JAMES MAGOFFIN FRENCH, M.D.

SAN DIEGO, CAL.

Dr. James M. French died at San Diego, Cal., on October 7, at the age of forty-nine years. He was graduated in medicine from the Medical College of Ohio, Cincinnati, in 1880, and served as interne in the Good Samaritan Hospital. He practised medicine in Cincinnati for twenty-two years, and then went to San Diego, on account of a pulmonary affection which had afflicted him practically all his life. Dr. French, when in Cincinnati, was lecturer on pathology, then on medicine in the Medical College of Ohio, member of the staff of St. Mary's Hospital, editor of the *Ohio Medical Journal*, and police surgeon. He was author of a widely appreciated "Practice of Medicine," which has reached its third edition. He was an industrious and valuable contributor to many medical journals and medical books. He was president of the San Diego Medical Society.

Dr. French was a man of most lovable personality, of scholarly attainments, and of exceeding uprightness of character. Those whose privilege it was to be counted among his friends have suffered a wound which even time will never wholly heal.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

OPENING OF THE WINTER SESSION—THE INTRODUCTORY LECTURES—OTHER CEREMONIES AT THE MEDICAL SCHOOLS—OBITUARY.

London, October 4, 1907

The medical schools are settling down for the winter session which was opened with the usual proceeding and enthusiasm. It has been said that one congress is much like another and the same to some extent may be said of the time-honored introductory lectures, though almost always there is something fresh about some of them. Professor Osler distributed the prizes at St. Mary's Hospital and then addressed the students, describing their course of training as a race in which they must make the best use of their mechanism. They had to study science, art, and the man, by which he meant the patient. It was hard to get the right kind of science into the student. If he could only catch him early after absorbing some Greek and Latin he could be trained more quickly. The medical man must get a true perspective of life. An investigating spirit was the life of the physician, and there was no surer way of stultifying it than by the present system of examinations. He had heard that at Edinburgh there were actually seventeen examinations for a student. Let them not think of examination, but devote all their energies to each day's work and the future examinations would look after themselves. He wanted a school of medical pedagogy in which able young men could be trained to teach others. Hospital nurses were now allowed to do things which students ought to do. It was not a question of doing them better, but the student's success in life would depend on their attitude to patients and fellow subjects. Their profession demanded of them devotion, self-sacrifice, and the missionary spirit, a breadth of outlook far above the petty jealousies of life.

Sir Richard Douglas Powell gave the introductory at University College and referred to it as his old school which had been the foundation of all that had come to him in his profession. No stone was left of the old building which, in his day, had seemed so all-sufficient. They were met for the first time in the magnificent building which the enlightened munificence of Sir D. Currie had given them. There had been an attempt to alienate hospitals and medical schools. Sir D. Currie's gift pointed the lesson that a hospital without a school was an emasculated institution with no lesson for humanity at large. The number of students should be regulated by the number of the beds. After his lecture Sir Richard unveiled the medallion portraits of Prof. Christopher Heath and Prof. G. V. Poore. He read a letter from the Duchess of Albany expressing regret at being prevented from attending and hoping on a future occasion to see the portrait of Dr. Poore, who was the adviser of the Duke of Albany, and also to see the school and hospital to which that friend devoted so many years of his life.

At St. George's Hospital there was also an unveiling. In this case a tablet to the memory of the late Dr. Robert Barnes and a new pathological laboratory dedicated to his memory was opened by Dr. Latham, Honorable Secretary to the endowment fund. Dr. Ewart, Senior Physician, delivered the address. His leading note was the growing usefulness and importance of the profession to the State. It was no longer possible to overlook the magnitude of the labors and their indispensable nature for the public good. The duty of the State was to make the utmost use of the profession and its discoveries, to control the prevalence of disease, to study and propagate the culture of health. This work of national defence against degeneracy and disease had been supplied for above a century (since Jenner founded preventive medicine by introducing vaccination), mainly at the expense of the profession without official acknowledgment, support, or subsidy. It was work for a national service with a minister of health at the head and an adequate budget. Immense wealth had been contributed by the profession to the State in the value of lives saved and sickness spared, and this free gift remained unacknowledged, and that although by its work it had curtailed its own means of livelihood. A crisis had arrived directly traceable to the marvelous discoveries in medicine and surgery and the instruction of the public in prevention of disease and the preservation of health. The average income of the British practitioner was from £200 to £250. Reasonable provision for a family and old age could not be secured by this. It was the result of limiting disease and it concerned the State most of all. The first installment of the State's duty had been met in medical in-

spection of schools and eventually the doctor might have to become more and more the servant of the State.

At King's College Dr. Allchin touched the same subject, showing that as the culture of health extended, as preventive medicine became more developed and trusted, the need for medical men would decrease, and then perhaps might be seen the spectacle of a calling destroying the source of its livelihood by its devotion to science and the public weal. He also dealt with the want of uniformity of qualification and condemned the absurd difficulties placed in the way of London students obtaining the degree of M.D. to which the public attached an undeserved importance. It had been hoped that the University of London, now recognized, would have changed this. A wise and comprehensive policy was expected which would have given medical teachers a voice in the regulation and control of examinations and would have opened to London students the legal title of M.D. on satisfactory conditions. But after seven years this had yet to be done. Opportunism and expediency had had their usual result, and the university had lost the great chance it had when starting on its fresh course of becoming the standard qualifying body for London.

At the Middlesex Hospital Mr. A. G. R. Foulerton took up the subject of research in preventive as contradistinguished from curative medicine. No career, he said, was open to a man thus engaged ten or fifteen years ago. Now remunerative offices were open and they would increase in number and value. There had been in the past a reckless disregard of public health, but the average human was being more imbued with the animal stimulus of self-preservation. It was extraordinary that though Englishmen were the first to care for preventive medicine, they were last as a nation to adopt it. For more than fifty years the teachings of Simon, Thorne, and Power had been going on and only now were we looking to the future by providing for the health of the public instead of curing their diseases. He instanced medical inspection of school children in which he heartily believed and pointed out that each school in Japan has its inspector, whereas for the 750,000 scholars in London there are only twenty-one inspectors altogether. The president of the Royal College of Surgeons then distributed the prizes.

At the Women's Medical School Miss Gray gave advice to the students as to acquiring a knowledge of social life and of household and business affairs before beginning professional study. The attitude of the woman doctor to her patients and the public was also considered, with particular notes on her dress, her manners, and her house, all of which had influence. Other questions were also referred to which are quite as appropriate for men as for women doctors. Among them the lecturer said they should know when and whom to alarm. It might be right to frighten friends, in other cases it might be almost criminal to do so. Doctors were often expected to distinguish at once between real and imaginary invalids, but those who expected this did not dream that this was one of the most obscure parts of the territory of disease. Panic on the doctor's part was inexcusable. A demeanor of calm courage was the one with which to face the worst emergency.

The proceedings at the hospitals which have substituted other ceremonies for the time-honored introductory were not wanting in interest, although not exactly of a professional kind. The dinners were such as you would expect. The reception of old students at the London Hospital brought a considerable number to their alma mater to renew former friendships and to notice the still progressing improvements in the buildings and the methods of instruction in the school and the treatment in the wards, etc. Mr. Jonathan Hutchinson was once more present and obliged to make a speech in response to the imperative call of his old friends. Here and at the other hospitals feeling allusions were made to the losses sustained by death among the medical staffs. But as I have already commented on these fatalities as they occurred, I need not refer to them again.

Professor Charles Stewart, F.R.S., Conservator of the Museum of the Royal College of Surgeons, died on the 27th ult. after a somewhat protracted illness, aged sixty-seven. He was a Bart's student and took the M.R.C.S. in 1862. He was president of the Linnæan Society 1890-4, treasurer of the Anatomical Society from its foundation until 1891. From 1894 to 1897 he was Fullerian Professor of Physiology at the Royal Institution. He was elected F.R.S. in 1896 and given the LL.D. of Aberdeen. Before being appointed to the Hunterian Museum he had been connected with St. Thomas's Hospital as a lecturer on physiology and on comparative anatomy and curator of the museum. Then he became Hunterian Professor of Human and Comparative Anatomy and Conservator of the Museum. It is in this last office that the value of his work can be estimated by the splendid series of preparations which he added to those of his predecessors, keeping up the continual growth of the Hunterian Museum. An eloquent lecturer, his addresses were notable for their lucid exposition and clear arrangement.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

SYPHILIS—THE DÜSSELDORF INSTITUTION—PERCUSSION OF THE LUNGS—IMMUNITY AND TUBERCULOSIS—HOMOSEXUALITY.

BERLIN, September 15, 1907.

SYPHILIS and its treatment continues to hold a prominent place in the literature as well as in the discussions before societies. In the Verein für innere Medizin E. Lesser spoke of new aspects in the treatment of the disease. He emphasized especially the effect that the discovery of the *Spirochæta pallida* and the results of animal experiments have had on the treatment. Although Neisser had shown, in experiments on animals, that the excision of the primary lesion was without effect, Finger had demonstrated that the conditions were somewhat different in dealing with the human being. At any rate the diagnosis should be made as early as possible and for this the search for the *Spirochæta pallida* was essential. The data available were still insufficient to give a satisfactory answer to the question as to when the treatment should be begun. It appeared most advisable to commence the general treatment as soon as the spirochete had been found, for since the organisms could very promptly be demonstrated in the blood a general infection was already present and systemic treatment was desirable. This should take the form of long-continued medication with periods of intermission, as suggested by Fournier. For this mercury was to be recommended, although owing to the many undesirable effects of this drug a substitute for it was to be sought.

The opening of the general municipal hospitals and the Academy of Practical Medicine in Düsseldorf comprises an entirely new phase in the development of medicine in Germany. For the first time a German city has designed and built a number of institutions in such a way that, in addition to providing for the care of the sick, they shall also serve for the purpose of scientific investigation and medical instruction. While formerly the State alone has concerned itself with the fostering of medical education, a municipality has now for the first time assumed a similar function. The buildings and clinics include suitable accommodations for the study of internal medicine, electro and hydrotherapy, suction and congestion treatment, light and air baths, radiotherapy, gynecology and obstetrics, diseases of the nose, throat, eye, and ear, acute infections, diseases of children, and dermatology. One building contains sixty rooms for private patients. The lecture rooms and laboratories are equipped in the most complete manner, so that the Academy of Practical Medicine, whose functions will consist mainly in the education of advanced students and in providing opportunities for postgraduate instruction, will no doubt prove very popular. There is still another direction in which the new departure is likely to be useful. Until now the investigations of scientific medicine have been pursued largely on the inmates of State institutions, and this has been possible only in the few places that were the seats of universities. If the example of Düsseldorf is followed in other places large portions of the population who still avoid public hospitals will become better acquainted with these, and in properly conducted institutions will be made available for purposes of scientific research. In this way the number of hospital trained physicians will be increased to the advantage of the profession at large.

In the Berliner medizinische Gesellschaft Goldscheider discussed the percussion of the pulmonary apices. He expressed the opinion that all of the methods so far in use, such as those of Weil, Ziemssen, Gerhardt, and Kroenig, do not map out the actual limits of the lung. These depend on the anatomical conditions and percussion must begin between the two heads of the sternomastoid while the patient changes the position of the arm and the head. It is advisable to carry out the very gentle percussion necessary by means of a glass rod bent at one end and provided with a rubber cap. By the use of this all depressions may be percussed and the intensity and direction of the sound waves may be thoroughly controlled.

The number of serums obtained by inoculations with tuberculous material and recommended for therapeutic purposes is constantly growing. Control observations are therefore particularly desirable, especially when carried out by an authority like Orth. In a paper on the immunization of guinea pigs against tuberculosis he reported on the result of the examination of animals that had been immunized by Friedmann with turtle tubercle bacilli and

which he himself inoculated with human and bovine organisms. The animals immunized against the turtle bacillus all died of human and bovine tuberculosis. Most of them were allowed to live until their death was caused by the disease, but in those that were killed before this time a generalized tuberculosis was found even a comparatively short time after inoculation. The majority of the animals exhibited a typical pulmonary tuberculosis. The average duration of life of the animals that had received the preliminary treatment was 98 days, that of the control animals 113 days. It is evident, therefore, that treatment with the bacilli of a cold-blooded animal is without beneficial effect in the production of immunization.

The well-known psychiatrist, Gudden, has delivered a very interesting address on homosexuality and criminality. He does not regard homosexuality as a disease or manifestation of degeneracy, even although homosexual individuals sometimes present evidences of degeneracy, for homosexuality is common in powerful races, such as the Teutons, Anglo-Saxons, and Japanese. Gudden considers the condition as an anomaly whose behests must be obeyed by its victim. Two groups may be distinguished, one in which the congenital perversity leads to sexual derelictions without external influences, and another in which the craving is first evoked only through example or suggestion. In speaking of the relation between hermaphroditism and homosexuality Gudden said that the hermaphrodite was not always homosexual. Homosexual individuals show their tendency even in childhood, so that the boys prefer to associate with girls and the girls take part in the rough plays and games of boys. The proportion of purely homosexual individuals may be estimated as from 1 to 5 per cent., including bisexual persons, 2 to 6 per cent., so that of the 56 millions of Germans there are probably over a million homosexual persons in all ranks of society. Such figures certainly justify a thorough investigation of the subject.

A PLEA FOR THE SIMPLE SPEECH.

To the Editor of the Medical Record:

Sir:—There is a peculiar tendency on the part of medical men toward the use of involved sentences, polysyllabic words, and unnecessary Latin and Greek derivatives. The people have always recognized this weakness, and scholars have called it "doctors' dog Latin." In a valuable paper on Goiter by Professor Barker in a recent issue of the *Journal of the American Medical Association*, in one paragraph we have the following words and phrases: "Pycnocardia;" "semiotic trinity," and "exquisite thyreotoxic phenomenon." To a man who has made some study of etymology "semiotic trinity" and "exquisite thyreotoxic phenomenon" might have some meaning, a meaning which could, however, be expressed in plain English and be understood by the average man without the aid of an unusually good etymological dictionary. But when we come to "pycnocardia" even the dictionary fails us and we have to fall back on "tachycardia," which is at best a poor substitute for the simple English words "rapid heart beat." As an experiment I read this paragraph to several medical men, among them graduates of McGill and Harvard, and they confessed that they could not grasp its full meaning. Here we have a scientist and teacher who so involves his meaning by the use of complicated verbiage and unnecessary derivatives that he fails to render himself comprehensible.

This note is intended as a modest plea for simple plain diction in scientific speech and writing. The higher one mounts in the realms of true science the simpler do all things become. Simplicity and science are always found together. The most valuable scientific axioms are usually to be expressed in almost epigrammatic form. Generally speaking it may be said that the more words are used the less the meaning is conveyed.

George Franklin Shiels, M.D.

New York.

NUTRITIVE VALUE OF DURUM WHEAT.

To the Editor of the Medical Record:

Sir: Sir James Crichton-Browne of London, in referring to bakers' bread made from blended flours, says that "a small plate of oatmeal porridge is equal to two thick slices from a four-pound loaf." He, of course, has reference to the muscle-making value of two foods, oatmeal containing about 16 per cent. and bakers' bread between 7 and 8 per cent.

There is no sense in a baker's loaf of bread with a gluten content of 7 to 8 per cent. when this country raised this year 60 million bushels of durum wheat that runs in gluten content from 16 to 22 per cent, and which goes into macaroni and is exported to France for French bread. The government, through the Agricultural Bureau at Washington, has demonstrated that from durum flour can be made a loaf of bread superior to any on the market to-day in form, appearance, volume, taste, flavor, and nutritive value (see Agricultural Bulletin No. 70). When the public understands that by asking for durum bread it, in time, can get it and thus receive double nutritive value for its money outlay, the said public will be better off than at present in both pocketbook and health. A little education given by the profession as opportunity presented along these lines would help the cause of dietetic reform mightily.

Charles Cristadoro.

Point Loma, Cal.

Progress of Medical Science.

New York Medical Journal, October 12, 1907.

The "Open Method" Treatment of Cancer.—By this term W. D. Witherbee refers to the following operative method: The patient is prepared for operation in the usual manner, with one exception. Instead of scrubbing the site of the operation, a soap poultice or plain antiseptic dressing is applied and left until the patient is anesthetized. The reason for not scrubbing is that any undue pressure on the tumor or glands may cause some of the elements of infection to be forced out into the surrounding tissue and lymphatics. The dressing or poultice is then removed and potassium permanganate solution poured over the area involved, followed by a solution of oxalic acid. If it is a case with involved lymphatic glands, the operator begins with the most remote accessible lymphatic gland and then clears away all of the glands to the tumor. By beginning with the most remote gland the chances of spreading the infection beyond into the neighboring glands and tissues by pressure on the tumor or glands are lessened. The entire wound is left open and allowed to heal by granulation, thus facilitating an ideal drainage of all the tissues and lymphatics in this region. A dry antiseptic gauze is then applied to the raw surface and the usual dressing placed over this. As soon as the patient is able to submit to it, a fifteen-minute exposure to the Röntgen ray is given daily until the wound is healed. When the granulations first appear in the wound the gauze dressing is removed and a dressing consisting of perforated gutta percha tissue is applied to the granulating surface. Over this is placed a pad of moist boracic acid gauze and over all a covering of oiled silk. This combination affords drainage by capillary attraction through the perforations in the gutta percha tissue into the moist gauze and does away with the tearing loose of those granulations which become imbedded in the mesh of the gauze when it is applied directly to the granulating surface. The oil silk keeps the gauze moist. The advantages claimed for the method are that there is perfect drainage of all the lymphatics and tissues in the infected region, and the change of a deep or subcutaneous growth to an open one. Hence the *x*-ray is better able to thoroughly destroy any remaining malignant elements. The wound takes a longer time to heal, of course, but this is to the patient's advantage, as it helps to insure against a recurrence. Danger of infection from an open wound with good drainage would be slight in a healthy person, for the opsonic index is always high in cases of malignancy.

Surgical Complications and Sequelæ of Typhoid Fever Involving the Gall-Bladder and Liver.—The paper of B. A. Thomas opens with a review of the literature of the subject. He has been able to collect records of 154 cases of cholecystitis in typhoid, including four not previously recorded, in all of which operation led to cure. Notes of these four cases are given. From a table of eleven cases of perforative cholecystitis, it appears that operation saved five. The whole number of perforations in the 154 cases was thirty-nine. In 895 cases of typhoid cholecystitis appeared only in twelve. In making a diagnosis in a given case we are to note (1) whether the accident occurs in the acute course of the fever as a complication, or (2) subsequent to the original infection as a surgical sequel. The symptomatology is considered and the conditions from which the cholecystitis must be distinguished are enumerated as gastric ulcer or cancer, duodenal ulcer, pancreatitis, appendicitis, bowel perforation, renal disease, right lung lesions, lead colic, gastric crisis (tabes), meteorism, echinococcus cysts, and "indigestion." Operation is indicated in: (1) Presence of any symptoms seriously interfering with patient's mode of life; (2) all cases in which medical treatment has failed; (3) acute suppurative cholecystitis or cholangitis; (4) acute suppurative chronic obstruction of the cystic duct; (5) persistence of acute obstruction of the common duct; (6) all cases

of calculus, save possibly that of acute obstruction of the common duct; (7) perforation, and (8) cases in which there is a suspicion of primary carcinoma of gall-bladder. Operation is contraindicated in: (1) Acute obstruction of the common duct or hepatic ducts, in the belief that the stone may pass through the common duct into the duodenum and no others are present to produce a new attack. If fever, however, is associated indicating suppurative cholangitis, operation should be performed with drainage of the hepatic duct; (2) very old or stout individuals or those suffering from diabetes, arteriosclerosis, cardiac, pulmonary, or renal disease; (3) extensive carcinoma of the biliary passages. In contrast to the gall-bladder, lesions of the liver or typhoid calling for surgical intervention are rare. Multiple focal necrosis of the organ in typhoid was found in over 10 per cent. of a series of 2,000 cases. The rarity of hepatic infection may be due to the bactericidal function of the liver cells. The colon bacillus is probably the infecting agent. Arguments in favor of this view are: (1) It is present in liver abscesses in typhoid, (2) the liver promotes its growth while it inhibits the growth of the typhoid bacillus, (3) its virulence is increased by intestinal disorders, (4) when isolated from typhoid stools it is more virulent than when isolated from healthy stools. Symptoms are those of a general infection and a local focal lesion. If a solitary abscess can be made out, the pus should be evacuated. As to whether or not surgical intervention is advisable in cases of multiple abscesses is a debatable question, but the author inclines to the belief that no evil would follow the patient and that drainage would be followed by relief in some cases.

Indications for the Mastoid Operation.—E. B. Dench considers this topic with special reference to the value of the differential blood count and of the bacteriological examination of the aural discharge. He believes that the value of the blood count has been overestimated. The figures in a given series of cases taken at random showed that increase in the polymorphonuclear count did not occur in cases of acute otitis media with mastoid involvement with sufficient frequency to make it valuable as a diagnostic measure. If, however, the lesion has so far advanced as to involve either the brain or its meninges, the blood count may be of value. As to exaination of the aural discharge, smears were found negative in eight out of thirty-seven cases. In eight infection was due to the staphylococcus, in ten to the streptococcus capsulatus, in two to latent streptococcus, in three to streptococcus, in two to pneumococcus and streptococcus, in two to pneumococcus, and in two to pneumococcus and staphylococcus. Out of the thirty-seven cases eight came to mastoid operation. In general, if the examination is either negative or shows only staphylococci, mastoid complications are not apt to occur, but the rule is not invariable. Otologists in general have considered the streptococcus especially virulent and some think that its presence in the discharge, even in the absence of the classical mastoid involvement, calls for opening of the mastoid cells. Several clinical histories illustrate the points made in the paper.

Journal of the American Medical Association, October 19, 1907.

The Delivery of Debilitated Women.—E. P. Davis points out the advisability of resorting to abdominal section in many cases in which it has been largely the custom to depend on other methods. These include not only cases of justominor pelvis, in which attempts to modify the fetal growth are uncertain and unsatisfactory, and the induction of labor dangerous to both mother and child, but also a class of cases in which the mother, although normally formed, is unfit for labor from general debility, constitutional defect or disease, or infection and exhaustion. In many of these cases abdominal section affords the best chances to both mother and child, as by it the dangers of prolonged pregnancy, of exhaustion, laceration, and shock are largely avoided. Abdominal section has also given good results in cases of eclampsia and placenta prævia. In the latter the limitations are narrow, comprising cases of primiparæ with poorly developed and resistant birth canal, and the operation must be done early before exhaustion by hemorrhage. Davis summarizes his consideration of the subject by saying that at present delivery by abdominal section, especially if elective, compares favorably with other methods of delivery for mother and child in debilitated patients.

The Defective School Child.—W. C. Hollopeter considers the present methods of instruction too complex and difficult for the child. There are too many subjects for study, and the requirements as to thoroughness are too rigid. The classes are too large and the personal equation of the child is too much disregarded. The bright child gets the advantage and the backward or defective ones are neglected. The recognition of the power of attention in the scholar is neglected in the grading, of which it should be the basis, and the average teacher does not duly estimate the disabilities of her pupils, but is apt to believe their deficiencies due to wilful inattention and laziness. Such cases are to be found in every school, and a great injustice is done the children by their non-recognition. This is especially true of the depraved type of children, who, for lack of proper attention, largely recruit our criminal classes. The physician should take a deeper interest in observing the mental deficiencies of children in the schools and seeing to their proper classification. Their physical defects, including those of the eye, ear, and nose, should receive more attention than is now given them.

Drug Absorption and Elimination.—E. R. Zemp thinks that physicians do not study their works in materia medica enough, and that they frequently forget or ignore the important actions of drugs. The systemic action of a drug is due to its absorption and the duration of its action is dependent on the rapidity of its elimination; hence the knowledge of the rapidity of absorption and elimination carries with it the knowledge how often to repeat the dose. Physicians should also know the conditions that affect absorption and elimination, the conditions of the circulation, such, for example, as the retarding action of dropsical states which make hypodermic medication dangerous, those of the stomach and intestines, the selective absorbing action of the skin, etc. He reviews several of the commonly used drugs as regards these points and gives his practical therapeutic deductions. In the case of opium, with its rapid absorption, slow elimination, and consequent cumulative action, he condemns the use of large doses, preferring small doses frequently repeated, and insists on the importance in case of poisoning of keeping the stomach free from the drug, as it is largely eliminated into this viscus where it may be reabsorbed. The need of being prepared for possible dangerous effects of cocain administration is also emphasized, as well as the need of care in draining off dropsical effusions in patients who have been taking large doses of digitalis; the danger of even small doses of nitroglycerin, even tasting it being sometimes perilous, and other points of practical importance in relation to cocain, belladonna, chloral, and iodoform are also mentioned.

Carbon Dioxide Snow for Skin Lesions.—W. A. Pusey calls attention to the use of frozen carbon dioxide for the destruction of lesions of the skin or for producing a violent inflammatory reaction in such lesions. He reports two cases of extensive hairy nevus treated by this method with striking results, and one of erythematous lupus apparently completely cured. He has also treated several cases of vascular nevus by this method with success. In cavernous nevi he believes it would succeed only in selected cases. In lupus vulgaris it is ineffective, and the same is perhaps true of epithelioma. This method furnishes a convenient and effective treatment of warts, calluses, senile keratoses, and other such lesions. Carbon dioxide in the liquid form can be obtained in the drums in which it is sold to druggists, and as it escapes from the cylinder it is collected on cloth or chamois skin in the form of a fine snow. This can be compressed and shaped as desired. Its effects depend on the pressure with which it is applied and the duration of the application. By regulating these its destructive action is controllable and can be accurately gauged. With strong pressure, he thinks, freezing to a depth of from one-eighth to one-sixth of an inch can be produced in a few seconds. As a rule, he employs just enough pressure to hold the snow firmly against the skin, but varies this sometimes according to the effect desired. Applications for from five to ten seconds are sufficient to remove thin layers of pigment from the skin or to induce an inflammatory reaction for therapeutic purposes, as in erythematous lupus. If prompt action is desired and moderate scarring makes no difference, a vigorous prolonged single application can be made and the work done at once. If deep destructive action is wanted the application can be repeated on successive days or at longer intervals. Otherwise the application of the snow should not be repeated till the effect of the previous application has disappeared.

The Lancet, October 5, 1907.

Relation of Polymastia to Tuberculosis.—In the course of his investigations on polymastia T. Iwai has considered the subject with reference to the occurrence of tuberculosis and presents statistical results of these observations. He finds polymastia more common among the tuberculous, especially the pulmonary type, than among the nontuberculous. Polymastia occurs nearly twice as frequently among the former as among the latter. On the

other hand, those having polymastia are more liable to be affected by tuberculosis than those who have not. The difference between the two classes is more than 15 per cent. The author's observations were confined to his own countrywomen. Other races might show different proportions.

Acute Lupus Erythematosus.—A case is reported by G. A. Dawson, whose patient was a married woman of forty-three years. Without antecedent history. In June, 1905, a patch appeared in front of the left ear, quickly followed by a patch on the corresponding area on the other side of the head. Six months later the entire face was involved, except the upper part of the forehead and the skin around the mouth and orbits. The eruption was covered by adherent white scales and on the dorsal surfaces of the proximal phalanges were red patches showing dilated follicles filled by horny plugs. Microscopic examination showed a typical lupus erythematosus. In six weeks the left malar region became red and ran with a slight discharge resembling an eczema rubrum. A few days later a symmetrical rash appeared on the backs of the hands, of dull flat red and discrete papules. She was admitted to hospital, but became worse. The temperature rose at night, the scaly areas became raw and bleeding, the areas involved increased in extent and new areas were involved, cough developed, the breathing was accelerated, and albumin appeared in the urine. She died in coma after a stay of one month in hospital. Autopsy showed a semi-solid condition of both pulmonary bases, no tuberculosis, and greatly enlarged kidneys. Other organs were normal. The author notes that cases of this nature have seldom been observed from beginning to end. Erysipelas has been assigned as a cause of this acute phase of the disease, but the remarkable symmetry, the discrete character of the eruption, there being skin of normal color between the papules, the rapidity with which these and the bullæ developed, and the absence of pain or any feeling of even being ill until a few days before the patient's death, are symptoms which bear little resemblance to that affection. So many cases of this acute disease have supervened on the application of an irritant to the chronic condition as to make one hesitate before applying carbolic acid or other strong application where the disease is at all extensive. The general condition was one of acute infection in this case with the regular sequel of septic pneumonia. All the cases of which the author has record terminated in this way.

Note on a Recent Epidemic of Trypanosomiasis at Mauritius.—An account of this epidemic is given by A. Edington and J. M. Coutts, who add an account of their special studies in connection therewith. There seemed to be a doubt as to whether the disease had been imported in cattle from India or whether it was latent in the island named, as a disease had been formerly known to occur there among mules and the symptoms and post-mortem findings bore a striking resemblance to those of the epidemic disease. Experiments to determine whether an animal rendered immune to the Mauritius disease was also immune to the tsetse fly disease were not altogether conclusive as different results seemed to follow in different animals. It seems to be the case that the trypansomiasis in question can exist in goats in a form not readily recognized by blood examination; when indirect trypansomes cannot be seen although susceptible animals inoculated by this blood promptly manifest the disease. An important fact shown by the author's experiments is that it is possible to immunize cattle against the disease caused by the tsetse fly and Mauritius organism, for it establishes the possibility of preparing cattle to act as means of transport in infected areas. The results of the use of the serum from immunized animals are not such as to suggest, in the experimenter's opinion, much practical value.

British Medical Journal, October 5, 1907.

The Limited Value of Diphtheria Antitoxin as a Prophylactic.—O. H. Peters refers to recent epidemics occurring in Nottingham, in one of which he considers the results of the prophylactic use of antitoxin as distinctly disappointing. In one, seven patients developed the disease in spite of the serum out of twenty-one whose throats were proven (by cultures) to be infected by the bacillus. He claims that epidemics are sometimes large, sometimes small, and are susceptible of recovery just as is a disease. As antitoxin is rapidly excreted in the urine, there is a limit to the duration of the immunity conferred. The duration of immunity was at first considered to be four weeks, later three, but Peters believes that this period would be still further reduced. At the end of three weeks, if the epidemic continues, further injections are necessary. Increasing the average immunity dose say 500 units would probably not increase to any extent the duration of the immunity. The author's general views as to the value of the antitoxin as a prophylactic will be understood by reference to the following statements: The procedures, then, of real importance in dealing with an outbreak of diphtheria are two in number, namely (1) bacteriological examination of throats, and (2) isolation of "carriers" of infection under proper medical supervision. Where both of these measures can be systematically carried out, as is possible in most large towns, there is really no necessity for prophylactic injections of antitoxin, the latter procedure being in this case naturally confined to the few whose throats are found to contain the specific bacillus. Even in these "carriers" there is no need to go to the expense and trouble where there is proper medical supervision, that is to say, a daily inspection of throats; for, in the first place, it has been pointed out that nearly all records will show a few cases where membrane developed in spite of antitoxin, the general hospital "carriers" showing a third of such exceptions. Thus the conscientious medical man feels he is in no way relieved from the duty of careful inspection of throats. In the second place, we have such an efficient remedy in antitoxin that there is practically no danger to the patient if the remedy is administered when the disease first declares itself.

Two Cases of Hereditary Dystrophy.—The report on these cases, made by W. Ogilvie and P. G. Easton, concerns a father of 45 years and a son of 25, both natives of India. The father's symptoms began at the age of 25 with a weakness in the shoulders, and have been progressive until now as he is looked at from the front the shoulders and upper parts of the chest seem nothing but skin and bones. There is no known cause for the condition and he has had no symptoms except those incident to the gradual loss of muscular power. He presents a "swaggering" gait, the shoulders being thrown back and the abdomen protruded. This process involves particularly sternomastoid, pectorals, and deltoids. As viewed from behind, trapezius, supra and infraspinatus, senatus magnus, rhomboids, latissimus dorsi and the muscles of the spine. The ribs protruded. The process seemed further advanced on the right side. Upper arms, forearms, hands, and entire lower extremities appeared normal. The son's trouble began at the age of 23 years, two years before he came under observation. In this the symptoms and course were about the same as in the father's case, except that there was a marked lordosis and a peculiar tilt of the scapula. In the son the left side was the one showing the greater atrophy. In neither case was there any history of a preliminary hypertrophy.

Treatment of Yaws.—After some observations on the bacteriology of the disease, A. Robertson details the plan of treatment he has followed in the Gilbert Islands, where the disease is very prevalent. The patients are washed night and morning with carbolic soap, and ung. hydrarg. nit. dil. (1 in 3 vaseline) is then applied to the papules. The ointment serves a double purpose, acting as a germicide and also preventing the flies carrying infection to the other patients in the hospital. In two years' experience the author has not had a single case of yaws arising in the General Hospital, although it is only 60 yards distant from the yaws compound. Potassium iodide is given three times a day in doses of 10 to 20 grains to adults and of 2 to 5 grains to children. Those patients who are anemic or debilitated receive iron citrate or syrup of iron chloride along with cod-liver oil or petroleum emulsion in addition to the iodide. He tried various preparations of mercury at first, but they had no effect whatever on the pains in the limbs or head, which is the principal symptom the patients complain of. The average time the patients are under treatment and till the papules have entirely disappeared is five weeks. Several cases, even those in which the eruption was extensive, have been cured in three weeks. The most troublesome cases are those in which the yaws are on the soles of the feet. Softening the thickened epidermis with sodium bicarbonate solution and afterwards scraping the skin away with a Volkmann spoon is the most expeditious method of treatment. The paresis of the limbs which accompanies or follows yaws disappears rapidly under electric treatment. He has not seen the extensive destruction of tissue and bone which is described by some writers as the accompaniment or sequelæ of yaws, and is inclined to think that there may have been a syphilitic taint in the backeround. Certainly in the Gilbert and Ellice Islands such extensive necrotic processes as necrosis of the palate and nasal bones are due to syphilis and not to yaws.

Berliner klinische Wochenschrift, September 30, 1907.

The Treatment of Angina Pectoris with the Arc Light.—Hasselbach and Jacobaus describe the results

of the application of very intense radiotherapy by means of an arc light of 55 volts and 150 amperes. The patients are placed within a few feet of this and sessions of an hour are repeated at intervals of about five days until about ten treatments have been given. The effect of this very energetic application of the ultra violet rays is to cause an intense degree of dermatitis, accompanied by reddening of the surface, edematous swelling, and moderate tenderness followed by desquamation. In consequence of the intense cutaneous hyperemia the authors believe that the dilatation of the superficial blood-vessels becomes more or less permanent and the attendant lowering of blood pressure affects also the aorta and other deep-seated vessels. Respiration is rendered deeper and less frequent, the mucous membranes become drier, and in some cases a slight degree of mental exaltation is caused. The effects of the treatment persist for months after the last session. Although the method has been applied in a number of other conditions, the authors at present report only on the results obtained in forty cases of angina pectoris. These were all instances of true angina, and in all except one the effect of the light treatment was very favorable. In some of the cases complete euphoria was obtained, in others the improvement persisted for a considerable time, in others it was only temporary. Observations on a considerable series of other forms of organic heart affections have shown that these also are susceptible of improvement by means of the intensive light action.

The Excretion of Mercury by Syphilitics.—Diesselhorst has tested numerous methods of determining the amount of mercury excreted in the urine of syphilitic patients undergoing treatment, and has found that the electrolytic method is both accurate and convenient. The urine is concentrated by heating in vacuo and the organic substances present are oxidized with hydrochloric acid and potassium chlorate. As a cathode a small tube of gold foil 2-3 mm. in diameter and 2-2.5 cm. in length is used. The anode is of platinum. The current used was kept at .1-.05 ampère and the electrolysis was generally complete at the end of one day. The cathode is sealed in a glass tube with the capillary extremity into which the mercury is driven by heat and in which it is weighed. As a result of one series of examinations the author found that mercury appeared first on the fifth day after beginning inunctions, increasing gradually while the treatment continued, and persisting, though gradually decreasing, after its termination until at the expiration of two months after the last inunction only traces were present. The feces at first contained less mercury than the urine, but after the first month after the termination of treatment the feces contained as much or even more than the urine. Traces of mercury could be discovered in the urine and especially in the feces of patients who had had their last mercurial treatment, years before, in the one case as much as ten years previously.

Münchener medizinische Wochenschrift, October 1, 1907.

Krause Skin Flaps in Leg Ulcers.—Chaussy says that in spite of the many methods of treatment at our command for the treatment of obstinate leg ulcers success sometimes seems unattainable and even at the best relapses are frequent. A plan of procedure that does not appear to be as widely used as it deserves is that of the transplantation of thick skin flaps as suggested by Krause. The Thiersch method of skin grafting while often successful primarily does not yield a surface that is resistant enough to stand the wear and tear to which the extremities are exposed, while the Krause flaps appear to possess much greater resisting power. In an instance described by the author in which a large ulcer on the leg of an itinerant carpenter forty-four years of age was treated by this method seven years previously, at the time of writing the result was still a perfect one in spite of the facts that the patient was also suffering from elephantiasis and that several new ulcers had formed as the result of a chronic eczema. Essentials in making the flaps are dry operating, absolute asepsis, and avoiding all antiseptics, only soap and water and tincture of soap being used for cleansing the area to be transplanted and the skin being thoroughly dried with sterile cloths. The flap should be a third larger than the area to be covered, and is held in position by a light dressing of boric acid ointment. The method requires great care and attention to detail, but in spite of the failures that the beginner is likely to encounter it is capable of yielding such excellent results that the author considers that it should be resorted to more often than is at present the case.

Plaster Casts for the Treatment of Flat Foot.—Lengfellner says that the following method is one devised by him for use in Hofta's clinic in order to avoid the drawbacks attending the customary method of taking impressions by means of plaster bandages. The objection to the latter method is that the feet are nearly always more or less distorted by pressure and the resulting casts are therefore inaccurate. Lengfellner has the patient sit on a chair of such a height that the feet swing clear of the floor. A sufficient quantity of plaster-of Paris magma is placed in front of the chair and the patient is instructed to lower his feet into it. Extra plaster is added around the sides and at the heel and when the mass has set the feet are removed. In about five hours the mold is dry, and after soaking it in water for two or three minutes it is filled with plaster magma to make the positive cast. In about an hour the two can be separated by several blows of the hammer on the mold. As soon as the cast is hard enough, the necessary modeling is done on it in order to furnish the guide for the manufacture of the support to be worn in the shoe.

Deutsche medizinische Wochenschrift, September 12, 1907.

The Treatment of Chronic Endometritis.—Turan describes the manner in which he has successfully applied Bier's congestion treatment to this condition. The apparatus used consists of a fenestrated intrauterine catheter having on its stem a disk at the proper distance from the distal end to prevent too deep penetration of the instrument. The catheter is connected by pressure tubing to a Y-shaped coupling by means of which it communicates with a mercurial manometer and with a suction syringe. In order to use the instrument it is introduced into the uterus, which is ordinarily possible without dilatation of the cervix, owing to the fact that patients of this sort usually have a fairly wide cervical canal. A packing of gauze applied over the disk-shaped portion of the catheter prevents the entrance of air into the interior of the uterus. Suction is then applied by means of the syringe and the desired degree of negative pressure is maintained for a period of from twenty minutes to an hour by clamping the rubber tube. Experience has shown that very little leakage takes place even though the patient walks about while the treatment is in progress. The most suitable pressure has been found to be between 20 and 30 mm. of mercury. The treatment is painless and should be repeated every day for fifteen to twenty sessions. The cases must be rather carefully selected and the most suitable are instances of uncomplicated endometritis. Irregular bleeding or severe pain, pointing to recent inflammation, are contraindications. The results of the treatment are said to be excellent, both subjectively and objectively. In the author's cases of chronic endometritis treated by this method the discharge was usually diminished or caused to disappear entirely and the erosion, it is stated, were also favorably influenced.

The Practical Application of the Demonstration of the Spirochæta Pallida.—Arning and Klein, in reporting the results of their work in the examination of the patients in the Hamburg St. George Hospital for venereal diseases, say that they have reached the conviction that the *Spirochæta pallida* is the cause of syphilis and is pathognomonic for the disease when discovered in suspected lesions. The search for this organism should be made a routine in hospital work and in time will also be necessary in the work of the practising physician. The staining method that proved most satisfactory in the hands of the authors was the Preiss modification of the Giemsa stain. One hundred and forty cases of clinical chancres were examined, 112 of these being on the male genitals. In only four instances were the spirochetes not found, the reason in two of the cases being that the ulcers had already undergone prolonged local treatment with mercury. In fourteen primary lesions of the female genitals the spirochetes were discovered in every instance. Only ten failures are reported in 170 cases of syphilitic plaques and patches of various sorts. Seventeen cases of suspected or actual congenital syphilis were examined and in every instance in which clinical syphilis existed the spirochetes were found. In thirty-two cases in which the diagnosis was clinically uncertain the spirochetes were found seven times and the subsequent clinical course was that of syphilis. Eighteen cases gave a negative result and were treated as soft chancres, but in two of these the occurrence of secondary symptoms showed that the search for spirochetes had not been sufficiently prolonged. In the remaining seven cases treatment by mercury had already been administered and no spirochetes were found. In ninety-three cases the clinical picture was that of soft chancre and the examination was made as a species of control; in two of these the spirochete was found, but the others, in which a very careful search failed to detect the microorganism, ran the clinical course of nonsyphilitic affections.

Book Reviews.

The Principles and Practice of Dermatology, Designed for Students and Practitioners. By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois; Dermatologist to St. Luke's and Cook County Hospitals, Chicago; Member of the American Dermatological Association. New York and London: D. Appleton and Company, 1907.

This is a new treatise on dermatology, written, however, by one who is well known in the dermatological world and whose experience, not only as a practitioner, but as a teacher, has qualified him for the by no means light task of presenting this subject in a new light. It is rather hopeless to expect that a writer can present anything that will be new to those familiar with the current literature of dermatology, yet it is well when a competent man collects all this mass of undigested material, condenses it, arranges it in readable form, and puts it forth for the instruction of the non-specialist. This Dr. Pusey has done and has admirably done. He has moreover added the personal note which is so grateful in any work of this kind and which gives to it its chief value. Whether his dermatological colleagues will always agree with him in his interpretation of the facts and in his recommendations for treatment is a matter of no moment—it is probable they will differ with him on many points, as the writer of this review does on some; but if his views are based on the teachings of his own experience they are valuable, and so long as medicine is not a fixed science, they are as likely to be correct as those of his colleagues. The author devotes considerable space to anatomy and other first principles, more than we think is necessary, since the student and general practitioner are supposed to be familiar with these subjects, and if they are not, can get all the necessary information from any books on anatomy and physiology. Books are too big these days, and they could well be shortened by omitting unnecessary matter. The classification—that vexed question in dermatology—which the author formulates is excellent in its simplicity. On the whole the book justifies its existence; it is a safe guide for the general practitioner, and contains much that will be found of practical service to the dermatologist as well.

La Tubercolosi. Per Mario Valtorta e Gino Fanoli. Con Prefazione del Prof. Augusto Murri. Milano: Ulrico Hoepli, 1907.

In this pocket manual Voltorta and Fanoli have given a very condensed and practical résumé of what the average physician needs to know about pulmonary tuberculosis. There is a brief but sufficient discussion of the sanatoria and their value, as well as a summary of the modern ideas concerning the relation between human and bovine tuberculosis. The specific sera and vaccines are very briefly touched upon, and the authors are practically non-committal on the subject of Maragliano's specifics. Behring's new vaccines are spoken of, as they deserve to be, as substances still under experimental study. An appendix shows in summary what has been done in Italy to combat tuberculosis.

The Practical Medicine Series. Comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the General Editorial Charge of Gustavus P. Head, M.D. Series 1907. Chicago: Year Book Publishers, 1907.

Volume I. General Medicine, Edited by Frank Billings, M.S., M.D., Head of Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School.

But little need be said in reviewing the first volume of the new series of this popular annual. That it keeps up the enviable record made by Dr. Head and his collaborators in former years is a foregone conclusion. The practitioner will find in the pages of this little book all that he wants to know regarding recent advances in the field of internal medicine, especially regarding the opsonic index, the recently applied sera and vaccines, etc.

Volume II. General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in Rush Medical College, etc.

The arrangement and treatment of the subjects in this volume are much like those in the corresponding volume of the 1906 series. Dr. Murphy's name on the title page guarantees the thoroughness and good judgment which characterizes the work. Much attention, as may be expected, is given to recent work on surgical infections, opsonins, and vaccine therapy; to the study of shock and the modes of preventing and treating it; to abdominal surgery, its methods and modern results, and to malignant new growths, including the trypsin treatment of the latter.

Volume III. The Eye, Ear, Nose, and Throat. Edited by Casey A. Wood, C.M., M.D., D.C.L., Albert Andrews, M.D., and Gustavus P. Head, M.D.

The specialist in diseases of the eye, ear, nose, and throat, or in any of these groups, should welcome this volume of the Practical Medicine Series as it gives him in a small space most of the important features in the development of these branches during the year 1906. Naturally the book will not take the place of current special journals and reviews, but especially for the busy man whose office work fags him so that he must cut his reading down to a necessary minimum, the present volume will prove of inestimable value. It is difficult, even for a specialist, to keep posted on every advance in his line, and this is what the present volume undoubtedly will assist him in doing.

Physical Diagnosis, With Case Examples of the Inductive Method. By Howard S. Anders, A.M., M.D., Professor of Physical Diagnosis, Medico-Chirurgical College, Philadelphia; Physician to the Philadelphia General Hospital, Tuberculosis Department; Late President of the Pennsylvania Society for the Prevention of Tuberculosis; Member American Medical Association, American Climatological Association, American Association for the Advancement of Science, etc. With forty-eight illustrations in the text and thirty-two plates. New York and London: D. Appleton and Company, 1907.

This book is apparently written for the beginner in the study of physical diagnosis. It contains besides the ordinary characteristic physical signs usually described, many minor points not infrequently omitted from textbooks. With all his emphasis of minor, though essential, points in differential diagnosis, the author has avoided the too common fault of verbosity. In laying emphasis on diagnosis by the inductive method of reasoning he performs a service of real value. The student is too apt to make his diagnosis by a comparison of physical signs easily discovered by superficial examination with sets of physical signs taught as characteristic of various diseases in the attempt to make a snapshot diagnosis. The explanation of the characteristics of such signs as tympany, egophony, etc., is short but lucid. All the essential differences between them are mentioned, but only as a guide to recognition during auscultation. There is a very noticeable lack of the "cut and dried" manner of description usually followed, and emphasis is laid rather on the atypical points of diagnosis most frequently observed. The chapter on abdominal examination is short, but comprehensive. Its simplicity and excellent scheme bring out the essential features of diagnosis and furnish all material desirable for a student previous to clinical experience. The illustrations are excellent and sufficiently numerous. A chapter presenting a few hypothetical and recorded cases follows the section on lungs and heart, and illustrates as well as possible, without clinical material, the method to be followed in reaching a diagnosis. The student will find this book very satisfactory, and it is not without interest for the practitioner.

Die Hygienisch-Diätetische Behandlung der Syphiliskranken. Von Dr. Julius Müller, Arzt für Hautkrankheiten in Wiesbaden. Berlin: August Hirschwald, 1907.

Too little attention is paid in the majority of our textbooks to the hygiene and diet in syphilis. For this reason the little monograph of 118 octavo pages which Dr. Müller offers is both timely and useful. He begins with the mental and normal hygiene of syphilitics, passes on to the diet, with special reference to the use of alcohol and tobacco, and then takes up such hygienic topics as the occupation of the syphilitic, the value of baths, waters, climate, the local and general personal hygiene, the prophylaxis of syphilis, and the relation of syphilis to marriage. The book is written in a very clear and well arranged manner.

Manuale Pratico dell' Igienista. Pei Dottori Clemente Tonzig e Guido Q. Ruata. Con Prefazione del Professore A. Serafini, Direttore dell' Istituto d'Igiene della R. Università di Padova. Milano: Ulrico Hoepli, 1907.

This new number in the Hoepli series of manuals deals with a great variety of subjects, and is supposed to contain whatever a sanitary official needs to know in his daily work. It contains chapters on the microscopical, bacteriological, chemical, and physical examination of food, air, water, soil, beverages, on the inspection of foods, on disinfection, and on sanitary statistics. An appendix contains notes on the microscopical diagnosis of rabies. All this is condensed into 360 duodecimo pages of fine print, and while the book is full of information, it deals with many of the topics in such a brief and incomplete manner that one would scarcely expect it to be more than a guide to memory for those who have mastered the subject from larger treatises.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Regular Meeting, Held October 3, 1907.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

THIS meeting was held under the auspices of the Section on Orthopedic Surgery.

The Joint Cartilage and Its Place in Joint Pathology.—Dr. P. WM. NATHAN read this paper. The joint cartilage was considered to be the primary seat of a number of joint diseases, particularly of a group of joint diseases variously known as rheumatoid arthritis, arthritis deformans, etc. Furthermore, most diseases, whether infectious or degenerative, were supposed to be transmitted to it from either the capsule or the interior of the joint, and thence to the bones beneath. In this wise many diseases which originally affected the capsule were supposed to spread to the bone; and in them the capsular changes were said to be the changes of the early stage, whilst bony changes, ankylosis and the like, were said to be the terminal stages of the same joint diseases. If this was true, the cartilage was either the seat of the original disease, causing both capsular and bony changes, or it was the intermediary between the capsular and bone disease. The question was, did this idea of the pathology correspond to what they knew of the biology of the cartilage, and if not, what was the rôle of the cartilage in joint pathology? Both the physical and morphological properties indicated that cartilage was the most useful agent to facilitate motion. It would retain its elasticity after months of drying if it was again moistened; it showed slight or no signs of irritation if incised and practically no tendency to regenerate if pieces were removed; it remained smooth and apparently normal for months or years in infected joints—even when bathed in pus, so long as there was some motion in the joint; if joint motion entirely ceased it became covered with a layer of connective tissue exactly as in normal joints and the cartilage beneath underwent no change; the connective tisue did not penetrate the cartilage so long as it remained firmly attached, and the bone beneath was normal. In experiments conducted by Dr. Stang and himself, the joint was infected by the injection of virulent staphylococci into the interior of the joint with a view of determining the reaction of the cartilage. The bacteria left the cartilage unaffected in spite of violent joint reaction even when this continued a long time. The bacteria did not grow upon it; they did not invade it nor did they cause proliferative changes in the cartilage cells, no matter how great the irritation. Thus it became evident that the cartilage was decidedly resistant to pathological changes going on within the joint. On the other hand, as the cartilage became immediately affected when its source of irritation was disturbed, separation from the bone caused immediate degeneration and similarly it was brought in sympathy with all the pathological conditions which invaded the bone beneath it. Comparing what they knew of the biology of the joint cartilage and what they learned from experiments with the previously accepted ideas of its use in joint pathology, they were inevitably brought to the conclusion that these accepted ideas were erroneous. The joint cartilage was never primarily the seat of joint disease. It never transmitted disease from the interoir of the joint to the bone. Ulceration, erosion, and degeneration of the cartilage were due to disturbance of its nutrition and therefore due to pathological conditions of the bone; they were not primary and were not due to changes in the interior of the joint. The cartilage did not proliferate in response to irritation of any kind except that of joint motion. Its only reaction was that of degeneration. Hence the exostoses and so-called cartilaginous exostoses could not be derived from the cartilage. Whenever the cartilage was found degenerated it was always due to primary bone disease; when both the cartilage and the capsule were diseased, the capsular disease was secondary and not primary, as hitherto believed. None of the joint diseases had their origin in the cartilage, so that the pathology of the diseases which masqueraded under the name of chronic rheumatism, rheumatoid arthritis, arthritis deformans, etc., was faulty in its inception.

The Relation of Laboratory Aids to Orthopedic Surgery; the Pathological Examination of the Blood, Fluids, and Tissues.—Dr. T. HALSTEAD MYERS said that examinations of the blood were of value to the orthopedic surgeon in making the diagnosis, in determining the general condition of the patient, and in following the course of the disease. An increase in the total number of white cells without any disorder of the blood making tissues, and aside from the physiological leucocytosis following ingestion of food, exercise, etc., would seem to indicate from a clinical standpoint a favorable reaction against infection. Assuming the normal proportion of polynuclear cells to be 75 per cent. and the normal leucocyte count as 10,000, Gibson found that in inflammations which were well resisted the polynuclear cells were increased approximately one degree for every 1,000 of the total leucocytosis above 10,000. But, on the other hand, if there was only a moderate leucocytosis, with a notable increase in the polynuclear cells, it indicated that there was either a severer form of lesion or that there was less resistance to absorption, or that both of these conditions existed. The disproportionate increase of the polynuclear cells was the important fact. He believed that a tuberculous abscess should not be opened unless it became infected, or threatened some important part, or was painful or inconvenient on account of its size. When an abscess was getting somewhat painful, by such a count one could determine whether this was due to tension alone, or to infection. Examinations of the blood showed nothing characteristic in scurvy or rickets. In syphilis there was sometimes a lymphocytosis. The *Spirochæta pallida* had been found in the blood in a very few instances, but only in the primary and secondary stages. While the exciting cause of rheumatism was unknown, there was much reason to believe that some phases at least should be classed among the infectious diseases. There were no characteristic lesions. It was possible, according to Delafield and Prudden, that more than one form of infection was embraced under the designation rheumatism.

The Opsonic Index in Orthopedic Surgery.—Dr. CHARLES OGILVY and Dr. T. HOMER COFFIN presented this paper, which was read by Dr. Ogilvy. The work discussed in the paper was undertaken with the view of determining the opsonic index in cases of tuberculous bone and joint infections; to determine the effect of tuberculin on the opsonic index in these tuberculous cases; to determine the relation between the opsonic index and the general and local conditions; to compare the opsonic indices of ward patients, under tuberculin treatment, with the indices of patients living under the best hygienic conditions, but without the use of tuberculin. The cases under observation were those of tuberculosis of the hip and spine, and brief outlines of the histories were given. The following conclusions were drawn: (1) Tuberculin in small doses, at proper intervals, was of undoubted value in the treatment of selected cases of tuberculous bone and joint infections. (2) The rise of the opsonic index was accompanied by an improvement in the local and general conditions of the patient, if no secondary infection existed. (3) The opsonic index would prove of value in determining the advisability of discontinuing mechanical treatment. (4) The opsonic index was of value in determining the prognosis in tuberculous bone and joint disease. (5) Where there were discharging sinuses and mixed infections the opsonic index might be raised by the use of

tuberculin, without an accompanying improvement of the general or local conditions (specificity).

Skiagraphy in Orthopedic Surgery.—Dr. F. H. Albee read this paper, following it with a lantern slide demonstration. There were certain rudimentary conditions which should be complied with if their interpretations were to be of a sufficiently trustworthy character. First, it was very desirable whenever possible to inspect the plate itself rather than a print. Secondly, care should be taken that the plate was held at a proper distance from the light and that the light was evenly diffused over it. The belief of many pathologists that tuberculosis was nearly always primary in the bone was not, in a large percentage of the cases, confirmed by the skiagraphic findings. It was common to discover first the thickened capsule with a blurring of the outlines of the bony elements of the joints; later the erosion of the articular surfaces, and finally a real destruction of bone. Bone atrophy, not only locally, but in the neighboring bones, could often be detected in the *x*-ray plate, even before atrophy of the soft parts took place. A very important *x*-ray evidence of joint tuberculosis was the marked thinning of the cortex of the neighboring bones, giving an appearance as if their outlines had been penciled and a fine line drawn about them. This was quite diagnostic of tuberculosis. Much could be discovered as to the progress of the disease by a repetition of exposures at intervals. A frequent location for tuberculosis was the phalanges of the fingers; this was frequently confused with a similar syphilitic affection, and the skiagraph was of extreme importance in making a diagnosis In contrasting osteomyelitis with tuberculosis, the latter most commonly affected the epiphyses and articular surfaces, the former rarely did so. An important feature was the absence of marked bone atrophy which was so constant an accompaniment of tuberculosis. The bone lesions which occurred as a result of syphilitic infection were numerous and varied in their manifestations. Of all bone tumors sarcomata were by far the commonest, and the distinguishing characteristics of many of these types could be discovered by the *x*-ray. The skiagraph was absolute in the differentiation of coxa vera, hip disease, and congenital dislocation.

Dr. V. P. Gibney said that as science progressed they must rely more upon the biological, the pathological, and the skiagraphical laboratories as aids in their work. He thought that one of the most important points brought out in the papers was the relation of cartilage to joint diseases. It was a common experience in the operating room to cut into a joint and find the cartilage closed around; yet later the disease would progress just the same; the mistake was in not cutting deeper and searching further. By such aids one would be enabled to make an earlier diagnosis, to localize foci, and thus help greatly in therapeutics. He said he was interested this summer in recalling the ideas of orthopedic surgeons as brought out by continental minds, *i.e.* the correction of deformities and not the prevention of deformities. In this country the aim was always to prevent deformities; the teachings in all our colleges tended in that direction.

Dr. Reginald H. Sayre said they needed the aid of laboratories to help them in differentiating the various forms of bone lesions. The skiagraph was of immense aid in differentiating cysts in the neighborhood of joints which could be easily opened without involving the joint. Great aid could be had by the skiagraph in differentiating tuberculous lesions and synovial conditions. With regard to the value of the opsonic index, they were hardly in a position as yet to know much about it; there were at present diverse results from diverse observers.

Dr. Charles N. Dowd said the aids in diagnosis in the laboratories were so great that at present it was difficult to form a proper relationship between clinical and laboratory observations, and he wondered if they were not in danger of attaching too much importance to the laboratory observations, and possibly not enough to the old-fashioned efforts, such as what we see, feel, and hear. Often they were made to believe the diseased joint worse than it was in truth because of the skiagram. He cautioned against overinterpreting the findings of the *x*-ray. The same might be said of the blood findings. A great many errors resulted from blood examinations, and often one was most startled by the high leucocyte count, especially in children. He was confident that these methods of examination must be made subsidiary to the old-time methods all had relied upon. The opsonic index was as yet in the experimental stage. He felt that it was difficult for them to combine laboratory methods and clinical methods in the right relation.

Dr. Samuel Lloyd wondered if, in the next generation, there would be any old-fashioned methods at all; it was the tendency at present to do away with them. The papers read impressed him with the necessity of a clear judgment brought to bear upon the cases by one who had all his clinical data at hand; the clinical data should be brought in as well as the skiagraph. The opsonic index was not going to be an easy or valuable method of application until they knew how to raise the index. There was a great variability in blood examination, especially when the diseased foci were in closed cavities or in the soft parts. In progressing septic infections they would get a marked increase not only in the polynuclear lymphocytes, but in the other lymphocytes as well. A rising percentage in the lower grade of leucocytes indicated an approaching fatal termination.

Dr. A. Jacobi said that there was not a particle of medical science contributed unless it could be made useful in the interest of mankind, and he wished very much to hear what practical applications were to be made of what he had heard. He believed it would be a good thing if the Academy, as a whole, would take up the subject of the progress and treatment of all these diseases. He would like to know what progress had been made with this new addition to their knowledge of such diseases as they were discussing. Bier's treatment would come in advantageously; many men were now giving attention to this obstructive hyperemia treatment, and Dr. Jacobi was positive that this treatment did good. He then considered the treatment applied years ago as compared with the treatment employed to-day, and impressed upon them the value of phosphorus in bone diseases. Phosphorus had rendered him great service since 1869 when Wagner made his first experiments on the bone of rabbits, fracturing them, giving phosphorus, and noting how they healed the more rapidly when phosphorus was given than when it was not administered. He was positive that osteitis, tuberculous or otherwise, would be better with the internal administration of phosphorus than without it. A great many things that were used years ago should not now be laid aside.

Dr. Nathan, Dr. Myers, and Dr. Ogilvy closed the discussion.

SECTION ON SURGERY.

Stated Meeting, Held May 3, 1907.

Dr. John F. Erdmann in the Chair.

Inoperable Sarcoma Successfully Treated with Mixed Toxins.—Dr. William B. Coley presented these cases. (See page 129.)

Sarcoma of the Orbit.—Dr. Aspinwall Judd presented a boy who was referred to him by Dr. John F. Erdmann for *x*-ray treatment after Dr. Erdmann had given him up. Twenty-five *x*-ray exposures were given with a high tube, at a distance of nine inches to one foot, every five days, or once a week. The treatment was continued from twenty to twenty-five minutes. The boy was never burned.

Dr. John F. Erdmann said the growth was a malignant one of the superior maxilla, and he had removed all but the posterior portion.

Intestinal Obstruction after Appendicitis.—Dr. C. A. McWILLIAMS presented two such cases.

Gonorrheal Rheumatism.—Dr. JOHN ROGERS read this paper. He said that in the treatment with the antigonococcus serum certain facts of general interest had been ascertained. At first, owing to the difficulties in its manufacture, rabbits were used exclusively, but though they were capable of yielding a very effective serum, experience demonstrated that a considerable number of patients suffered unpleasant symptoms after its administration. About one individual in every five or ten was poisoned; that was, within one or two minutes after the injection there followed a feeling of suffocation accompanied by cough, difficult breathing and a bright red flush over the whole surface of the body. At the same time the heart became rapid and feeble and sometimes there was vomiting and involuntary evacuation of urine and feces. The tachycardia, weakness, and general prostration continued in one or two instances for twenty-four hours or more. These peculiar manifestations seemed to depend partly upon the quantity of rabbit serum employed and partly upon the repetition of the dose, or rather the particular time which elapsed between the doses. These peculiarities of rabbit serum, which experience with other analogous products showed were evidently not dependent upon the gonococcic antibody, caused him to urge Dr. Torrey to try another animal and resulted in the use of goats and sheep. The goat serum exhibited a somewhat similar curious toxemia in isolated individuals, and this animal had been abandoned for the sheep, whose serum seemed capable of introduction into the human system with entire impunity up to amounts as large as several ounces at a dose, and in a rather large experience with it he had never noted any of the peculiar "sensitization" phenomena, and there seemed to be no need of anxiety about the intervals between the doses. With a reasonably active serum the average amount of the dose to secure economy, effectiveness, and comfort for the patient was about 2 c.c., or in the neighborhood of 40 minims. This should be given in the loose subcutaneous tissue between the deep fascia and skin in the back of the upper arm, first on one side and then on the other, at intervals of two to six days. The intensity of the local symptoms varied directly with the "activity" of the particular product employed. But if thorough asepsis was maintained and the serum was clear and not contaminated, suppuration would not occur. This local reaction was shortly afterwards followed by an increase in the joint or other symptoms persisting for a few hours and later followed by more or less marked improvement. In the cases treated early in the disease, before there had been time for much effusion or anatomical change, two or three of these injections at intervals of twenty-four, forty-eight, or seventy-two hours might effect a complete cure, but the urethritis, or the original source of the infection, should not be neglected, as the serum had little or no effect upon it, and unless the usual local antiseptic and astringent treatment was energetically carried out a reinfection or recrudescence of the metastasis could be expected. Cases which had exhibited joint symptoms for a few weeks or a month or two might require a dozen or more injections, but in at least 75 per cent. of all the acute, or subacute, or early chronic forms of the disease success might be expected. The failures would be in those suffering from a mixed infection or possibly from one due to a strain of gonococcus not the same as that from which the serum was made. The very chronic or protracted examples of this kind of rheumatism, which might exist for months or years, did not readily recover, and when there existed pronounced deformities, or ankylosis, a cure was impossible. But with perseverance and the judicious use of a satisfactory serum a great deal of good could be accomplished and probably 60 per cent. of these otherwise hopeless invalids could at least be relieved of all pain and signs of active disturbance.

Gonorrheal Rheumatism and Its Treatment.—Dr. JOHN TORREY read this paper. He said that experience had strongly confirmed the opinion that this antigonococcic serum exercised a specific curative influence on a high percentage of cases of certain forms of infection of the gonococcus. After describing the method employed in the preparation of the antigonococcus serum, he called attention to a brief summary of some of the cases of gonorrheal arthritis on which the serum had been used and in regard to which he had been able to collect reports. This list covered seventy cases, in all of which the diagnosis was sure and on whom the serum had received a fair test. These were of all degrees of severity and had lasted from a few days to several years. By the use of the serum fifty-five, or 78 per cent. of these cases were entirely cured, or much improved, and in 15, or 22 per cent., there was very slight or no improvement. Forty-five of these cases, which had received treatment in various other ways for periods of a week to several years, with little or no improvement, were cured or very much improved by the serum. The acute and subacute cases were sixty-one in number. Of these, fifty-one, or about 84 per cent., were acted on very favorably by the serum, while in ten, or about 16 per cent., the result was negative. They had for the most part been running for from two to eight weeks. In those cases in which there was marked swelling, with more or less redness of the joint, the serum acted as efficaciously as in those in which the joint symptoms were less acute. The number of injections which the patients required averaged five. Eleven of them were cured with three or less injections; of these, four were cured with only two injections and one patient with only one treatment. Twenty individuals were cured in ten days or less, and, of these, five in six days or less. The results with the chronic prolonged cases of gonorrheal arthritis had not been as favorable, according to his reports. In nine of these cases, in which the diagnosis seemed to be clear, the serum cured or greatly improved four, or 44 per cent. The other five were benefited slightly or not at all. In all of these there had been an almost continual attack of rheumatism for several years. In such cases the improvement, when it occurred, appeared much more slowly than in the acute ones, and many more injections of serum were necessary. The most reasonable explanation of the failure of the few negative cases to respond to this treatment seemed to be that the infecting agent was a strain of gonococcus of a different nature from any of those used in the production of the serum.

The Prevention of Abdominal Distention after Laparotomy, with Special Reference to the Value of Eserin as a Prophylactic.—Dr. CHARLES A. ELSBERG read this paper.

A New Gas-Ether Inhaler.—Dr. HENRY DAWSON FURNISS demonstrated this instrument. (See Vol. 71, page 775.)

SECTION ON PEDIATRICS.

Stated Meeting, Held May 9, 1907.

Dr. GODFREY R. PISEK IN THE CHAIR.

Exophthalmic Goiter of a Mother Associated with Congenital Malformation of the Heart in Children.—Dr. ALFRED F. HESS presented these cases.

The Indications for and against Removing Adenoids and Method of Operation.—Dr. S. W. THURBER read this paper. The first and large indication for removing adenoids was that they caused nasal obstruction. A second indication was a chronic nasal catarrh, or running nose which might be attended with frequent nose bleeds. A third indication was a stuffy speech. Another in-

dication was a narrowing of the upper jaw and irregular crowding of the teeth. Children were sometimes accused of being inattentive in school when the real trouble was beginning deafness due to blocking of the Eustachian orifices by masses of adenoid tissue. Hypertrophic rhinitis, especially of the inferior turbinate bodies, was another indication. Another indication might be classed under the reflex disturbances, eneuresis, asthma, etc. A large number of cases were on record as much improved or cured by this procedure. Among the contraindications were (1) acute conditions; (2) grave constitutional disease, such as hemophilia, nephritis, diabetes, leukemia, syphilis, or tuberculosis; (3) It was not a good plan to operate during epidemics of the infectious disease. At the Vanderbilt Clinic, during the years from July 1, 1904, to May 1, 1907, there were recorded, in the Department of Nose and Throat, 2,820 operations, and in 52 per cent. of these adenoids were removed. In infants and very young children the use of anesthetics might best be dispensed with, and, in fact, the obstruction was often so large that the use of an anesthetic would be dangerous. After considering the method of operation, he took up a consideration of the results. It could be safely promised that the child would be given a better chance to develop normally, to get better sleep, render it less liable to taking cold and infections, improve its mental vigor and hearing, etc. The child who had already gotten its second teeth, crooked and narrow palate, compressed face, chronic otitis media, the hypertrophic rhinitis would not show the improvement that it would have shown were the adenoids removed months and years before.

Dr. Charles G. Kerley said he had been impressed with the fact that very young children and babies were most subject to adenoids who were habitual suckers. Much could be done in the way of prevention by restricting this habit of sucking, which Dr. Kerley believed to be the starting point of adenoids. Another etiological factor he believed to be "colds." Again, there was a dietetic error to be considered among the causative factors, and this related pretty closely to the overindulgence in sugars.

Dr. B. van D. Hedges of Plainfield, N. J., said that the older one grew the more impressed was he with the rôle played by adenoids in diseases of infancy, and many cases which were obscure were due to the presence of adenoids. The diagnosis should be made with the finger, for the use of the mirror was very unsatisfactory. Once a diagnosis of adenoids was made, the growths should be removed.

Ocular Symptoms and Diseases Accompanying Adenoids.—Dr. Charles H. May said that a certain number of ocular symptoms and diseases occurred with sufficient frequency in children who had adenoids to warrant the assumption of a relationship between the nasopharyngeal and the ocular conditions. These anomalies consisted of epiphora, blepharitis, catarrhal, and more rarely purulent dacrocystitis, congestion of the conjunctiva, phlyctenular conjunctivitis and keratitis, subacute and chronic conjunctivitis, certain forms of conjunctivitis bordering on the trachoma type, and true trachoma. These ocular symptoms and affections frequently accompanied the presence of adenoids, and the removal of the adenoids caused a disappearance of the ocular anomaly in some cases, and in others made the cure less difficult. The adenoids should be considered a predisposing factor rather than a direct cause. They were familiar with the appearance of the mucous membrane of the nose in children affected with adenoids, and the swollen and congested turbinates and the excessive secretion, and also with the fact that these nasal symptoms disappeared without any treatment of the nose after removal of the adenoids. Not only was there apt to be congestion, but the catarrhal inflammation traveled up the lacrymal duct and thus infected the conjunctiva by contiguity. So far as his experience went, rhinitis in infants usually depended upon the existence of adenoids, or of hypertrophied tonsils, or the two combined. The blepharitis, catarrhal conjunctivitis, dacrocytitis, and the phlyctenular affections could be explained in the same manner, the local predisposition produced by the congested conjunctiva. When they studied the structure of adenoids and considered the fact that they were composed of lymphoid material and that trachoma follicles were made up of the same sort of tissue, it was not surprising that the two conditions were often found in the same child. Ever since the Board of Health instituted systematic examination of the eyes of children in the public schools it had been found that a considerable number, fully one-quarter or one-third, were affected with some form of conjunctivitis. Many of those cases admitted of no difference of opinion regarding the diagnosis, and all authorities would pronounce them trachoma. Many others were examples of acute and chronic conjunctivitis; a great many, constituting a considerable proportion of the children of the public schools who were required to submit to treatment of their lids, had a catarrhal conjunctivitis, with more or less follicular hypertrophy; these were the sort of lids which they frequently found in children who had adenoids. These were not examples of true trachoma; no one had ever demonstrated or proven that, if neglected, such cases would produce pannus, ulcers of the cornea, or distortion of the lids, the sequelæ which lead to blindness in true trachoma. The removal of the adenoids in these cases did not appear to influence the conjunctival affection; the latter required local treatment about which, as in the case of diagnosis, there existed considerable difference of opinion.

Relation of Adenoids to Diseases of the Lungs.—Dr. David Bovaird, Jr., said that nasal breathing was detrimental to health. The nose was the natural filter and warmer of the air they breathed, and if the natural channel was blocked and the child forced to breathe through the mouth conditions were established which were favorable to the development of inflammatory processes in both bronchi and lungs. It had always seemed to him that adenoids might be an important factor in the production of tuberculosis of the lungs. In recent years it had been recognized that the presence of adenoids might be an exciting cause of repeated attacks of asthma, and especially in children, and the removal of the adenoids would be followed by the disappearance of the asthmatic attacks. Again there was the effect upon the thorax, which made one more liable to disease; the adenoid growths impaired the respiratory movements and so hindered the development of the lungs. Therefore, whenever adenoids were present that gave symptoms, such adenoids should be removed.

The Question of Adenectomy during Acute Middle-Ear Disease.—Dr. Philip D. Kerrison said that he believed the majority of throat surgeons and otologists were decidedly opposed to the removal of adenoids during acute tympanic disease. In a certain per cent. of the cases operated upon, in which no aural disease was known to have existed, acute middle ear inflammation occurred as a direct result of the operation. The percentage was small, but such cases did occur. In cases of children with acute catarrhal, or acute purulent otitis media, both drum membranes red and bulging, the faucial tonsils moderately, or maybe immensely enlarged, with physical evidences of considerable masses of adenoids in the nasopharynx, the question arose, should they anesthetize the child and incise the drum membrane, wait for the tympanitic inflammation to subside, and place him on the table a second time to remove the adenoids? In deciding this question he said two questions arose: (1) Was the ultimate removal of the tonsil and adenoids an obvious necessity? (2) Would the pharyngeal growth retard or check the tympanitic resolution? If they were of sufficient size and so located as to leave no doubt as to the necessity of

removing them, then there could be little doubt as to their retarding influence upon tympanitic recovery and, in such a case, the child should be placed under the influence of an anesthetic, the drum membrane incised, and the adenoids removed at one and the same time. In support of this he mentioned certain facts, as follows: 1. Either operation, *i.e.* myringotomy or adenectomy, was most successfully done under general anesthesia. By combining the two operations the necessity was obviated of repeated anesthetizations. 2. Adenectomy entailed certain risks to the healthy ear. When the ear was already inflamed acutely it was a favorable time for the throat operation; for by free incision of the drum membrane they safeguarded the ear in a considerable degree from further damage. 3. The free abstraction of blood from the nasopharynx distinctly favored tympanitic resolution. Blood letting from the region of the pharyngeal mouth of the tube was not only rational, but effective. 4. There were undoubtedly many cases of acute otitis media in which recovery was not only tedious and slow, but in the final outcome incomplete until the adenoids had been removed. He agreed with Dr. Thurber that the mere existence of hypertrophied lymphoid tissue in the nasopharynx was not necessarily an indication for removal. The operation was positively indicated only when there were evidences that the growth was interfering with the respiratory or aural function, or causing tissue changes in contiguous structures.

Dr. WALTER E. SPICER said that he always made it a rule in cases of suppurative otitis to ascertain if adenoids were present, and if so to advise their removal. In acute suppurative conditions there was no doubt in his mind but what adenectomy cut short the period of suppuration if done in the early stages, before there had been any destruction of the ossicles and surrounding parts of the middle ear. During the past winter he had operated upon adenoids where there had been a chronic suppuration of several years' standing in 16 cases; all of these 16 were cured.

Dangers of the Operation.—Dr. JOHN J. MCCOY said that where the tonsils were large and not adherent to the anterior pillar of the fauces, or where the adenoids were in clusters and attached to the vault of the pharynx, the operation of removal was very easy. But, if the tonsils were adherent and it became necessary to separate them from the anterior pillar of the fauces, or if the adenoids were distributed over the pharyngeal wall and posterior nasal openings, then the operation of removal was attended with a rather difficult technique. The dangers of the operation he divided into four heads: (1) Traumatism. Many men not conversant with the locality in which they were operating produced an unnecessary amount of trauma. (2) Hemorrhage. Not less than six deaths had been reported, and probably many more that had not been reported, following adenectomies. One should always inquire into the history of hemophilia. Hemorrhage might be due to a fibrous tonsil; the blood-vessels would not properly close. Again unexpected hemorrhage might follow an abnormal distribution of arteries supplying the tonsil and pharynx. (3) Sepsis. Infection of the cervical glands did sometimes occur and might go on to suppuration. Cellulitis of the neck might also occur, as well as retropharyngeal abscesses. Torticollis had been caused by infection of the deep chain of lymphatic glands. (4) Anesthesia and posture. Ether he believed to be the safest anesthetic to use. It was brutal not to give an anesthetic. The best position was the one that gave the greatest freedom of the hands in operating. In the sitting posture the blood was less liable to fill the pharynx.

Adenoids in Epilepsy.—Dr. E. LIVINGSTON HUNT said that the removal of adenoids was followed by improvement in the general health. So far as the results in epilepsy was concerned, all had seen cases where the removal of these growths was followed by a diminution in frequency or of severity of the seizures. On the other hand, all had seen cases not benefited, but at times which seemed to be aggravated, by the removal of these adenoid growths.

Moral and Intellectual Improvements of Public School Children in New York City as a Result of Adenectomy.—Dr. JOHN J. CRONIN said that the psychophysiological feature of education at the present time was gaining ground, and that the educators in this country had taken this up. If a given child did not functionate properly and physiologically in school, there must be something wrong with this child, and he should be referred to the doctor for investigation. The examination of the school children was undertaken with no thought as to its relation to study. The work gradually led up to a selection of men who were up to date in work of certain kinds, and they were surprised to learn the number of children who were "backwards" that had defects of some kind or other. Forty per cent. of the children attending school in Manhattan alone had some of these defects.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

Twentieth Annual Meeting, Held at Detroit, Mich., September 17, 18, and 19, 1907.

DR. ROBERT T. MORRIS OF NEW YORK, PRESIDENT, IN THE CHAIR.

(*Concluded from page 668.*)

When Shall We Perform Myomectomy and When Hysterectomy in Uterine Fibromyomata?—Dr. JAMES N. WEST of New York said that in 31 abdominal myomectomies which he had performed there had been two deaths, and four of the patients had become pregnant. Taking an equal number of consecutive cases of fibroids treated by hysterectomy, he found that there had been no deaths. For the purpose of comparison, he had looked up his records at the Post Graduate Hospital for three years past, and had found that during that time he did 34 hysterectomies with no deaths, and, adding to this number the six done in other places, it made 40 consecutive hysterectomies in three years with no deaths. These represented the worst cases from those who had come under his care, and all presented symptoms which demanded operation. In one case the chief indication was pain, caused by the pressure of the tumor upon the ribs; yet this woman otherwise was quite well. He had not chosen to present all of his hysterectomy cases, but only took them as they came consecutively for three years, to compare them with approximately the same number of abdominal myomectomies, and this showed that as a general proposition myomectomy was much the more dangerous operation. His average mortality in myomectomy was greater than in hysterectomy, but he thought that, with the more extended experience, myomectomy would show a lessened mortality in his hands, because he had learned what cases might safely have myomectomy, and as his experience had increased he felt that the limits of myomectomy had become narrowed. These cases were cited in detail. After a consideration of the subject from all points of view, he felt that there was no disease to which women were subject in which greater individualization was necessary than in uterine fibromyoma. Those who failed to give this careful consideration to each case, and who adopted the rule to operate as soon as expediency would permit after their discovery, were failing to give their patients scientific treatment.

Enucleation of Large Extramural Intraligamentary Uterine Myomata.—Dr. H. HOWITT of Guelph, Ontario, read a paper on this subject, in which he reported two cases and said that the proportion of intraligamentary myomata that became extramural was greater than that of any of the other varieties. The chief points mentioned in the differential diagnosis between this and the other varieties

were the immovable condition of the tumor, the amount of pelvic involvement, the comparatively rapid growth, the absence of menstrual derangement, and, when the cervix was forced above the pelvic brim, the difference in the length to which a flexible bougie could be introduced on the opposite sides of the vaginal portion of the growth. In the surgical treatment of these tumors enucleation, in his judgment, was preferable to hysteromyomectomy. Enucleation was never contraindicated on account of the size of the tumor or the age of the patient.

Fibroid Tumors Complicating Pregnancy.—Dr. E. GUSTAV ZINKE of Cincinnati reported a case of subperitoneal pelvic fibroid which complicated a four months' pregnancy. Hysterectomy was done, the fibroid enucleated, followed by secondary hemorrhage one week after the operation, likewise a pelvic abscess, with rectovaginal fistula, and recovery. Pregnancy had a twofold effect upon fibroids: (1) With the increased blood supply and the gradual growth of the uterus, the tumor or tumors increased in size. This growth was due to an actual increase in the fibromyomatous tissue as well as a considerable amount of edema. The latter condition was especially well marked in the specimen presented, and because of its semifluctuant consistency gave rise to the suspicion that the pelvic tumor was the uterus, if pregnancy existed at all. (2) Opinions were somewhat at variance as to the effect of involution upon the tumor in case of miscarriage, premature labor, or delivery at term. The immediate effect was a reduction in the size of the fibroid, usually to the dimensions it possessed before conception. While it could not be denied that sometimes the fibroid might be entirely absorbed in the course of involution, in the majority of instances it was more than likely that these tumors not only continued to exist, but began to grow anew after involution had been completed.

Operations for Fibroid Tumors During Pregnancy.—Dr. J. HENRY CARSTENS of Detroit cited seven cases in which he had operated for fibroid tumors during pregnancy, and said that this number, although small, showed that these operations could be performed with safety, although sometimes an abortion occurred. But all things considered, it was far safer than to allow tumors to rapidly increase in size and then interfere with labor. Cases of the latter kind were accompanied by a high mortality. In his series of fibroid operations during pregnancy there was one death. This was preventable, and could hardly be charged directly to the operation itself. The operation is justifiable in certain cases. It is indicated in all instances of fibroid in the lower uterine segment or in the broad ligament. As a rule, fibroids at the fundus need not be interfered with during pregnancy.

Temporary Ureterovaginal Fistula After Panhysterectomy for Fibroid of the Uterus.—Dr. ERNST JONAS of St. Louis, Mo., said that panhysterectomy was preferable to supravaginal amputation as the radical operation for fibroid of the uterus. Empty contraction of the ureter was an important point for differential diagnosis between a lateral opening and complete interruption of the continuity of the ureter in ureterovaginal fistula. Operative interference in ureterovaginal fistula, where there was only a lateral opening in the ureteral wall, was not advisable until there had been a chance for spontaneous healing.

Intraabdominal Torsion of the Great Omentum Without Hernia.—Dr. ROLAND E. SKEFI of Cleveland, O. said that torsion of the omentum was best classified clinically under three simple heads. (1) Torsion dependent directly upon hernia. (2) Torsion in which hernia existed, but the dependence was not clear. (3) Pure intraabdominal torsion. There had been eleven cases of the latter type recorded up to the present time. He gave a résumé of these reports. The twelfth case was that occurring in his own practice. The greatest interest centered about the etiology and diagnosis. Etiologically, four different causes had been advanced to explain the mechanism: (1) External force or pressure; (2) external or internal force acting in conjunction with matting or adhesions on one side; (3) adhesions of the tip with peristalsis of the intestine starting the rotation; (4) circulatory disturbance in the omentum. In the cases given in the literature and the one he reported, the accumulated evidence went to prove that rotation was begun by one of the first three factors, and was carried on to strangulation by the fourth by reason of the over-full veins constantly tending to twist themselves about the shorter, less elastic arteries. In the absence of hernia there was no conclusive diagnostic sign, but suspicion should be aroused if a sudden large mass appeared, not especially sensitive to pressure, doughy in consistence, dull or flat on percussion, and associated with less violent symptoms than one would expect in suppurative appendicitis with the same physical signs.

Fibroid Tumor of the Uterus.—Dr. EDWARD J. ILL of Newark, N. J., reported a case of very large uterine fibromyoma, measuring 24 by 35 centimeters, complicated by a two months' pregnancy, in which nature's attempt at an abortion filled the uterine cavity with blood and thus produced severe pressure symptoms. There was great pain in the left thigh and leg, and both were very much swollen. There was a marked decrease in the pulsation of the left popliteal artery. A supravaginal amputation showed the uterine cavity filled with grumous bloody fluid, with a two months' ovum attached near the right horn. The cavity measured 10 by 12 centimeters. The ovum was dead, as shown by the turbidity of the amniotic fluid and macerated decidua.

Consistency in Aseptic Surgical Technique.—Dr. JAMES E. SADLIER of Poughkeepsie, N. Y., said that operators of equal ability and surgical technique had widely different mortality rates, and asked the question whether at least a portion of this difference might not be due to consistent asepsis on the one hand and inconsistent asepsis on the other.

Deciduoma Malignum.—Dr. MILES F. PORTER of Fort Wayne, Ind., said the majority of malignant growths developing at the placental site were carcinomatous, but some were sarcomatous, and they might be mixed. It would be better to name each specimen according to the microscopic findings. In all types early dissemination by the blood-vessels occurred, hence great care should be used to prevent dissemination by manipulation during operation. Microscopists not infrequently disagreed as to malignancy or nonmalignancy of a given specimen. Specimens removed for examination might show no evidence of malignancy, and other specimens from the same source left no doubt of malignancy. Histologically, all chorioepithelial proliferations were malignant; hence too much importance might be attached to microscopic findings and too little to the clinical. When the latter pointed strongly to malignancy, operation should be done, even though the former were negative. He reported a case occurring in a multipara, aged forty. Twin pregnancy about third month. Menses regular; last one ten days prior to operation. Last period normal except that it began with a gush of blood-stained water. Patient complained of pelvic distress, great weakness, and was very anemic. The tumor was the size of a fist, situated in the hypogastrium, soft and tender. A week later the patient was examined again, symptoms had become aggravated, and tumor increased in size. Two days later fragment removed and pronounced malignant by a pathologist. Panhysterectomy was done, followed by recovery. After operation the uterus was found abnormally large, its walls thick, friable, soft. There were two gestation sacs, one of which was detached. The slides made from the specimen removed were examined by two microscopists. One reported abnormal glandular and decidual proliferation, and the other chorioepithelioma. He exhibited the specimen and microphotographs. The uterus

was abnormally soft, friable, and large, and the woman was seriously ill. The two microscopists agreed in saying that there was abnormal glandular and decidual growth, but one said "malignant" and the other "nonmalignant." The essential nature of the trouble remained in question. There were no signs of inflammation. Nonmalignant glandular and decidual growth with death of cells and consequent autointoxication were a possible explanation. The author thought that chorioepithelioma was the correct diagnosis, and, if correct, the case was unusual because of twin pregnancy and early diagnosis. Increasing experience confirmed the opinion that in suspected malignancy the clinical findings were equally as important and sometimes more important than the microscopical. In his judgment, it was better to have a living patient with an unmade diagnosis than a dead one with a decided diagnosis.

Dermoid Tumor of the Ovary.—Dr. WILLIAM H. HUMISTON of Cleveland, O., reported a case of unusually large dermoid tumor of the ovary, and presented a photograph and a detailed pathological report.

Echinococcus Cyst of the Liver.—Dr. HERMAN E. HAYD of Buffalo reported the case of a man, aged thirty-seven, stonemason by occupation, upon whom he had operated for the removal of a large echinococcus cyst of the liver. The patient made a good recovery.

Conservative Medical Treatment of Salpingitis.—Dr. EDWARD J. ILL of Newark, N. J., made a plea for a nonoperative treatment of salpingitis. He contended that the vast majority of patients with primary attacks got well subjectively, while a goodly number recovered sufficiently to give birth to children, and have a normal puerperium. He deprecated the therapeutic nihilism of the later textbooks, and the unjustifiable desire for operation in the acute cases. He also contended that there was a possible cure of a number of cases of chronic salpingitis with their concomitant pelvic adhesions. He wished it plainly understood that unfortunately many cases needed surgical aid with its mutilating result. Cases that came for medical treatment were, first, the acute febrile conditions resulting from a gonorrheal infection; secondly, those following labor, abortion, and unclean intrauterine instrumentation, and, lastly, the results of inflammatory conditions following tubal abortion, and coming to the practitioner late after the accident. The first and second classes needed about the same treatment, while the treatment of the last was as that for the chronic pelvic adhesions. He advised against medical treatment in cases of abscesses of the ovary, tuberculosis of the tubes, and other rare forms of inflammatory disease. He detailed two cases of gonorrheal infection with extensive pelvic exudates, in both of which recovery and subsequent conception followed. The treatment of gonorrheal pelvic inflammation should be divided into three stages. First, the treatment of the primary infection, the prophylactic. Second, the treatment of the acute tubal and peritoneal inflammation. Third, the treatment of the sequelæ. He advised thorough swabbing of the vagina with a 5 per cent. solution of chloride of zinc. This was usually necessary but once, rarely a second or third time. The vagina should then be filled with a five-yard strip of iodoform gauze, three inches wide, allowed to remain three days. Large hot douches of potassium permanganate, 1-2000, were then ordered. Repeated applications should be avoided, as a rule, since they often proved harmful. Proper hygienic methods were urged. When the case had gone on to an acute salpingitis, the recumbent posture should be insisted on. Pain and temperature demanded an ice-bag above the pubes. This would insure much relief, and opiates could thus be avoided. Nothing would reduce pain and an acute exudate more quickly than the application of cantharidal collodion to the roof of the vagina, made with proper precautions. The application should not be repeated in less than six days, and should be followed in two days by Lugol's solution of iodine and a glycerin tampon. Large hot douches of potassium permanganate were given between the applications. Saline cathartics, proper diet, and freedom from all sexual excitement were ordered. When the acute stage was over, elastic pressure by oakum or jute tampon displaced the glycerin tamponnade. As much pressure should be made as the patient could comfortably bear. Massage of the roof of the pelvis with rubber bags filled with mercury, and introduced into the vagina, was recommended. The patient was placed in a moderate Trendelenburg position, and a second bag was laid over Poupart's ligament, on one or the other side. The séance might last from one-half to two hours, and the manipulation could be done in the office by any well-trained nurse. Recent adhesions and exudates were rapidly absorbed by such treatment, and old adhesions were often stretched and made to yield, so that a more freely movable uterus, tubes, and ovaries resulted. The treatment was not applicable to relapsing attacks of pelvic peritonitis.

Nymphomania as a Cause of Excessive Venery.—Dr. C. C. FREDERICK of Buffalo, N. Y., said that masturbation appeared in three classes of women: First, those mentally and nervously normal, from purely local causes; second, in those of neuropathic taint, hysterics, and neurasthenics, in whom there was perversion of the sexual instinct; third, in those who developed it as one of the symptoms and accompaniments of insanity (occurring here in about 10 per cent.). Judging from the histories of many cases which he had collected, but had not reported in his paper, nymphomania among mentally responsible and nervous women was relatively rare; the mentally irresponsible were more masturbators than given to excessive coitus; and the mentally responsible nymphomaniacs, as a rule, were addicted to excessive venery only when their sexual fall had been early in life.

Nephrocolopexy.—Dr. HOWARD W. LONGYEAR of Detroit spoke on this subject and reported cases in which he had operated during the year. He described at length an operation which he presented before the association last year in a paper entitled "Kidney and Colon Suspension by the Use of the Nephrocolic Ligament and Gerota's Capsule."

Ophthalmia Neonatorum.—The committee on this subject made the following report:

"*Whereas,* A committee has been appointed by the American Medical Association on legislative measures to prevent ophthalmia neonatorum; and

"*Whereas,* It is recognized by this Association that this disease is preventable; and

"*Whereas,* The Health Department of each State is the properly constituted authority for dealing with preventable and communicable diseases; therefore, be it

"*Resolved,* That it is the expression of the sentiment of this Association that definite steps should be taken to secure the enactment of such laws in the various States as shall compel the use of proper measures of prophylaxis by the attendant at every confinement, the execution of such laws to be under the jurisdiction of the State Boards of Health, and we hereby pledge our assistance and cooperation to the committee of the American Medical Association in its undertaking."

(Signed.) R. E. Skeel, O. H. Elbrecht, Magnus Tate.

Officers.—The following officers were elected for the ensuing year: *President,* Dr. E. Gustav Zinke, Cincinnati, O.; *Vice-Presidents,* Dr. John W. Keefe, Providence, R. I., and Dr. W. A. B. Sellman, Baltimore, Md.; *Secretary,* Dr. William Warren Potter, Buffalo, N. Y., re-elected; *Treasurer,* Dr. X. O. Werder, Pittsburg, Pa., re-elected.

Baltimore was selected as the place for the next annual meeting. Time, third Tuesday in September, 1908.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of the State of California.

San Francisco, August 6, 7, and 8, 1907.

ANATOMY.

1. With what sinuses and cavities do the nasal fossæ communicate, and by what means?
2. What structures are supplied by the third, fifth, seventh, ninth, and twelfth cranial nerves?
3. Describe the course of the vertebral arteries, also the formation of the circle of Willis.
4. What nerves supply the muscles of the following regions: Acromial, Anterior Humeral, Posterior Humeral, Anterior Brachial, Posterior Brachial, Radial, Anterior Femoral, Posterior Femoral, Internal Femoral, and Anterior Tibiofibular?
5. Give one example of each of the following named varieties of articulations: Arthrodial, Enarthrodial, and Ginglymus. Describe your examples.
6. Describe the anastomosis in the anterior abdominal wall which is capable of compensating for partial obstruction of the abdominal aorta.
7. Describe the gross anatomy of the kidneys and give their surface markings on the back.
8. (*a*) What apertures are found in the walls of the abdomen for the transmission of structures to or from it? (*b*) At what points are the walls structurally weak?
9. Indicate the surface points for the following: Termination of the spinal cord, abdominal aorta, lowest limit of the pleura posteriorly, bifurcation of the trachea, gall-bladder.
10. (*a*) What anatomical reason is there for dilation of the hemorrhoidal plexus of veins and the superficial abdominal veins? (*b*) Why are varicose ulcers most likely to form on the anterior surface of the leg at the junction of its lower and middle third?

PHYSIOLOGY.

1. Describe the mechanism of the respiratory movements.
2. Discuss in detail the digestive action of pancreatic juice.
3. Describe the red blood corpuscles and give their function.
4. Explain (*a*) the cardiac cycle; (*b*) the nervous control of the heart.
5. Give briefly the physiology of the sympathetic nervous system.
6. (*a*) Where are the trophic centers for the skeletal muscles? (*b*) What is the effect of a unilateral section of the spinal cord?
7. Enumerate the cranial nerves and state whether they are nerves of motion, sensation, or special sense.
8. Distinguish between paralyses of cerebral and spinal origin in (*a*) reflexes, (*b*) nutrition of muscles, (*c*) electrical reactions of muscles.
9. Give the (*a*) function of the submaxillary or submandibular ganglion; (*b*) with its nerve roots and fibers of distribution.
10. Define: (*a*) Atelectasis, (*b*) diopter, (*c*) autolysis, (*d*) dendrites, (*e*) parturition, (*f*) astigmatism, (*g*) aphasia, (*h*) hemolysis, (*i*) cholesterin, (*j*) glycogen.

HISTOLOGY.

1. Describe the histological structures and their relation to each other in a cross section of the wall of the stomach near the pylorus.
2. Describe the histological structure of the kidney.
3. Describe the histological structures and their relation to each other of a mature Graafian follicle.
4. Draw a diagram of a cross section of the spinal cord in the cervical region, showing physiological divisions.
5. Describe the histological structure of the spleen.
6. Name the component parts of a typical medullated nerve fiber.
7. State how you would prepare a piece of liver for microscopical examination.
8. Examination of slides, two specimens.
9. Examination of slides, two specimens.
10. Examination of slides, two specimens.

HYGIENE.

1. Name the sources of contagion in typhoid fever, and state what measures you would suggest to prevent contagion.
2. Upon what findings would you base an opinion of a sample of milk?
3. Describe two methods of purifying water.
4. What diseases may be spread through the use of milk?
5. What diseases would you look for in inspecting cattle at the slaughter house?
6. Name the water-borne diseases.
7. Mention the sources of infection in tuberculosis and describe suitable preventive measures.
8. Describe briefly the efficiency of the common disinfectants and antiseptics.
9. What provisions would you make for ventilating a school room?
10. Describe the rôle of insects in the propagation of disease.

CHEMISTRY AND TOXICOLOGY.

1. (*a*) What is the greatest waste product eliminated by the urine? (*b*) What is the normal amount of urine secreted in twenty-four hours? (*c*) What is the normal specific gravity?
2. (*a*) In what part of the body is dextrose chiefly formed? (*b*) What is its significance, when repeatedly found in the urine? (*c*) In what part of the body is glycogen formed? (*d*) Is it found in normal muscle tissue?
3. Name and describe two separate methods for testing the presence of sugar in the urine.
4. (*a*) What are the pigments in human bile and which is most abundant? (*b*) Are they soluble in water. (*c*) What is the usual composition of gallstones?
5. (*a*) Is there dextrose in the saliva in diabetes? (*b*) Is bile found in the saliva in jaundice? (*c*) Is urea found in the saliva in uremia? (*d*) What is the important ferment in saliva?
6. (*a*) What two enzymes are found in the gastric juice? (*b*) What is the action of each?
7. Suppose you have filtered some urine through a white filter and upon the filter placed a drop of fuming nitric acid. If a yellow spot be formed surrounded by rings of yellowish red, violet, blue, and green, what unnatural presence is indicated?
8. (*a*) Why is egg albumin an antidote for corrosive sublimate poisoning? (*b*) Why should a stomach pump be used after the administration of egg albumin?
9. (*a*) In cases of phosphorus poisoning, what condition of the urine is very marked? (*b*) Would you give oil in a case of phosphorus poisoning?
10. (*a*) Describe a case of nitric acid poisoning and give antidote. (*b*) Under what conditions, when poisons have been swallowed, would you not give an emetic?

OBSTETRICS.

1. Explain how the fetus is nourished during pregnancy.
2. In cases of the death of the fetus during the later months of pregnancy, give diagnosis and treatment.
3. Describe fully the structural and functional changes which normally take place in the heart and lungs of the child at birth?
4. Give in full the diagnosis and differential diagnosis of pregnancy.
5. Give diagnosis and treatment of ectopic pregnancy.
6. Give cause, or causes, prevention and treatment of puerperal convulsions.
7. Describe condition present in placenta previa and how treated.
8. Give diagnosis and treatment of cross presentations.
9. Give causes, best means of prevention and treatment of postpartum hemorrhage.
10. Give causes, best means of prevention, and treatment of puerperal infection.

GYNECOLOGY.

1. In examining a woman per vaginam, name the parts to be inspected or palpated.
2. How do you distinguish between ovarian cyst, fibroid of the uterus, and inflammatory mass in the pelvis?
3. How do you differentiate between erosion of the cervix, laceration of the cervix, and carcinoma of the same in early stages, macroscopically?
4. Give the best method of handling each of the above conditions in brief.
5. How would you diagnose between appendicitis and inflammation of the right ovary?
6. What is the best method of repair of the incomplete laceration of the pelvic floor, and describe it?
7. Describe the best operation for correcting retrodeviation of the uterus.
8. How would you treat tuberculous peritonitis originating in the Fallopian tubes, and what is the prognosis?
9. Which has the greatest effect on the health of the woman, laceration of the cervix or of the perineum, and state why?
10. What is cystocele, and how do you treat it?

GENERAL DIAGNOSIS.

1. Differentiate acute lobar pneumonia and catarrhal pneumonia.
2. Differentiate acute follicular tonsillitis and diphtheria.
3. Diagnose a case of appendicitis by exclusion.
4. What are the signs of danger in general anesthesia?
5. Differentiate cholelithiasis, gastric ulcer, and appendicitis.
6. Make a differential diagnosis between ulcer and carcinoma of stomach.
7. Differentiate chronic parenchymatous nephritis and chronic interstitial nephritis.
8. Differentiate ovarian cyst, fibroids of uterus, and extrauterine pregnancy.
9. Diagnose a typical case of typhoid fever.
10. Differentiate pleurisy with effusion and empyema.

PATHOLOGY.

1. Define inflammation. Describe the process of an acute catarrhal inflammation of a mucous membrane.
2. Name ten pathological disorders of the spleen.
3. Give three synonyms for and describe the gross pathology of chronic interstitial cirrhosis of the liver.
4. How would you recognize the following conditions: (*a*) Macroscopically, (*b*) microscopically; Amyloid degeneration, fatty denegeration?
5. Name the syphilitic lesions affecting the brain and spinal cord.
6. State the blood changes in (*a*) lymphatic leukemia, (*b*) pseudoleukemia lymphatica.
7. Describe the microscopical picture presented in chronic interstitial nephritis.
8. What features characterize malignant neoplasms? Name three tumors generally conceded to be malignant.
9. Differentiate pathology of typhoid ulcer of the intestine, tuberculous ulcer of the intestine.
10. Give the microscopical picture of rodent ulcer.

BACTERIOLOGY.

1. Discuss the value of a morphological diagnosis in bacteriology.
2. Describe the causative agent in thrush and discuss its rôle in human pathology.
3. Name the portals of infection in tuberculosis, gonorrhea, anthrax.
4. Name four acid-fast bacilli.
5. What is the rôle of the colon bacillus in human pathology?
6. How would you diagnosticate canine rabies?
7. What are the causes of difference in the virulence of diphtheria?
8. Outline the serum therapy in bubonic plague.
9. State the nature and the value of antistreptococcic serum.
10. Give the bacteriological diagnosis of actinomycosis.
11. Define symbiosis, antitoxic unit, intermittent sterilization, and mallein.
12. Name six common pyogens, four chromogens, and two obligate anaërobes.

(Answer ten of the above questions.)

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA.

San Francisco, August 6, 7, and 8, 1907.

PHYSIOLOGY.

3. The *red blood corpuscles* are biconcave discs, about 1/3200 of an inch in diameter; they are non-nucleated, and there are about 4,500,000 or 5,000,000 of them in each cubic millimeter of blood. They are elastic and soft, and their shape is changed by pressure, but is promptly regained on the removal of the pressure. Their color is yellowish. They contain hemoglobin.

Their *function* is to carry oxygen from the lungs to the tissues.

5. "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to such extent that, for instance, in certain mammalians the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or less extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence*." (*Reference Handbook of the Medical Sciences.*)

6. (*a*) The cells of the anterior cornua of the spinal cord and the ganglia on the posterior roots of the spinal nerves are *trophic centers*.

(*b*) In *unilateral section* of the spinal cord there will be: (1) A band of anesthesia, and (2) a band of extreme sensitiveness *near* the level of the lesion; (3) motor paralysis; (4) impairment of muscular sense; (5) reflexes first lost and later (6) increase of knee-jerk; (7) increase in body temperature; all of the above are on the *same* side as the lesion and 3 to 7 are *below* the level of the lesion; (8) loss of sensation on the *opposite* side and *below* the level of the lesion.

8. In paralysis of *cerebral* origin: (*a*) The reflexes are exaggerated; (*b*) the muscles may atrophy a little, but this is due to disuse; (*c*) the electrical reaction is normal.

In paralysis of *spinal* origin: (*a*) The reflexes are either diminished or lost; (*b*) the muscles are decidedly atrophied and wasted; (*c*) there is little or no response to the faradic current and partial or complete reaction of degeneration to the galvanic current.

9. (*a*) The submaxillary ganglion gives off secretory and vasoinhibitory fibers from the chorda tympani to the submaxillary gland.

(*b*) It is connected with the lingual nerve; it communicates with the facial nerve by the chorda tympani, and with the sympathetic. It is distributed to the mucous membrane of the mouth, Wharton's duct, and the submaxillary gland.

10. (*a*) *Atelectasis* is a condition in which the lungs are collapsed or imperfectly expanded.

(*b*) *Diopter* is the unit of measurement for refractive power; it represents the refractive power of a lens at a focal distance of one meter.

(*c*) *Autolysis* is the destructive action of the blood serum of an animal upon its own blood corpuscles.

(*d*) *Dendrites* are the branched processes given off from a nerve cell.

(*e*) *Parturition* is the process of giving birth to a child.

(*f*) *Astigmatism* is a defective refractive condition of the eye, in which rays of light in different meridians are not focused by the eye on the same point.

(*g*) *Aphasia* is loss of the power of expression by speech or writing.

(*h*) *Hemolysis* is the destruction of the blood or blood corpuscles.

(*i*) *Cholesterin* is a crystalline compound found in gallstones, bile, nerve tissue, etc. It is a monoatomic alcohol; composition, $C_{27}H_{45}OH$; constitution unknown.

(*j*) *Glycogen* is a carbohydrate found in the liver, leucocytes, etc.

HYGIENE.

1. The sources of contagion in typhoid fever are food, milk, water, fingers, and flies, or anything that has been in contact with the excreta of a typhoid patient.

To prevent contagion: Keep flies out of the house by means of screens; boil all water and milk used; do not put ice into anything that is to be eaten or drunk; eat no raw food; see that all discharges from the patient are thoroughly disinfected, also all linen or anything that has come in contact with the patient; the nurses or attendants should thoroughly scrub and disinfect their hands after attending to a typhoid patient.

2. An opinion on a sample of milk should be based upon the following findings: Color, odor, taste, reaction, specific gravity, acidity, proportion of fat, total solids, determination of albumin, milk-sugar, ash, percentage of cream, presence of preservatives or other added chemicals, coloring matter, dilution, added solids, pathogenic microorganisms, dirt or other foreign matter. There should also be thorough investigation as to its source, the cows and their environment, the method employed in caring for, milking, storing, and transmitting the milk.

3. Distillation, and boiling and filtration are the two best methods of purifying water.

4. The following diseases may be spread through the use of milk: Tuberculosis, scarlet fever, diphtheria, typhoid fever, cholera.

5. In inspecting cattle at the slaughter house, the following diseases should be looked for: Trichinosis, hydatids, tapeworms, other worms and parasites, tuberculosis, glanders, anthrax, pneumonia, pleurisy, erysipelas, hog cholera, pyemia, septicemia, cattle plague, sheep-pox, charbon symptomatique, malignant edema, foot and mouth disease, actinomycosis, chicken cholera, abscesses, icterus.

6. The water-borne diseases are: Typhoid fever, dysentery, diarrhea, indigestion, goiter, vesical calculi, cholera, scarlet fever, diphtheria, tapeworms, lead poisoning.

7. The sources of infection in tuberculosis are: The sputum of consumptives, prolonged contact with consumptives, tuberculous milk or meat, direct inoculation through broken skin or mucous membranes. Hereditary predisposition may help. Suitable preventive measures would include: Careful disinfection or burning of sputum, etc.; avoidance of spitting in public places; plenty of fresh air and sunlight; an abundance of good and easily digested food; the proper inspection of food supplies; the avoidance of kissing; and reporting of cases to the proper health authorities, and cooperation with them.

8. Burning is the best disinfectant; then moist heat and dry heat; carbolic acid and mercury bichloride are excellent except in the presence of albuminous material, when chloride of lime or formalin are better; formaldehyde and sulphur dioxide are both good disinfectants.

10. Malaria and yellow fever are transmitted by the mosquito; bubonic plague may be conveyed by fleas, flies, and bugs; typhoid fever may be conveyed by flies; tick fever (or spotted fever) is carried by the tick; sleeping sickness is transmitted by a biting fly.

CHEMISTRY AND TOXICOLOGY.

1. (*a*) The greatest waste product eliminated by the urine is urea.

(*b*) The normal amount of urine secreted in twenty-four hours is about fifty ounces.

(*c*) The normal specific gravity is about 1015 to 1025.

2. (*a*) Dextrose is chiefly formed in the intestines during digestion.

(*b*) Diabetes mellitus.

(*c*) Glycogen is chiefly formed in the liver.

(*d*) Yes, it is found in normal muscle tissue.

3. The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test*: Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Boettger's test*: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by the dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthaus' *Essentials of Chemistry.*)

4. (*a*) The pigments in human bile are: Bilirubin, biliverdin, bilifuscin, biliprasin, bilihumin; bilirubin is the most abundant.

(*b*) They are not soluble in water.

(*c*) Cholesterin, bile pigments, bile acids combined with calcium, calcium salts, and phosphates.

5. (*a*) Yes, dextrose may be found in the saliva in diabetes.

(*b*) Bile pigment may be found in the saliva in jaundice.

(*c*) Urea may be found in the saliva during uremia.

(*d*) Ptyalin is the most important ferment in the saliva.

6. (*a*) The two enzymes in the gastric juice are pepsin and rennin.

(*b*) *Pepsin* changes proteids into proteoses and peptones. *Rennin* curdles the casein of milk.

7. Bile.

8. (*a*) Because it forms insoluble mercury albuminate.

(*b*) To remove this albuminate before it has time to redissolve in the alkaline chlorides contained in the stomach.

9. (*a*) The urine will be found to contain albumin, bile, bile pigments, biliary acids, and fat.

(*b*) No; because oil would aid in the absorption of the phosphorus.

10. (*a*) There is immediate and acute burning pain in mouth, lips, tongue, pharynx, esophagus, and stomach, chiefly in the epigastrium. There is violent vomiting of a dark and acid material, with shreds of mucous membrane. Yellow eschars are formed where the acid has come in contact with the skin, lips, or tongue.

The treatment is to administer a solution of magnesia or of soap.

(*b*) An emetic is not usually given after poisoning by corrosive acids or alkalies.

OBSTETRICS.

1. *Nutrition of the fetus at different periods of pregnancy*: "(1) At first the ovum absorbs nutriment simply through the vitelline membrane, while passing through the Fallopian tube. The nutrient material is supplied by the secretion of the tube itself, or may consist in part of seminal fluid introduced from without. (2) The vitellus is absorbed by the entoderm lining the umbilical vesicle and alimentary canal, and later it is absorbed and conveyed into the body of the embryo by the blood-vessels of the area vasculosa. (3) When the contents of the umbilical vesicle are exhausted, the chorial villi appear and take up nourishment from the uterine decidua, with which they are in contact. (4) With the disappearance of villi in the chorion leve, the villi of the decidual serotina develop into the placenta, where they take up nutriment from the maternal blood with which they are surrounded." (King's *Manual of Obstetrics.*)

2. *Symptoms* of death of the fetus during the later months of pregnancy are: Cessation of the signs of pregnancy, the abdomen and uterus are both diminished in size, the fetal heart sounds and movements cease, there is no pulsation in the cord, the mother's breasts become flaccid and occasionally secrete milk. If the fetus has been dead for some time, crepitus of its cranial bones may be elicited. *Treatment*: Abortion or premature labor must be induced, and the contents of the uterus removed immediately.

5. *Diagnosis*: "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

Treatment consists in removal of the product of conception, by a laparotomy, as soon as the diagnosis is made.

GYNECOLOGY.

5. In *appendicitis* the pain is of sudden onset and is localized in the right iliac fossa; there is abdominal rigidity, chiefly of the right rectus muscle; there are usually fever, nausea, vomiting, and constipation.

In *inflammation of the right ovary* the pain is not localized, but spreads to the vagina and rectum; it is usually worse just before the menstrual period, which sometimes affords relief; on vaginal examination the ovary is found to be tender.

6. *Laceration of the cervix* may cause hypertrophy, elongation, sclerosis, cystic degeneration, or carcinoma of the cervix; subinvolution, or displacements of the uterus, also endometritis. Other results may be pain on walking, on defecation, or during coitus; sterility or abortion; headaches, backache, neuralgic pains, neurasthenia, indigestion, constipation.

Lacerated perineum may be followed by local tenderness, irritable scar, reflex disturbances, subinvolution of the uterus, rectocele, cystocele, prolapse of the uterus, and incontinence of feces.

Hence laceration of the cervix may be said to have the greatest effect on the health of the woman.

I.

GENERAL DIAGNOSIS.

ACUTE LOBAR PNEUMONIA.	CATARRHAL PNEUMONIA.
Generally a primary disease.	Generally secondary (to bronchitis or an infectious disease).
Age has little influence.	Generally found in very young or very old.
Sudden onset.	Gradual onset.

Fever is high and regular.	Fever is not so high, and is irregular.
Ends by crisis between sixth and tenth day.	Ends by lysis, at no particular date.
Generally only one lung affected.	Generally both lungs affected.
The physical signs are distinct; and there is a large area of consolidation.	Physical signs indistinct; and the evidences of consolidation are indefinite.
Sputum is rusty.	Sputum is rather streaked with blood.

2.

TONSILLITIS.	DIPHTHERIA.
1. Sudden onset.	1. More gradual onset.
2. Chill.	2. Chill is rare.
3. Temperature 103° to 105° F.	3. Temperature 101° to 103° F.
4. Vomiting is occasional.	4. Vomiting is common.
5. Albuminous urine rare.	5. Albuminous urine common.
6. Tonsils considerably enlarged.	6. Tonsils not much enlarged unless chronic hypertrophy of the tonsils previously existed.
7. Exudation in spots or a pseudomembrane.	7. Exudation, a thick membrane.
8. Pseudomembrane margins are the same color as the rest of the mucous membrane of the tonsil.	8. Diphtheritic membrane margins are dark red or purplish in color for a distance of a quarter of an inch.
9. Pseudomembrane not adherent; easily wiped away with cotton.	9. Membrane very adherent; removed with difficulty and only with forceps.
10. Leaves no bleeding surface.	10. Denuded surface bleeds.
11. Pseudomembrane does not re-form.	11. Membrane re-forms in a few hours.
12. Pseudomembrane limited to the tonsil.	12. Membrane also found on the pillars of the fauces, the soft palate, and posterior pharyngeal wall.
13. Intense active hyperemia of the soft palate.	13. Soft palate almost normal in appearance.
14. Bacteriological examination shows staphylococci, streptococci, and pseudodiphtheria bacilli.	14. Bacteriological examination shows Klebs-Loeffler bacilli.

(From Coakley's *Diseases of the Nose and Throat.*)

6. *Ulcer of the stomach* is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty-five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

Carcinoma of the stomach does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; severe anemia and cachexia are also present.

PATHOLOGY.

2. Amyloid degeneration, atrophy, calcification, carcinoma, hyperplasia, inflammation, pigmentation, tuberculosis, syphilis, hyaline degeneration.

3. There are two important forms of chronic interstitial cirrhosis of the liver, hypertrophic and atrophic. The following table (from Thayer's "Pathology") will assist in distinguishing them:

Synonyms. Charcot's, Hypertrophic, Unilobular, Hepatogenous, Biliary.	Laennec's, Atrophic, Multilobular, Hematogenous, Hob-nail liver.
Jaundice. Early and marked, bile often absent from feces.	Late and slight, bile usually present.
Ascites. Late and unimportant.	May be early; often enormous.
Spleen. Enlarged early and markedly.	Late and less.
Alimentary hemorrhage, piles. Not common.	Common.
Liver. Large, smooth, mottled, green.	Small, rough, pale or yellow.
New fibrous tissue. In fine lines and strands between acini and cells, involving all parts equally.	In broad bands, making prominent islands in which the single acinus may appear nearly normal; distributed irregularly.

5. The syphilitic lesions affecting the brain and spinal cord are: Gummata of the meninges, endarteritis and sclerosis of the blood-vessels, meningitis, encephalitis, myelitis, degenerate changes, hemorrhage, and softening of the nerve tissue.

8. Malignant tumors are not encapsulated, tend to infiltrate the surrounding tissues, give rise to metastatic growths, have a tendency to recur after removal, give a cachexia, have a fatal tendency.

Carcinoma, sarcoma, and epithelioma.

9. In the typhoid ulcer (1) the main axis of the ulcer lies parallel with that of the intestine; (2) it lies opposite to the mesenteric attachment; (3) it has smooth floor and undermined edges; (4) it commonly leads to perforation. In tubercular ulcer (1) the long axis of the ulcer lies at right angles to that of the intestine; (2) it is not necessarily situated opposite the mesenteric attachment; (3) its floor is not smooth nor are its edges undermined, but rather funnel-shaped and irregular; (4) it is not apt to perforate, but it does not tend to heal, rather to spread.

BACTERIOLOGY.

2. The causative agent in thrush is the saccharomyces albicans, or oïdium albicans.

3. The portals of infection in *tuberculosis* are: The air passages, the digestive tract (for food and drink), and any abraded surface of skin or mucous membrane.

In *gonorrhea*: The mucous membrane of the urethra, vagina, eye, and possibly wounds.

In *anthrax*: Through abraded surface of skin or mucous membrane; it may also be inhaled through the respiratory tract.

4. Four acid-fast bacilli: The *Bacillus tuberculosis,* the *Bacillus lepræ,* the *Bacillus smegmatis* and Moeller's grass bacillus.

5. "The *Bacillus coli communis* is a common inhabitant of the intestines of man and animals, being found in the feces, milk, bile, etc. . . . It is also frequently met with in river water and food, so that it is one of the most widespread saprophytic bacteria. Formerly it was thought that the presence of the *Bacillus coli* in water was sufficient proof of its contamination by feces, and thus of its possible contamination also by typhoid bacilli. But recent investigations have shown that there are no grounds for this assumption, as the colon bacillus may reach the water from many different sources. At the same time, in a general way, drinking water found to contain colon bacilli may be regarded as unfit for human consumption.

This organism is associated with many diseases especially of the abdominal organs, though it is not positively known what etiological relation, if any, it bears to these affections. It has been found in peritonitis, appendicitis, cystitis, urethritis, pyelonephritis, etc. The colon bacillus has been assumed to be the cause of cholera nostras and cholera infantum. . . . Puerperal fever is not infrequently due, in part at least, to infection of the vagina or uterus by the colon bacillus. Other diseases to which this organism seems to stand occasionally in relation are endocarditis, meningitis, tropical abscess of the liver, bronchopneumonia, fetid bronchitis, amygdalitis, etc. In these diseases the *Bacillus coli communis* has been found sometimes alone, but usually associated with other pathogenic bacteria in such numbers that it must be considered a factor in the etiology of the affections, and in some cases there is reason for belief that it may be the primary cause. Though further study is required to show the specific pathogenic properties of this microorganism, it is evident that under certain conditions it may become pathogenic to man." (*Reference Handbook of the Medical Sciences.*)

6. When a person has been bitten, the animal should be killed and its medulla taken for careful examination. A small piece of this medulla should be introduced beneath the dura of a rabbit's brain, when (if the case is one of rabies) typical rabies will be produced in the rabbit in from seven to fourteen days. Proper aseptic precautions are necessary in this operation to avoid septic infection with meningitis.

9. "Infection by the streptococcus produces the more severe forms of septicemia as met with in the puerperium, after injuries and operations, in erysipelas, and in association with such specific infectious processes as scarlet

fever and diphtheria. In the latter diseases under these circumstances there is, of course, a double infection. While the theoretical basis upon which the use of this serum rests is quite as good as that of antitoxic serum for diphtheria, the results from its use have not been so valuable, probably because in many instances the infectious process has not been purely due to this microorganism and the other disease organisms have produced their effects uninfluenced by the serum used. The best results have been obtained from its use in puerperal and posttraumatic sepsis, but only in the presence of well-marked and positive streptococcic infection should it be resorted to. Its method of employment is identical with that of diphtheria antitoxin. Care should be taken to obtain the serum from a reliable manufacturer. It would seem probable that in some cases of infectious endocarditis this serum is the best treatment we can use, and in many cases of pulmonary tuberculosis with double infection it may be tried with advantage. The dose of this serum is usually 10 to 20 cubic centimeters every twelve hours, according to the age of the patient and the severity of infection." (Hare's *Practical Therapeutics.*)

11. *Symbiosis* is the necessary association of different kinds of bacteria.

Antitoxic unit is the standard for measuring the strength of an antitoxin. It is the quantity of antitoxin which, on being inoculated into a guinea pig weighing 250 grams, will neutralize one hundred times the lethal dose of toxin.

Intermittent sterilization is a method of sterilization in which successive heatings are applied after regular intervals of time. By this means the spores are allowed to develop into mature forms and are thus more easily destroyed.

Mallein is a substance prepared from glanders bacillus, and used for the diagnosis of glanders.

12. *Six common pyogens: Staphylococcus pyogenes aureus, Staphylococcus pyogenes albus, Staphylococcus pyogenes citreus, Staphylococcus cereus aureus, Staphylococcus cereus albus,* and *Streptococcus pyogenes.*

Four chromogens: Staphylococcus pyogenes aureus, Staphylococcus pyogenes citreus, Bacillus pyocyaneus, and *Bacillus prodigiosus.*

Two obligate anaërobes: Bacillus of tetanus and bacillus of symptomatic anthrax.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 7
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 6
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	Nov. 12
Delaware	J. H. Wilson, Dover	Dover	Dec. 10
Dis. of Col'bia	W. C. Woodward, Washington	Washington	Jan. 10
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	Nov. 20
Georgia	E. R. Anthony, Griffin	Atlanta	
Idaho	J. L. Conant, Jr., Genesee	Boise	April 7
Illinois	J. A. Egan, Springfield	Chicago	
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	May 26
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. —
Kansas	T. E. Raines, Concordia	Topeka	Feb. 11
Kentucky*	J. N. McCormack, Bowling Green	Louisville	April 28
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 21
Maine	Wm. J. Maybury, Saco	Portland	Nov. 12
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	Nov. 12
Michigan	B. D. Harrison, 205 Whitney Building, Detroit	Detroit	June 9
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 7
Mississippi	J. F. Hunter, Jackson	Jackson	May 12
Missouri	J. A. B. Adcock, Warrensburg	St. Louis	Nov. 19
Montana*	Wm. C. Riddell, Helena	Helena	April 7
Nebraska	Geo. H. Brash, Beatrice	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Nov. 4
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Jan. 14
New Jersey	J. W. Bennett, Long Branch	Trenton	June 16
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec. 2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 4
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May, —
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 7
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 10
Oklahoma*	J. W. Baker, Enid	Guthrie	
Oregon	B. E. Miller, Portland	Portland	Jan. 8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec.—
Rhode Island	G. T. Swartz, Providence	Providence	Jan. 2
S. Carolina	W. M. Lester, Columbia	Columbia	June 9
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	Jan. 8
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	G. B. Foscue, Waco	Fort Worth	
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 6
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 14
Virginia	R. S. Martin, Stuart	Staunton	Dec. 10
Washington*	C. W. Sharples, Seattle	Spokane	Jan. 7
W. Virginia	H. A. Barbee, Point Pleasant	Clarksburg	Nov. 12
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 14
Wyoming	S. B. Miller, Laramie	Laramie	

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending October 19, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	306	174
Diphtheria	324	32
Measles	125	4
Scarlet Fever	147	8
Smallpox	..	..
Varicella	46	..
Typhoid Fever	129	17
Whooping Cough	21	6
Cerebrospinal Meningitis	16	10
Malarial Fever	..	..
Totals	1114	251

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended October 18, 1907:

		CASES	DEATHS
SMALLPOX—UNITED STATES			
Colorado, Long Beach	Sept. 1–30	5	..
Pasadena	Sept. 1–30	3	..
Colorado, 8 Counties	Aug. 1–31	29	..
Kansas, 9 Counties	Aug. 1–31	60	..
Louisiana, New Orleans	Sept. 29–Oct. 5	1	..
Missouri, St. Joseph	Sept. 30–Oct. 5	1	..
Montana, 6 Counties	Aug. 1–31	7	..
North Carolina, 16 Counties	Aug. 1–31	82	..
Utah, Salt Lake City	Sept. 1–30	3	..
Texas, San Antonio	Sept. 30–Oct. 5	2	..
Virginia, 3 Counties	Aug. 1–31	12	..
Wisconsin, La Crosse	Sept. 29–Oct. 5	1	..
SMALLPOX—FOREIGN			
Austria, Vienna	Sept. 8–21	28	11
Brazil, Bahia	Aug. 24–Sept. 7	51	1
Rio de Janeiro	Sept. 1–8	8	3
Egypt, General	July 23–Aug. 10	106	17
India, Calcutta	Aug. 24–31	..	2
Italy, General	Sept. 20–26	11	..
Java, Batavia	Aug. 24–31	6	1
France, Paris	Sept. 14–21	3	..
Madeira, Funchal	Sept. 18–22	3	..
Mexico, Mexico City	Sept. 24–31	..	3
Monterey	Sept. 23–29	..	1
Portugal, Lisbon	Sept. 15–21	3	..
Spain, Valencia	Sept. 18–22	11	..
Turkey in Asia, Bagdad	Aug. 24–31	..	Present
Venezuela, La Guira	To Sept. 21	..	Present
CHOLERA			
China, Tientsin	Aug. 18	..	Present
India, Bombay	Sept. 4–17	..	51
Calcutta	Aug. 24–31	..	28
Cochin	Aug. 18–24	..	2
Madras	Aug. 31–Sept. 13	..	156
Japan: To Sept. 13, Fukuoka ken, 687 cases; Yamaguchi ken, 225; Hyogo ken (Kobé), Sept. 5-16, 118 cases and 45 deaths; Osaka-fu, 42; Suma and rokosan, suburb of Kobé, 2; Hieroshima ken, 7; Ohita ken, 57; Okayama, 9; Eihme ken, 2; Nagasaki ken, 25; Kagawa, 1, Saga ken, 1; Wakayama ken, 12; Kanagawa ken, including Yokahama, 1, from S. S. *Glamorganshire.*			
Russia, City of Samara	Aug. 20–Sept. 3	66	29
	Sept. 4–10	66	21
Govt. Samara	Aug. 20–Sept. 3	85	25
Govt. Iaroslow	Sept. 4–10	7	3
Govt. of Astrakan	Aug. 20–Sept. 31.	966	369
	Sept.	570	380
Govt. Simbirsk	Aug. 20–Sept. 10.	65	16
Govt. Saratow	Aug. 20–Sept. 10.	381	191
Govt Nizhni-Novogorod	Aug. 20–Sept. 10.	140	57
Govt. Kazan	Aug. 20–Sept. 10.	21	1
Govt. Baku	Aug. 20–Sept. 10.	18	3
Govt. Kostroma	Aug. 20–Sept. 10.	10	2
Govt Perm	Aug. 20–Sept. 3	8	2
Govt. Penza	Aug. 20–Sept. 3	1	1
Govt Vladimir	Aug. 20–Sept. 3	1	1
Territory of Amolinsk	Aug. 20–Sept. 3	1	1
City of Lodz	Sept. 8	1	..
City of Rostow	Sept 0	..	2
YELLOW FEVER			
Cuba, Camno Florido	Oct. 0	2	2
Cienfuegos	Oct. 7–15	2	..
Total from	Aug. 3–Oct. 15.	66	16
Palos	Oct. 9–11	3	1
PLAGUR—UNITED STATES			
California, Oakland	To Oct. 0	3	3
San Francisco	Oct. 8–13	4	2
PLAGUE FOREIGN			
Algeirs, Oran	To Oct. 1	6	2
Brazil, Bahia	Aug. 24–Sept. 7	14	13
Rio de Janeim	Sept. 1–8	8	3
Egypt, Alexandria	Sept. 8–15	16	6
Dakalich, Prov	Sept. 7–15	1	1
Japan, Formosa	Aug. 24–31	1	12
India, General	Aug 18–24	5,285	2,691
Bombay	Sept. 4–17	.	51
Calcutta	Aug 24–31	.	3
Rangoon	Aug. 24–31	.	20
Madagascar, Maiunga	Sept. 5.	Still present	
Turkey in Asia, Beirut	Aug. 9	1	..

Medical Record

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Original Articles.

STUDY OF A CASE OF TWO-HANDED SYNCHRONOUS WRITING.

BY GEORGE M. GOULD, M.D.,
PHILADELPHIA, PA.

SUPPOSING the tale to have been true, Newton, I believe, would never have discovered the law of gravitation if the individual apple had fallen on his shoulder instead of on his nose, or if it had not been peculiarly colored, if it had not been blown by an odd gust of wind, or if the philosopher had not turned his ankle that morning, etc. Something individual is needed to bring truth to recognition, and the greater the number of the idiosyncratic elements the more speedily and accurately, probably, will the abstract principle or general law come to light. Generalizing over a lot of malobserved and colorless facts gets us "no forrarder." Being and nonbeing are indeed one, but what kind of a "one," and how useless is such "being," and such "nonbeing?" One swallow may make a summer if a good ornithologist is the observer of the migrating bird. In medicine all wise physicians know there is no "typical case," and that one instance of any common disease studied thoroughly to the bottom, in all its relations and details, is worth more than a hundred glanced at, worth more than all the glittering generalities of the text-books, worth more to the doctor as well as to the patient. The same truth, is it not applicable to physiology, to neurology, and even to psychology? For example: A patient, aged 52, upon whom rests heavy responsibilities, a highly trained civil engineer, cannot think and write at the same time. He can dictate to a stenographer thoughtful and planning letters, but to write the simplest business or even social letter requiring any intellectual attention or phrasing is absolutely impossible. He is under the necessity, therefore, in travel and at home, of having a stenographer about in order that he may answer letters, describe and attend to his work, etc. As a child, he was tortured for years to make him write with his right hand. The natural writing-center in the right cerebral hemisphere was thus rendered atrophic, crippled, or unusable, and the artificially stimulated mechanism in the left side of the brain could never be made to work correctly or easily by the other intellectual organs during the instant in which they had their own tasks to perform.

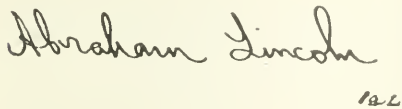
Another patient, a beautiful but sickly and also morbid-minded girl, never could go into society, to balls, dinners, etc., because she could never act naturally, dance, use the knife and fork unconsciously, or in any definite fashion; her eyes, brain, and body had been confused, made awkward and sickly, and her life had become a strange tragedy. The "ambidextral" tyrants had taken away from her, when a child, her natural left-handedness; they had not made her right-handed; she could never, expertly or promptly, do the task or purpose desired; they had also given her lateral curvature of the spine and life-long indescribable misery.

In still another patient, although the tragical aspect had not been so noteworthy, there was found abundant interest in details. She is now left-handed for all except writing. She also cannot write and think at the same time; indeed, she positively "hates to write," and must also dictate to a stenographer a simple description of her symptoms. She is a highly capable and educated woman, a famous teacher, and constantly addresses large audiences on pedagogical subjects with ease—except in regard to certain "slips of the tongue." She frequently transposes words and even parts of words when speaking, immediately becoming conscious of the error and correcting it promptly. These transpositions began at the age of 13, after long and severe training ("with great agony"), had forced her to disuse the left hand for writing; she began asking for, or speaking of "mish and filk," for instance, instead of "milk and fish." Words with an opposite meaning are still used, as *warm* instead of *cool*. "West bay" instead of the intended "best way" will be uttered. If she has something in each hand she will lay down the wrong one, or throw that she wishes to keep in the waste-basket. The greater the general fatigue the more frequent such mistakes. Each eye is equally dominant, *i.e.* the pencil throws two equally-clear images on the wall. At about the age of 17 she discovered that she could write with either hand, and synchronously with both, normal, or mirror-style, with one or with the other, etc. I append a series made recently to illustrate (pp. 718-720).*

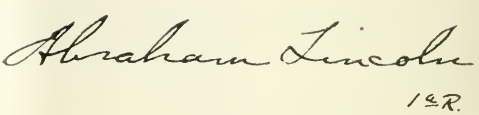
In order to get a clear understanding of the teachings of the case I report, and of other similar ones, one must hold in mind several facts, and the most important is that there is no adequate knowledge of the significance of a biological structure except historically. Secondly there is no history so exact and so illuminating as that given in the most comprehensive of all biological laws, "the ontogeny repeats the phylogeny." That sentence is the master-key of almost all the mysteries of living things. The statical or anatomical phasing gets its explanation only through physiology, becomes clear only genetically. All pathology is in origin nothing more than aberrant and morbid physiology, and all organic structure is the product of precedent and repetitive function. There is no "pod" without a preceding pseudopod. Instead of the common scientific nonsense that there is no inheritance of acquired characteristics, the truth is that there can be no inheritance of any characteristics except acquired ones. To come to details, the eye as an organic structure appears defined within a month after concep-

*In all such bimanual writing it is to be noted that the pens were placed on the lineless blank sheets with gaze and attention, although the movements were subsequently executed without these guides. The spacial and topographic accuracy were thus better than would have been true under other conditions.

tion; the differentiation of muscular tissue only at five months; righthandedness (or lefthandedness), however, commences to appear only fourteen months after conception, *i.e.* about five months after birth. If, therefore, the individual organism epitomizes and illustrates the history of all the ancestry, there are certain psychological and metaphysical conclusions which no monistic or other materialistic logic can escape. Embryologically, the eye is an extension of the brain; the brain comes out to see. It is not so of any other organ of the body. The eye precedes the appearance of muscular tissue by some four months; the inference is unavoidable that the perfection of visual function long antedates and conditions free motility, which is itself the condition of the existence of all higher organisms. *Ubi motus, ibi visus est.* That is the greatest of the Darwinian factors, strangely ignored by all Darwins, governing the survival of the fit and the exclusion of the unfit. A foreseeing and purposive planning of the mechanism of vision, and of motility, is thus evident, and there cannot be foresight and plan



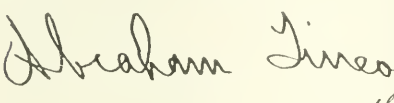
1aL.



1aR.

No. 1*a*L and No. 1*a*R illustrate the natural ordinary single-hand, or discrete, writing, each made under the influence of the visual (which also includes the central, mental, or intellectual) attention. In each case the writing is equally clear, equally respecting the laws of symmetry, and equally correct in topography, direction, localization in space, etc. The slant of the letters, a visual result, is in each case that common in dextromanual writers, and in sinistromanual writers. It should be borne in attention that these slantings of the individual letters are in occidental nations dictated by visual function and, when unconscious, are always present; they are preserved even in the most peculiar or abnormal of the tests to follow.

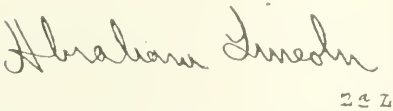
The origins of these slants I have set forth elsewhere. Noteworthy in the illustrations above is the fact that the sinistromanual writing does not fill the allotted 3 3-8 in., but is condensed laterally, not vertically, so that relatively the object occupies only about three-fourths of the longitudinal space taken by the dextromanual writing. It must not be forgotten that the "patient" or "subject" was congenitally lefthanded, but by practice and lifelong habit a dextromanual writer. The preservation, under these circumstances, of a sinistromanual proficiency equal to that of the dextromanual is significant, both for the neurologist and for the "ambidexterity" societies.



1bL

1bR.

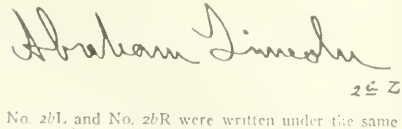
No. 1*b*L and No. 1*b*R, also written separately with closed eyes, bring out the effects of the absence of visual attention. Central attention alone appears to be at best a somewhat vague and inaccurate representation and product of visual attention, yielding want of sense of direction (slanting of the left line upward, of the right downward to an equal degree), and relatively equal inaccuracies in the forms of individual letters in both samples. That the topographic or spacial sense is the direct product of visual attention is again suggested by the fact that, without its aid, the central attention reverses the result seen in 1*a*L and 1*a*R, as to filling of the allotted longitudinal or lateral space. With the left hand (right cerebral center) it fills the entire space, with the right hand (left cerebral center) only about three-fourths is occupied. Lack of the influence of the acquired and inherited visual attention has therefore generally an effect in laterally contracting the space-content in the acquired dextromanual habit, and correspondingly enlarging that of the congenital and disused sinistromanual habit. The inheritance of spacial sense of all past ancestors requires the instant's influence, in the act, of visual attention to insure the best accuracy.



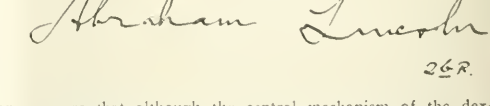
2aL

2aR

No. 2*a*L and No. 2*a*R are synchronous writings, under the influence of visual attention (which includes central attention) upon the forms made by the dextral hand. The sinistral is here the hand of nonattention; let us call it *The Trailing Hand.* Although for writing it is the lifelong habitually disused hand, it was the one first used and habited in writing, and its central mechanism in the right cerebral half brain has preserved perfection of function, despite disuse, and "trails" more perfectly than the dextral in the next example, 2*b*R. The lateral space is again less completely filled by the sinistral hand, although it is the "trailer."

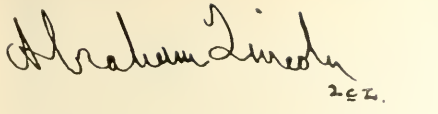


2bL



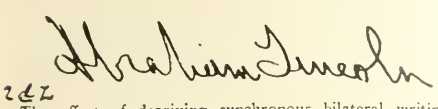
2bR.

No. 2*b*L and No. 2*b*R were written under the same conditions as No. 2*a*L and No. 2*a*R, i. e. synchronously without visual attention, but with visual and central attention fixed upon the sinistral movements, the dextral hand being the trailer. The sinistral space again is not filled; the accuracy and perfection of the writing of the sinistral is a little better than in No. 2*a*L, but the noteworthy fact appears that although the central mechanism of the dextral hand has been the life-long habitually functional one, its natural repugnance, unfitness, etc., is shown when it is deprived of the factor of visual and central attention, the individual letters being generally slovenly formed, the i not dotted, etc. It trails worse than the sinistral despite its education.

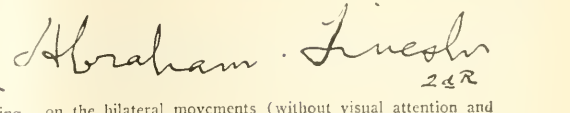


2cL.

2cR.

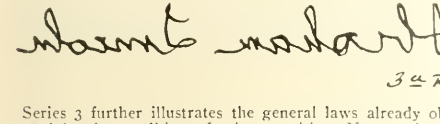


2dL

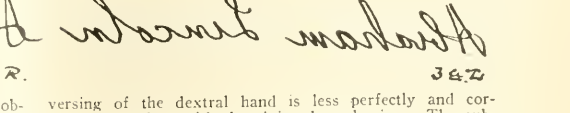


2dR

The effect of depriving synchronous bilateral writing of visual attention is shown in 2*c*L, 2*c*R, 2*d*L, and 2*d*R. In the 2*c* series central attention was fixed upon the dextromanual movements, the sinistral hand being the trailer. In the 2*d* series the central attention is fixed upon the sinistromanual movements, the dextral hand becoming the trailer. In both cases the sinistral writing is the more condensed laterally. The effect of synchronously carrying on the bilateral movements (without visual attention and only with mental attention) is not so bad upon the sinistral as upon the dextral writing, even when the sinistral is the trailer and the dextral has the advantage of central attention. No amount of habit or usage abrogates the primal trend towards lefthandedness or makes the acquired writing expertness of the dextral hand equal to it.

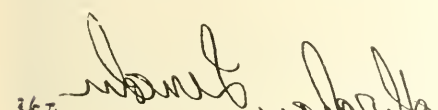


3aR.

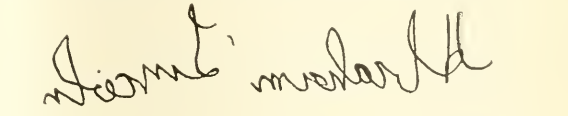


3aL

Series 3 further illustrates the general laws already observed by the condition of mirror writing. No. 3*a* shows the ability of this subject to write with either hand, alone, and with visual attention directed to the movements. By looking through the paper, back to the eyes, or by the use of a hand mirror, one sees that the mirroring or reversing of the dextral hand is less perfectly and correctly done than with the sinistral mechanism. The subject says of this that with the sinistral hand the reversal is "done easily, rapidly, and automatically," while with the dextral hand it is carried out "with difficulty and slowly."

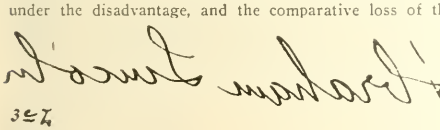


3bL

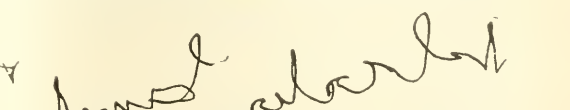


3bR.

The effect of the deprivation of visual attention upon mirror writing shown in 3*b* series further illustrates the foregoing suggestions. Each is written separately, and by the aid of central attention only. "The right reverses just as badly" as in the case immediately preceding. The sinistral hand does its work far better than the dextral under the disadvantage, and the comparative loss of the sense of direction and space-relation is strikingly manifest. For the first time is shown the tendency, slight in the sinistral hand, marked in the dextral, towards a declination, and a double one, of the two words, from the right to the left, *i. e.* in the direction in which the mirror writing proceeds. The sinistral writing is again the more condensed.

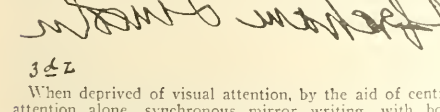


3cL

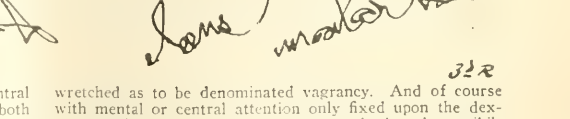


3cR

The complications of the problem, as well as of the interest, increase in the remarkable (unique?) ability of this subject to execute mirror writing with both hands synchronously. The results are shown in 3*c*L and 3*c*R, written with the visual (and central) attention fixed upon the movements of the sinistromanual pen. The trailing dextral is the worst so far in all respects—either as to formation of the letters, declination, and even overlapping of the lines from right to left, and overrunning of the space both lateral and vertical. The topographic or space-limits are little recognized or observed, and character or individuality of the writing is lost. But here arises the most noteworthy and significant statement of the subject: "I find that I cannot execute what would be the logically preceding series, *i. e.* when the mind is fixed upon the right-hand movements. *They will not go.*" Nature flatly balked and refused to budge. Motion was entirely inhibited with the attempt at two-handed mirror writing when visual attention was fixed upon the dextromanual movements. Such writing could only be carried out when the dextral was the trailing hand. In this case there was, therefore, sufficient perfection of the dextromanual mechanism to trail, that is, to act, and badly, as an automaton, by the aid of the more perfect, though disused initiative of the sinistromanual one. To initiate was impossible when it had to supply subordinate directing force and control to the trailing sinistral hand.

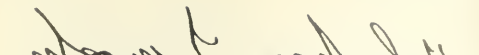


3dL

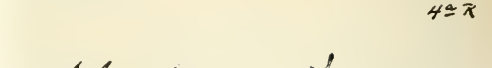


3dR

When deprived of visual attention, by the aid of central attention alone, synchronous mirror writing, with both hands again repeats and accentuates the preceding conclusions. This is shown in 3*d*L and 3*d*R. Again the central attention is fixed upon the left-hand movements; the right is still able to trail, but notice the lateral concentration of the two words deprived of the control of visual attention, the degradation of form of all the letters, almost to indecipherability, the sharp declination of the line-direction from the dextral to the sinistral side, etc. The space-sense or topographic consciousness is nearly lost. The trailing has become so inaccurate and wretched as to be denominated vagrancy. And of course with mental or central attention only fixed upon the dextromanual task there is even a more absolute impossibility than in series 3*c* of executing any legible or orderly movements whatsoever. "They will not go." But even when deprived of visual attention the central attention upon the sinistral hand is able to make fair copy, and to do much toward helping out the trailing dextral. No amount of use and education could give the dextral mechanism the initiative and effectiveness retained by the thirty-five-year-long disused sinistrocerebral centers.



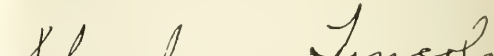
4aL



4aR

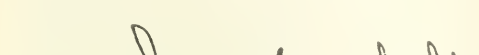
The task remained of writing synchronously with both hands, normal style with one hand, mirror style with the other. No 4*a*L and No. 4*a*R is the first illustration, made with visual attention fixed upon the dextromanual movements. In this case the dextral hand writes normal style, the sinistral mirror style. The trailing sinistral line climbs a little as it moves onward, but the character, accuracy, etc., are well preserved in both.

4bL

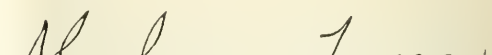


4bR.

In Nos. 4*b*L and 4*b*R the visual attention is fixed upon the sinistral hand; the dextromanual writing is in normal style, the sinistromanual in mirror style. The writings are synchronously executed. That of the dextral hand is more incoordinate, tends still more than before to overrun the lateral limits, ascends as it proceeds, etc., but both are easily legible. The superior initiative and controlling power of the dextrocerebral mechanism is reexemplified.

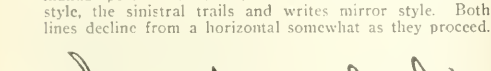


4cL

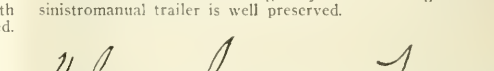


4cR

Nos. 4*c*L and 4*c*R repeat Nos. 4*a*L and 4*a*R, with the exception that the movements are deprived of the guidance and control of visual attention. The tasks are synchronous, of both hands, and the central attention in this instance is fixed upon the movements of the dextromanual pen. The dextral hand leads and writes normal style, the sinistral trails and writes mirror style. Both lines decline from a horizontal somewhat as they proceed. Although the mental attention is upon the dextromanual movements, the sinistral hand restricts its work to normal and usual lateral limits, while the difficulty of its task, in originating and controlling the trailer, seems to make the dextral lose the sense of space limits heretofore observed. But even here the legibility of the writing of the sinistromanual trailer is well preserved.



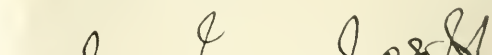
4dL



4dR

In Nos. 4*d*L and 4*d*R the conditions of the last test are observed, except that the central attention is fixed upon the sinistromanual movements. The level of the lines is better kept; legibility of both writings is good; the lateral limits of space are preserved or exceeded in the same way as in 4*c*L and 4*c*R.

5aL



5aR

In Nos. 5*a*L and 5*a*R the sinistral hand writes normal style and the dextral writes mirror style synchronously. Visual attention is permitted and fixes the sinistromanual movements, which climb a little, but which result is legible writing. But the associated ones of the trailing dextral hand become almost illegible and have lost nearly all sense of orderly topographic consciousness. As in the 3*c* series the subject again explains that "it will not go with the visual attention fixed on the right-hand movements." The stint was found impossible. And of the greatest significance is the further statement that "this form of reversal was always the least satisfactory, and is not now so good as it used to be." Later, upon request, Miss K. writes: "Some time before I was twenty I discovered that I could do this reverse writing, and since then I have occasionally amused my friends by doing it, but very seldom. Until I did this for you it is surely five years since I last tried it. I did not notice the inability to do this particular specimen less well until I tried it this time for you. I have no specimens written in the past." The coordination of the two cerebral hemispheres is therefore losing an acquired function or aspect, and reverting to a desirable and natural singleness or monolaterality. Confusion, awkwardness, inhibition, indecision, or imperfection of function must follow decision or action initiated or controlled by centers cooperating from different sides of the cerebrum.

5bL

5bR

[illegible] illegibilty and loss of the sense of spacial relations is shown in Nos. 5*b*L and 5*b*R, written under the conditions imposed in 5*a*, except that the sinistromanual movements were deprived of the help of visual attention. Of course it was again wholly impossible to write anything whatever when the mental attention was fixed upon the dextromanual writing movements.

except there is a foreseer and a planner. Mentality, therefore, preceded and created structure. The mind, the life, the brain, the eye, made their tools.

Again, the appearance of slight righthandedness is five months after birth, and its perfectibility goes on throughout life. This particular differentiation of function is dependent upon attention, and is a matter of education. But there can be no attention without an attender. In sensation-making, in conscious willing to act, in choosing to use one hand rather than the other, we reach beyond the limit of automatonism or of mechanism *per se*, and come to the hand upon the lever of the engine, *i.e.* upon the something beyond the machine—in a word, upon the metaphysical. If there is a control or force, called attention, that can be transferred from one side of the brain at will, and markedly change the functions of one side or the other, then there is something outside of and above the individual mechanisms and centers which is not a part of them, and which uses them as tools. A player on the piano is something different from the piano itself. The player upon the cerebral piano transfers his attention to one side or other of the keyboard of the brain. The fact of attention, transferred at will to one part or another, and choosing at pleasure not only the music to play, but the parts of the keyboard on which to play, playing better with one hand or the other—all this demonstrates that there is a mechanism, a material, neurological mechanism, but also that the player is something other and different, placed over it, a mental somewhat not bound up with it, not explainable as the action of the nervous system *per se*, but using that mechanism as an instrument. The psychology that is monistic, that denies life, that denies the fundamental distinction and existence of a machine and a machinist, is *al initio* unscientific.

Moreover, cerebral tumors and traumatisms and physiological experiment have absolutely proved that the adult, central, or cerebral mechanisms of memory, of language, of writing, of speech, etc., are located in one side of the brain, that opposite the writing hand. In the righthanded the left half-brain is therefore preeminently the seat of the mind. The mechanisms that give the man external validity, that intermediate him with useful objectivity, are one-sided. But this one-sided differentiation is acquired, and is subject to progressive perfection throughout life. The machine is becoming more and more perfect. Dividing the machine in two parts of the brain is degradation, is against progress, and the inevitable differentiation of function. "Ambidexterity"-mongering is the most absurd silliness.

Note that there is no discoverable difference of microscopic structure between the corresponding unused brain-tissue on one side, and that in the cerebral speech-center much used on the other. And note again that the choice is open to the attention or will to elect in infancy either side to work from, and thus to make the individual either righthanded or lefthanded. Observe also that as about 96 per cent. of people now are righthanded, the supposed "laws of heredity" are put utterly out of court so far as pertains to the number of the lefthanded. Every lefthanded person must have had millions of righthanded ancestors for every one that was lefthanded.

Not to be omitted, too, is that with all the actual or possible education of the left cerebral center in the righthanded (or of the right in the lefthanded), there is a poorly cooperating observing or reversing, or mirroring mechanism of the other side which can be brought into use by the attention. The psyche is, therefore, again demonstrated to be something more than the mechanism. It plays at will upon the mechanism. It plays badly, if you please but the mechanism does not play itself! Attention is merely the name we give the metaphysical player; the cerebral engine cannot run itself, or the piano play itself any more than could the locomotive or the musical machine. In depriving one hand or one center of the attention, we make the other an automatic "trailer" (as I have called it), working by means of the commissural fibers between the two oppositely-placed centers, but working badly, largely without the sense of direction, form, topography, etc. The attention, therefore, adds all-important elements to the mechanism. Psychology can no longer ignore pathology, or aberrant physiology.

Now, what is this "Attention"? As before, the question can be answered only genetically. The brain comes out to see, but only succeeds in really seeing with some comparative degree of accuracy at about five or six months after birth. *And this is precisely the date at which righthandedness, or the reverse, appears.* In about 96 per cent. of infants the right eye is the better-seeing eye, and thus compels the right hand to work with it. Thus, vision is the father of action, of righthanded action, and righteyedness is bound up as a precedent, synchronous, and causal factor of righthandedness. The writing illustrations above given show that spacial relations are created and definitized by "ocular attention." Direction, location, measurement—all topographical factors, are thus products of vision. But a secondary product has been evolved, its working illustrated in the writing illustrations, which may be called psychic or mental attention. It is plainly a derivative or product of ocular attention because it can only exist separately when the visual attention is not upon a (usually) moving object. With the eye closed it may be brought into existence, but its derivative nature is again evidenced by its imperfection of work, the lack of direction, of accuracy of topographical qualities, etc. With the active vision renounced, it may even be turned upon sensations not visually derived, such as of sounds, odors, tastes, etc., but all sounds at least are topographical and directional; pain and touch are of the localized parts of the body, or again spacial in nature, and even taste is located in the mouth. The brain did not make out of its own substance the peripheral organs of hearing, taste, touch, etc.: the eye alone is brain-substance told off to a special mental and cerebral duty which was prevented by a nontransparent skull.

The execution of a compositely-formed resolve requiring first of all vision, then possibly other sensational stimuli, but always memory, *i.e.* the stored results of all previous coordinated activities, words, speech, etc., can issue in swift and decisive act only through the placing of all the most directly intermediating cerebral centers in the closest possible contiguity in one side of the brain. If one is righthanded his centers for writing, speech, and memory must be on the left side. Upon the same side, therefore, must be the visual and other centers which furnish the chief data for the compositely-formed act. If one or more important data must come from centers in the opposite half-brain, delay at least must ensue, and other doubts and inaccuracies also. Hence the all-necessary concentrations of the chief organs and functions in one side of the brain. The organist plays on several banks of keys, and with pedals, uses scores of stops, reads five staffs of music, etc., that is, he really plays on many organs at once. But his banks of keys and stops must not be located on different sides of the church, or even beyond the reach of his arms. The two cerebral cortical hemispheres are indeed somewhat connected by commis-

sural fibers, but poorly so at best, as our trailing handwriting shows. Biologically, the safety and success of the human organism has always depended upon the most intimate, accurate, and swift coordination of many factors and cortical centers in order to issue in resolve and action. Such coordination could not take place if the cortical centers furnishing the necessary data for action were divided equally between the two cerebral hemispheres.

The difficulty of understanding the nature and origin of mirror-writing has come from the fact of looking at it as the result first of a pathological state of mind or nerve action, and secondly as the work of a finished or completed mechanism. Pathology has nothing to do with the matter; it is physiological and natural, due to the action and degree of attention, and it is also a product of education, habit, or development. Soltmann, Erlenmeyer, Marinesco, Sollier, and others look upon it as a pathological, and as a finished and presented fact. Others, Buchwald, Durand, Vogt, Nicolle, and Halipré, Meige, Bernard, Ballet, Figuera, etc., hold it to be normal of the left hand in the righthanded, sometimes even in the lefthanded. In 77 deaf mutes Soltmann found 35 per cent. wrote mirror-style with the left, and he concludes that "the more educated the person the less he will fall into mirror-writing with the left hand." This is the reverse of the truth, and nothing is said as to the fundamental condition—the fact of precedent lefthandedness, either continued or overcome, and of mixed types.

A simple device would have put all such errors to rout and would have shown the truth. The difficulty in writing in the manner habitually chosen is forgotten; it is an art, slowly and laboriously acquired, and always poorly executed, this writing on a table or a flat surface in front, and with the body craned to the left to see with the right eye the writing which is being executed. (By the left eye in the lefthanded, of course.) And also there is a universal neglect of the direction in which the hand is commanded to write. If one writes mirror-style he must write towards the body with the right hand, and away from it with the left. This is demonstrated by the plan here proposed: Place the surface upon which the writing is to be done upright—a solidly fixed sheet of plate-glass is best—the edge at right angles to the face and almost against the nose and forehead; attach sheets of quadrille paper upon either side by clamps. Thus is avoided the great difficulties the imagination and eyes have in projecting outward the image or seeing the writing which is being executed. The skewed, indirect, absurd-angled, reversed, and illogical writing posture is avoided, and the upright sheet of glass is as if the two-sided mirror were placed between the two cerebral halves. The writer should be one innocent of all such experiments, *i.e.* not used to put his educated consciousness or attention through any "tricks" or tasks; a pencil should be in each hand, the points on the sides opposite to each other. Neither eye can now be used if the pencils are started within a few inches of the eyes, so that the eyes may be closed, and the experiments will be all the better for the free working of the attention on the surfaces directly in front of the eyes. Synchronous writing under these circumstances will, in the righthanded, always show normal style with the right hand, and mirror-style with the left—or the reverse in the case of the untampered-with lefthanded. Fix the attention of the righthanded upon his lefthand writing, and command it to write normal, and compel the right to make some movements; it will make attempts, at least, at mirror-style. The higher the expertness and mental culture the more certain will be such results. On the table before us vision, and that imagined vision we call central attention (with peripheral vision abrogated), controls or tries to control, but has so many difficulties that it has falsified and confused all experimentation. The left tries to write as does the right. My device removes confusing factors and conditions, and proves that everybody normally writes mirror-style with the trailing-hand, but dependent upon the all-controlling factor of the direction of the writing, and upon general education, imaginativeness, skill, habit, the development of central attention, etc. Sign-language, warfare, etc., first originated the habit of righteyedness and so of its resultant righthandedness, and this necessitated the location of the speech center in the left half-brain. The particular incidence, now, in a certain child, of righthandedness or lefthandedness, depends upon which is the better seeing eye, when arm-and-hand motion arise and are coordinated with the function of the precedent and governing eye. Heredity has nothing to do with the matter directly, and only indirectly, in making the right eye the better seeing eye in infancy, and when the habit is established. In about 96 per cent. the right is the better seeing eye. If it is desired to make a lefthanded babe normally righthanded, the process must be begun in the earliest stages, and by means of giving the right eye the better function. This may now be held impossible, although atropine in the left eye of the child with begining lefthandedness might possibly be efficacious. *Let no one attempt it!* Pathology follows almost inevitably any interference with Nature's institution of handedness, right or left, however early it may have begun. For the mixed type is far worse, and usually ends in more suffering than if lefthandedness were of the pure type.

In two-handed mirror-writing, and in the work of the trailing hand, there is more than a suggestive hint, there is an intimate glance permitted into the mechanics of the construction or connections of the two-sided brain. It also comes out in the often-described experiment of writing with one, and then with the other hand upon paper while looking at the figure being made in a mirror set at right angles vertically in front. In a righthanded person the making of a square or triangle with the dextral hand is possible and comparatively easy, but on attempting the same trick with the sinistral hand, without forethought and quickly, the direction will be ludicrously reversed. Now, synchronous two-handed writing, by the righthanded, is easier and more commonly possible if the left writes mirror-style and the other normal style. The commissural fibers, the pattern-making threads, between the two opposed cerebral mechanisms, let us say between the two patterned or figured cloths, seem therefore to run from the "face," or "right" side of one, to the "back," "wrong," or "seamy" side of the other. Changing the analogy to that of two mirrors, the face of the mirror on one side of the brain reflects and normalizes the figure of the obverse or back side of the mirror on the opposite side of the brain. The mirror or cloth erected in the left brain of the dextromanual fronts consciousness and its figures are normal, while that in the trailing side is mirror-writing, or is the "seamy," "wrong" side of the cloth. In reference to the eyes, besides the evident facts termed righteyedness and lefteyedness, one of an equal or greater importance comes into view, which I have called *dominance*. Usually and normally a righthanded person is righteyed, and a lefthanded one is lefteyed. That is, the right eye is normally the dominant one in the righthanded, and the left eye in the lefthanded. A simple test, one of

many, of dominancy, is easily made and thoroughly convincing. Hold the pencil or finger upright a foot from the eyes in the median line and observe the image it makes on the opposite wall; closing the left eye results in no movement of the image on the wall, but closing the right or dominant eye throws the left eye into hitherto disused or non-selected function, and the image "jumps" suddenly to the right. The demonstration of the dominancy of the right is thus apparent; the mind must not be confused in action by two differently-placed images, and has learned to ignore the one and rely upon the other. And it ignores the least reliable and least accurate or useful image, which is the left in the dextral. Correspondingly, of course, the choice is reversed in the lefthanded person. And it is as evident that a high degree of ametropia, squint, amblyopia, or other disease, of the naturally dominant eye, would transfer the dominancy to the eye of the other side. In such cases the mind and entire organism is morbidized, decision and action are confused, delayed or inhibited reflexes are necessitated, stuttering and halting speech or thought appears, etc. This is because the right eye of the four-footed animalian phylum has controlled the motion and placing of the right front foot, guarded the right side of the body, etc., and primarily established the great law that cooperating cerebral centers must be in the same cerebral hemisphere to render decision and action the most exact and quick. Contiguity of these centers insures accuracy and celerity, while the location of one or more centers in the opposite hemisphere demands the intermediation of commissural nerves between the two halves, with which pathology arises. These morbid results are painfully evident in the sudden loss in adult life, of the dominant eye, or the more expert hand. To the observant they are equally evident in those naturally and healthily lefthanded persons made morbid by the morbid "ambidexterity" sillies. These persons put Nature to the foolish task of creating a second set of subdominant or equidominant cerebral centers where, according to God and common sense, one was not only sufficient, but infinitely better. In such cases the dominancy of one eye is done away with and an equidominance or alternate dominance is established. Two images of the pencil on the wall are seen, and neither is unconsciously to be ignored.

Almost the sole method and means by which we come into large and intellectual relations with the world are the results of vision. The total contributions of all the other senses compose but a fractional part of the ocular ones. Intellect itself is little more than epitomized ancestral visual experience. Nearly all our thinking is in images, pictures of things seen, and even the most scientific, even the most abstract and metaphysical intellectual processes are only seemingly amorphous; they are really like the crystalline coal-measures of ancestral and personal visual experiences. The difficulty is to draw the line between the inherited and the individual parts. The *"tabula rasa"* of the infant mind is by no means blank, but its inheritances are necessarily abstract, and are vivified and definitized by the daily millionfold personal, *i.e.* chiefly retinal, images poured among the ancestral carbon strata awaiting the touch of reality to awaken them to living light and heat. A truer analogy presents in language the fused and packed epitome and record, the composite photograph, in fact, of racial experience. Nearer far to his personality than any other or all other products of Man's being here, the most immaterial, most spiritual record of his existence, is his language. And languages are almost wholly the records of things seen. The greatest deed of mankind is the creation of the alphabet; so arduous was it in fact that only one alphabet has been evolved in and for the whole world. All are at one in the conclusion that this alphabet is the *sine qua non* of intellectual development and of the condition we call civilization. Well, the alphabet, as all know, is made up of the conventionalized pictures, ideographs, eye-made images and photographs of objective scenes and things. The seeing of things correctly is the foundation and condition of knowing things rightly and truly—*i.e.* of civilized living and scientific thinking. Conversely, the seeing things badly and distortedly, *i.e.* ametropically and with optic morbidity, is the source to-day of more suffering and improper living than all other pathogenetic factors combined. In all past time the composite of millions of ancestral visual experiences have been forming what we call mind, intellect, and memory. The elimination of the visually unfit has made the present-day heir of all the ages the product of predominatingly and relatively perfect eyes. Civilization adds an amazing acuteness to the present tragedy when an ametropic organism comes in bitterest personal clash with the inherited datum of all past experience. "Eyestrain" is thus usually the greatest misfortune which can happen to a civilized "near-worker." It morbidizes mind and body and is wrecking numberless lives all about us. Some day medicine will be aroused to the amazing reach of this awful truth, and in that day medicine, and especially psychiatry and neuropathology, will be revolutionized.

One may go further and say that not only is human life and civilization itself the quintessence of summarized visual experience, but the very development and evolution of biological forms above the lowest has been dependent upon vision. *Ubi motus ibi visus est* is the key of most higher organic evolution. Food and defense have always depended upon vision and perfection of vision, and the development of more perfect vision has been the forerunning means of the production of more perfect forms. The Darwinian exclusion of the unfit has been largely the exclusion of the visually unfit, and the survival of the fittest has been the survival of those possessing the best ocular mechanism. No task in organofaction has been so difficult of achievement and of healthy preservation as that of making the most perfect ocular mechanism.

One of the most inscrutable and important powers of the psyche is attention, but is it not almost entirely a product of visual function? In the congenitally blind and exaggeratedly ametropic the same truth comes to clearness. The inherited or epitomized experiences of the ancestry have operated in them, and in all of us, to beget the secondary and acquired kind of attention which we have in varying degree, and which may be called mental, intellectual, or central—that coming to view with deprivation of visual attention. It is inaccurate and imperfect, especially topographically, as our illustrations, even from a highly cultivated mind, show. The fundamental distinction has not been emphasized that visual attention depends largely and chiefly upon the following of the objectively moving thing with the eyes, or what amounts to the same thing, upon movements of the eyes to reestablish sensitiveness of the retina. Absolutely persistent gazing at an immovable point quickly results in inability to see it. The moving object rivets the attention, and so long as it is visually fixed mental or central attention and visual attention are fused into unity. There is no possibility, except possibly by training, of attentively observing a moving thing like the pen-point or the letters being made by it, while at the

same time mutually and continuously attentive to another train of thought, memory, or objective happening. The bimanual writer may write the same letters and words synchronously, but not different words. This is simply because the eye cannot see different words being written. As all students have agreed, consciousness or attention is like a simple stream of sand passing through the constricted part of the hour-glass. The attention of an expert organ player, playing with feet, two hands, pulling stops, reading several lines of notes, varying the expression, etc., each second, seems almost to contradict the validity of the hour-glass comparison. It appears to be a widely spread-out rain of attention, different from the more primitive and naive or hour-glass kind of the rest of us. But even this is due, I believe, to an acquired ability of perceiving and acting upon the perimacular and more peripherally placed images of the retina. Most of us actually use and attend to the macular image, and the retina beyond is used only to call the attention of the eyes to an object not really or perfectly visualized and perceived, but which by ocular motion is at once brought upon the macula and then clearly perceived. Watching an organ-player read and play new music shows one that he has a staring and indefinite expression, which argues a large field of vision and attention, filled with many objects, all held in a synchronous, graded, and differing clearness of attention, impossible to do except after long education and practice. And this extension of visual attention to the images of the notes, keys, etc., located farther and farther beyond the macula, requires that they shall be visually and essentially correlated. The broadening of attention to multiple objects, the holding in synchronous unity seemingly discrete streams of objects and influences, seems, therefore, a matter of education, not of primary endowment, of progressive development and widening, instead of abrogation of the single-current, and depends primarily and wholly upon the ocular extension of the synchronous recognizability of correlated images falling farther than usual beyond the macula.

The visual central (or mental) attention is separable from the peripheral visual attention only when peripheral visual attention is abrogated. That this central attention is derived from the visual is its pale, possibly ludicrously, inexact reflex, is apparent, even without the striking demonstrations shown in the writing illustrations given herewith. It is essentially of the nature of a *pis aller*, reminding one of the pathetic almost incoherent falsetto of the acquired speech of the deaf mute. By long cultivation it gains precision in the mind of the orator, musician, etc., but the extramacular education of the retinas lies at the foundation of the proficiency.

The origin of right-handedness and lefthandedness I have elsewhere set forth in detail, but must here epitomize. There is no reason to suspect even the most vague or far-away beginnings in animals. So long as the four feet are used for locomotion there could be no lateral differentiation of function. I have watched for it in squirrels that use their front paws to hold nuts, cats that strike at insects in the air, or play with wounded mice, and in many other animals, but I am sure that to neither paw is preference assigned. There is thus probably no dominancy of either eye in animals. Even in the monkeys and gorillas, who of all animals most use the forepaws as hands, one catches no suggestion of preferential use or superior expertness in the dextral or sinistral side. (My very intelligent dog, trained to "shake hand" with his right paw, lost his right eye, and after that he always offered the left paw.) But in the lowest human savages all over the world choice or greater expertness of one hand is as clearly present as in civilized races. No savages, however, are so near animalian conditions as to exhibit its differentiating origins. Fixed in all our military and social customs, and living at the base of language itself are two facts which solve the riddle and make clear whence and how right-handedness arose. In all tribes and countries since man used implements of offense and defence, the sinistral or cardiac side was protected by the shield and the sinistral hand was called the shield-hand, as the dextral was called the spear-hand. Next to fighting and synchronous with it was the need of barter, and the fundamental condition of bartering was counting with the low numbers, one to ten. The fingers of the free or dextral hand were of course first used, and all fingers are to-day called digits, as are the figures themselves, and the basis of our numberings is the decimal or ten-fingered system. The tally-stick, notched or numbered, is the record of the digits held in the air. Every drill and action of the soldier from Xenophon to West Point is dextral in every detail. The dominancy of the right eye is shown in firing from the right shoulder and sighting with the right eye. I have two patients, lefthanded in every respect, who have been taught to fire their guns from the right shoulder; but of course they are lefteyed, and they depress the right eye below the level of the gun, and sight with the dominant left eye. Rightfootedness, less differentiated of course, must follow righthandedness and righteyedness, so that all soldiers (and free masons, too) must step off with the left foot first, *i.e.* the spring must be made with the right. The loss of the right hand, or right eye, mutilations, etc., very common in barbaric times, would help to account for the preservation of the present four per cent. of lefthanded people.

Because the underlying and governing condition why the man must be generally dextral, or generally sinistral, is the evident necessity that the centers governing a coordinated set of functions, must be located in the same cerebral hemisphere. To make any important act precise, purposive, harmoniously, and rapidly effective, several interacting and fusing cerebral centers must conjoin their functions: Vision, the chief of all, must present the problem, determine the spacial or topographical relations, etc.; hearing, smell, taxis, etc., may or may not enter into the matter as auxiliaries; memory of past facts, stored chiefly in the same side of the brain, undoubtedly is called upon for other data (and memory is almost entirely a gallery of stored photographs made by the eye!)—then judgment and decision, working upon the data gathered from all subordinates, issues in the word which is the seal of volition, and in act which is reality or the incorporation of the psyche in objective sense and effect, in the materiality, beyond cancellation or change. The essence of the matter is, therefore, were the chief of the contributing centers creating word and act divided between the two cerebral hemispheres, the certainty and celerity of the word and act would be lessened by the difficulty and delay consequent upon fusing the products of these remotely placed and poorly united centers. Hence the law that the better expertness of the chief dextral organs requires that the other cooperating organs, also more expert, must also be upon the dextral side. And *vice versa* of sinistral expertness. The centers of all organs contributing to the composite terminal act must be in the same cerebral hemisphere. All physiology and pathology show that the speech center, a single organ, can be and is located in only one side of the brain, sinistrocerebral in the righthanded,

and that the hand which executes the writing act, the most intellectual of all acts, dominates the location of the speech center in the opposite half-brain. The "ambidextral" societies, the mothers and school teachers, who would martyrize children naturally lefthanded by compelling them to learn an equal expertness of the right hand, are the most blunderful of stupid persons. No person ever was or ever can be made equally expert with both hands, and every attempt results in tragedy for the patient. To carry out the egregious plan thoroughly, flutes, half the violins, carpenters' and mechanics' tools, etc., and half the pianos should be made for the dextral "ambidextralists," and half for the sinistral "ambidextralists." All musicians should play half the time lefthanded and half righthanded on reversed piano keyboards, reversely strung violins, etc.; all carpenters and mechanics should work one day righthanded and the next lefthanded, with suitable tools; all soldiers drill lefthanded and leftfooted one day, and the reverse the ensuing day, etc., etc. What a world it would be if those who are wiser than God and Nature had their way!

Were it so, all laws and customs as to the "Rule of the Road" would have to be changed so that carriages, foot-passengers, etc., should pass half the time to the left and half to the right. All double-track railroads would then order trains to pass one day to the right and the next to the left, and their locomotive engineers would then sit half the time on the right side of their cabs, and the other half on the left side. It took a whole generation time of experiments and mechanics to learn that the engineer must stand or sit on the right side of his engine or cab in order that he could look ahead with his right or dominant eye only, and without sticking his entire head out, as he would have to do if he sat or stood on the left side. The railroad men never learned why this is so, do not know why to-day, and to make the desirable change in two American left-passing double-track railroads, while it would finally avoid expense and accidents, would cost at once many millions of dollars. Thousands of years ago knights and men fighting on foot or horseback had to approach and pass each other on the left in order to strike or spear each other with the right hand while the shield-hand held the shield or the reins. The railway engineer, civil or locomotive, does not know that the knight was his right-handed and righteyed progenitor and endower.

A flood of light is thrown upon history, sociology, and medicine, especially upon psychology, neurology, and psychiatry, by lefthandedness and its sequels. Of every million born at least 30,000, probably more, are naturally lefthanded, so that in the United States there are nearly 3,000,000, and in the world over 45,000,000, thus handicapped. An indefinite proportion of these have been, or are being doubly cursed by the efforts of the foolish parent or teachers to make them righthanded. Sad suggestions and illustrations of the baleful results of the work of these improvers of Nature exist in such simple facts as that *right*, which should mean only dextral or righthanded, has come to mean good, moral, advisable; and *left*, or sinistral, has become sinister, awkward, unlucky, to be avoided, both person and thing. *Dexterity* and *dextrousness*, properly meaning only *dextrality*, have become synonymous with expertness and exceptional proficiency, whereas everybody knows that the lefthanded person, if purely so, is as cunning of hand as the righthanded. Even the superstition of the "evil eye"—the nondominant one—teaches the same lesson. In all ages, and now surely, there are everywhere strange and unaccountable cases of "failure in life," "peculiar," "odd," "awkward' folk, cranks of a hundred types, misfits, stutterers, and all that. What a light the misplacement of the cerebral center for speech and writing, or its pernicious double placing and maleducation and crippling by "ambidextralists," throws upon the origin and fate of many stutterers, and upon many of the "hopelessly stupid," the laggards in school! How many of the medieval court jesters and the derided, the town-fools, the kyphotics, and cripples were the products of the "sinister" superstition of the righthanded tyrants? And how many of the morbid-minded and insane?

Incidental and accidental results of the study of these cases would solve many problems and mysteries of medicine, and surely of psychology. Pathology is physiology gone astray. The thoroughgoing study of individual cases of aberrant neurology will be found to illumine many of the dark places of mental and moral genesis, function, and law.

ACUTE ANTERIOR POLIOMYELITIS, OR ACUTE SPINAL PARALYSIS OF CHILDREN;

REMARKS ON THE EPIDEMIC NOW PREVAILING IN NEW YORK.

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ACUTE inflammation of the gray matter constituting the anterior horns of the spinal cord, and resulting injury of the ganglion cells, from which spring the motor nerves of the body, acute anterior poliomyelitis, as it is commonly called, is a disease around which much interest now centers. First, because it is prevailing epidemically in New York and its environment; second, because we are still entirely ignorant of its real causation and mode of propagation; and, third, because it is the most pitiable disease that exists. Vigorous, lusty young children sicken abruptly with what seems to be a comparatively trivial disorder, which is over in a few hours or days, but which leaves the child a hopelessly maimed, paralyzed wreck. As a small, innocent-looking cloud that appears above the horizon of what seems a perfect summer day, may be the initiative of a tornado which injures, wrecks, or destroys every object of man and Nature within a very narrow precinct, leaving those immediately adjacent unharmed, so this dreadful disease takes its course, while they who devote their lives to safeguarding the sick stand by, impotently, like firemen without water at a conflagration that is consuming priceless treasure.

Inflammation of the gray matter of the spinal cord has been recognized as a distinct disease since 1855. It was about that time that Duchenne of Boulogne began to subject the diseases of the nervous system to the searching investigation that entitles him to be considered the first really great worker in the field of clinical neurology. Naturally, the disease had often been described in the century preceding Duchenne's advent, but none of them was fundamental. For instance, Underwood, in 1784, called it dental paralysis, to convey the idea that it was dependent upon teething. The work of French investigators from 1860 to 1870 soon put the disease upon a firm anatomical basis. Slowly and laboriously its clinical features and course have been established, while little progress has been made with the causation of the

disease. Until its cause is discovered, we can make no headway in stamping it out. After the advent of the bacterial origin of acute disease, and particularly after it was demonstrated that other diseases of a similar course were due to specific organisms, it naturally occurred to many that this disease might be thus dependent. The most important contribution to this view was furnished by the prevalence of the disease in epidemic fashion and in several members of one family. The principal epidemics that have prevailed lately are those that have been reported by Medin of Stockholm (Vol. II., Tenth International Congress at Berlin); Caverly of Vermont (*Journal of the American Medical Association,* January, 1896), and others to be mentioned.

The earliest report of a group of cases is 1843. Colmer says in the *American Journal of the Medical Sciences,* 1843, that he saw six cases in 1841, and that the parents of the children reported eight to ten cases all occurring within an area of a few miles. Bergenholtz in Umea in 1881 reported a small epidemic of thirteen cases in rather a short time.

Cordier reported thirteen cases near Lyons during June and July of 1885, with four deaths. But the epidemic reported by Medlin was the first important one. It began in May, 1887. In that month there were four cases, in June one case, in July two cases, all typical. In August it began to take on the character of an epidemic. Two cases occurred in the same family, one of which ended fatally. There were three deaths among forty-four cases. In two instances two children in the same family were stricken. The cases were mostly among the working class. No unusual climatic disturbances prevailed. Constipation was noticed in the majority of the cases. Somnolence in the acute stage was very characteristic; at times it became a deep stupor. In a few cases there was a five to six-day remission, followed by return of fever and extension of paralysis. A few patients completely recovered. Since then epidemic have been reported in Norway by Looft (*Med. Revue,* 1900) and Leegard (*Norsk Mag. for Laegeridens Laben,* 1901).

Dr. D. H. Mackenzie of Mabbettsville, New York, reported in the MEDICAL RECORD, October 4, 1902, a small epidemic that occurred in Dutchess County, New York, in 1899. There were about thirty cases confined to an area of country about ten miles in diameter. Adults were attacked as well as children.

R. B. Wade of Stanmore, Sidney (*Australasian Medical Gazette,* July 20, 1904), mentions a report of an epidemic by Altman of South Australia in March and April of 1895.

Wade's cases occurred in the summer, *i.e.* in December and January of 1903-4, although not the hottest months. There were 34 cases—16 males, 18 females; youngest 13 months, oldest 7 years. There was nothing very striking in the symptomatology, save the very mild fever. The temperature varied from 100° to 102°, and the most marked symptom was pain along the affected limb. There were two cases with complete recovery.

Litchfield, another physician of Sidney (*loc. cit.*), had 25 cases, as follows: December, 1903, 9 cases; January, 1904, 12 cases; February, 1904, 2 cases; March, 1904, 1 case. He notes that the summer was wetter and cooler than usual. There had been during 1903 an extensive epidemic of gastrointestinal influenza, so that all through the summer pertussis was rife, and there was the usual crop of enteritis, but he could trace no direct connection between them. He does not mention deaths. The epidemic reported by Caverly began early in the summer of 1894 and lasted until October 1. The summer was unusually hot and dry. He reports 132 cases, of which 55 occurred in Rutland, which was also the starting point. Drainage did not seem to influence the spread of the disease. The water supply was also excluded as an etiological factor. Absence of history of infectious disease was mentioned as an etiological factor. It preponderated among strong, healthy children. Thus, of 46 cases, it was noted 35 times in children of good health and 11 among children in poor health. Eighteen deaths occurred.

The present epidemic in New York and its environment began apparently in early August of this year. Its extent and prevalence may, in a measure, be estimated from the records of the Hospital for the Ruptured and Crippled, to whose outdoor department come more cases of poliomyelitis each year than to all of the other institutions in New York. In 1906 (*i.e.* from October 1, 1905, to September 30, 1906, that being the Hospital year) there were 379 cases diagnosticated as anterior poliomyelitis and infantile paralysis, while in 1907, for a corresponding period of time, there were 550 such diagnoses. This was distributed in 1907 as follows:

	Anterior Poliomyelitis
October, 1906	44 cases
November, "	27 "
December, "	16 "
January, 1907	19 "
February, "	18 "
March, "	25 "
April, "	26 "
May, "	21 "
June, "	27 "
July, "	55 "
August, "	116 "
September, "	156 "
	550 cases
October 1–15, 1907	57 "
	607 cases

Thus it will be seen from an examination of this table that there was a striking accession of cases in the last two months of the year, 272 patients with poliomyelitis, *i.e.* nearly half of all the cases of the year came in August and September. Now, of these 550 cases, a certain number of those which were labeled infantile paralysis are not cases of anterior poliomyelitis, but cases of polyneuritis, especially post-diphtheritic; cerebrospinal meningitis; a few are cases of transverse myelitis and of pressure palsy, while others are cases of cerebral lesion. I have no positive data, but I should think that about 25 per cent. were of such a nature. That would leave about 200 or more cases of poliomyelitis, in the months of August and September of this year, which I believe to be about the correct number. In my own department, to which the patients coming to the hospital go on Mondays, Wednesdays, and Fridays, probably there have been since August upward of 150, all of which have been examined by myself or by my assistant, Dr. Theodore H. Romeiser. There are no means of finding out how many cases have existed in New York, but I think it is safe to infer that not more than one-quarter of all the cases that have occurred in New York have sought relief at the Hospital for Ruptured and Crippled. This would show that there have been upward of 1,000 cases. It is not forgotten that some of the cases that go to the Hospital for Ruptured and Crippled go also to other outdoor clinics, but we have taken particular pains to inquire of each parent whether or not they have been with their children to other clinics, and it is very uncommon to find that they have. For instance, at my clinic at the Post-Graduate Medical School, where we have had thirty-five cases since July, none of them have been enrolled as patients at

the Hospital for Ruptured and Crippled. Another very interesting matter to determine at the present time is, is the epidemic on the wane? From our statistics it may be said that it is, although 57 new patients sought relief during the first half of October; but many of them are patients that sickened in August and September.

The remarks that I shall make concerning the etiology and symptomatology of the disease are based upon cases that have been seen in my own clinics and in private practice. Practically no new light has so far been thrown upon the etiology of the disease, save that it does not seem to have had anything to do with the causes that are commonly mentioned in the books as predisposing or accessory causes, such as fatigue, hot and sultry weather, and digestive disturbances. As a matter of fact, as everyone knows, this summer has been a cool one, and in New York an extremely dry one. In a very small number (14) of our cases there was a history of marked digestive disturbances, and by that I mean diarrhea, vomiting, and the ordinary accompaniments of stomachic and intestinal indigestion. Nor have I been able to make out that the occurrence of acute poliomyelitis stands in any relationship to defective sanitary surroundings. In every case an effort has been made to inquire into this, and in most instances successfully. No special district of the city has been selected for the prevalence of the disease; they have come from all over the tenement-house districts, from which of course the majority of our dispensary patients come, and from practically all adjacent environs. In four instances more than one member of the family have been affected; in one instance three children, in the other three, two children. In the family of which three were afflicted two of the children had it simultaneously; the other about a month later. One of these children recovered completely; one has only slight paralysis and slighter atrophy of the left shoulder girdle, and one has dangle legs.

The following table shows that the dangerous age is from one year to three years. In this epidemic there have been very few patients beyond four years.

Post-Graduate Medical School and Hospital... 18 males
17 females

35 cases

Ages	
Not stated	1 case
6 months	1 "
7 "	1 "
8 "	1 "
9 "	1 "
10 "	2 "
11 "	2 "
12 "	1 "
16 "	1 "
18 "	2 "
21 "	1 "
23 "	1 "
2 years	4 "
2¼ "	3 "
2½ "	3 "
2¾ "	1 "
3 "	3 "
3¼ "	1 "
3½ "	2 "
5 "	1 "
7 "	1 "
11 "	1 "
Total	35 cases

Hospital for Ruptured and Crippled..... 121 males
66 females

187 cases

Ages	
4 weeks	1 case
10 months	3 cases
12 "	11 "
13 months	4 cases.
14 "	6 "
15 "	5 "
16 "	1 "
17 "	5 "
18 "	14 "
19 "	3 "
20 "	8 "
21 "	2 "
22 "	8 "
2 years	27 "
2¼ "	5 "
2½ "	14 "
2¾ "	2 "
3 "	18 "
3½ "	7 "
4 "	15 "
4½ "	1 "
5 "	8 "
5½ "	1 "
6 "	4 "
6½ "	1 "
7 "	2 "
8 "	1 "
9 "	1 "
11 "	3 "
Age not stated	6 "

187 cases

It was a striking fact that the majority of the children were in good health when they were seized by the poliomyelitis.

The symptoms of anterior poliomyelitis are, as is well known, sharply defined. A young child in good health becomes peevish, restless, irritable, and displays manifestations of pain and discomfort on being handled, and soon develops fever, which is sometimes accompanied by vomiting and occasionally diarrhea. These symptoms continue for from two days to a fortnight, the average period being from three to four days. The mild fever, 101° to 102°, the peevishness, restlessness, and irritability, or torpidity, the obvious great discomfort on being handled, being the principal features. In a few cases meningeal symptoms are conspicuous. Then the fever disappears, the child becomes quiet, bright, and alert; oftentimes it is even playful and attempts to get up. Then it is found that it is paralyzed in one or more extremities, oftener in the legs than in the arms, but very often in both legs and both arms, or one leg and one arm. After a week or two the paralysis begins to disappear in one or more of the limbs, and at the end of a few weeks it is often limited to one extremity, or a part of one extremity, to a group of muscles, or, in very rare instances to one or two muscles. During this time, which is consonant with the disappearance of the œdema around the inflammatory area in the interior gray matter of the spinal cord, the paralysis is clearing up.

The epidemic of the disease now prevailing has not so far added to our knowledge of the causation of the disease, but it has materially contributed to our knowledge of its clinical history.

The atrophy of the muscles that develops is in keeping with the intensity of the process in the ganglion cells of the anterior horns by the inflammatory area out of commission. When the cell bodies of the nerves going to these muscles are destroyed or seriously damaged, atrophy sets in. From that time on the symptoms, aside from trophic manifestations, are deformity induced by the atrophy of the diseased muscles, and unopposed manifestation of tonus in the unparalyzed antagonistic muscles. The inflammatory process may be at any level in the spinal cord, oftenest in the lumbar region, next in the cervical, rarest in the oblongata and pons. The paralysis and atrophy bespeaks accurately the location of the inflammatory process, but in the beginning of the disease, *i.e.* during the febrile period,

there is no way of telling what level of the cord is going to be the focus of the disease.

The noteworthy symptomatic feature of the present epidemic is the considerable percentage of cases which make a fairly good recovery, *i.e.* a recovery without marked atrophy, and in this respect I think the epidemic now prevalent differs from what has heretofore been described. In marked contradistinction to this is the relatively large number of cases in which the oblongata and the pons have been the seat of the lesion. Naturally, the majority of such cases do not come to the dispensary, because they succumb in a comparatively short time after the occurrence of the disease.

First, as to the cases that terminate in recovery. In all the epidemics, so far as I have examined the literature, there have been recorded recoveries, but they are very few, and the idea of complete recovery from what seems to be a genuine, fully developed case of anterior poliomyelitis, was to me quite novel. It is too early to give statistics of the cases that have recovered. Many of them are still under observation. Some of them will not eventuate in complete recovery. We consider a case recovered that does not exhibit muscular atrophy. The kind of cases that we are seeing in our clinics have a history somewhat as follows: The child sickens with the ordinary symptoms of the disease, and in customary way develops paralysis of one or more extremities. After two or three weeks, in some instances a shorter period, the child begins to move the paralyzed members, and the recovery progresses until he is able to use them all, save perhaps one or more groups of muscles. So far the occurrences are as they are related in the books. But in the cases of which I speak the groups of muscles which have not up to this time regained their function, do not begin to atrophy, as they do in the ordinary case; they gradually regain their function. This point is well illustrated by a child of three years, who, four weeks after the acute phenomena of the disease had subsided, had a weak, wobbly, right lower extremity and flaccid dangle-leg state of the left. Orthopedic apparatus was ordered to maintain the legs in a position that would militate against deformity, but when the apparatus was ready the child was able to stand and to walk, not as well as it could before the illness, but it has gone on getting better steadily, until now it is quite well. We have had several such cases, some in the hospital under constant observation. The explanation of them is that the inflammation in the anterior horns is not so intense as to destroy the cell bodies and nutritive processes of the peripheral motor neurons. The inflammation and the resulting edema puts these neurons out of commission for what seems a very long time, but their structural integrity must be fairly well preserved, and as the edema and the other accompaniments of the antecedent inflammation subside the cells gradually take up their function. Some cells are undoubtedly destroyed, and there is a corresponding muscle fiber atrophy, but either a small number of cells are destroyed or the destruction is only partial, sufficient vitality remaining to maintain the nutrition, but not the tonus of the muscle. In these cases the knee jerks are generally absent or extremely sluggish, and this reflex comes back tardily.

The occurrence of such cases as these does not necessarily mean that the epidemic is a mild one. The epidemic that is prevailing now cannot be said to be a mild one, because there have been so many cases with bulbar and pontine symptoms, yet the disease, meaning the inflammatory process in this epidemic, is mild, rather than severe. I mean to say that even a mild inflammation of the anterior gray substance of the pons-oblongata is a most serious matter. The statistics showing the frequency with which this part of the cerebrospinal axis has been involved are not ready, but I may say that during the past month at the Hospital for Ruptured and Crippled, I have seen three patients with involvement of the facial, and with ocular palsies (abducens and motoroculus) and one with hypoglossal and vagus involvement. It is intended to present an analysis of all these cases later.

My only reason for publishing this preliminary discussion of the subject is particularly to call attention to the fact that physicians who are called to see these patients during the first two or three days of the illness have an unusual opportunity to assist in the discovery of the causation of a terrible malady, as well as to establish the truth about its symptomatology and prognosis. The diagnosis during the first three or four days cannot be made; it can only be suspected. And at this time, every child that sickens with symptoms that are known to be premonitory and early symptoms of anterior poliomyelitis should be treated as if they were genuine examples of the disease; that is, a lumbar puncture should be done, and the urine and feces collected, and in the investigation and interpretation of the matter collected the services of some Research Institution should be sought. If every physician who sees one of these cases in the beginning of the disease would do this, there would be some chance of determining its cause, a chance that is extremely minimized if investigations are begun only after the patient has been ill for a week. Meanwhile, it is of no service to speculate as to whether the disease is an intoxication or an infection, whether it is due to an organism that at one time causes meningitis, at another poliomyelitis. We know that the disease exists, that it is a most ghastly disease, and that the occasion is a favorable one to find out something about it; but, in order to do that, physicians practising among the persons in whom it is prevalent should be implored to seek the cooperation of those who, by training and skill, are fitted to investigate it.

37 West Fifty-fourth Street.

MENTAL DEFECTIVES; AN ATTEMPT TO TREAT SOME CASES WITH MEDICINES.*

By SIEGFRIED BLOCK, M.D.,
BROOKLYN, NEW YORK.

Few are the medical periodicals which have not at some time had an article concerning the lack of attention given by the medical profession to the study and treatment of beginning psychoses, especially as evidenced in a backward child, a moral imbecile, or one with some other slight mental deviation from the accepted normal standard. Instigated by reading these again and again, I made it my duty to look into the matter more closely. I have personally interviewed several of the most eminent neurologists and, with few exceptions, find they corroborate the statements of the journals. All of them agree that a great deal is being done for these conditions by able persons from a pedagogical standpoint, but the medical man is doing little from the physician's point of view. Many of the leager cities have in the public schools ungraded classes for those children who cannot keep up with the majority of the same age. Here, by schemes many of which are ingenious and highly creditable, the backward child is taught, and after untiring effort, at times some improvement is made. Frequently the children of the wealthier classes are under the personal supervision of a tutor or are

*For many of these cases I must thank Miss Grasse of the Children's Probation Society.

sent to a special school where the fault is to be corrected. In the Children's Court we hear daily of cases where a medical authority would not hesitate to diagnose the case of the prisoner as some mental disease made manifest by an act of immorality; yet this kind of child is often sentenced to a home or prison to keep him out of mischief. In all such cases, where does the doctor come in? Are these children not medical patients? Are they sick or are they not?

A well-known neurologist has written to me as follows: "Our institutions in this city, as in many other lines, do not see the beginnings of the disorders which come to them and neither are they properly familiar with the fields of knowledge that should be most useful to them (in fact, the whole present system of care and training, from the time of the elder Sequin, starts, goes, and stops from the pedagogical and not from the medical side)." The letter goes on to say, " a scientific rather than an old-woman etiology, is greatly needed." The *American Monthly Review of Reviews* for April states on the authority of the City Superintendent of Schools, that 40 per cent. of the children of the schools of New York are below the grades in which they should be, and 2 per cent. of all the children thus far examined are mentally deficient. There are ever so many more reliable reports of the situation, but, in order to shorten this paper, these two must suffice to show the gravity of the matter. About 75 per cent. of the school children have some such physical defects as adenoid growths in the throat, poor teeth, or faulty vision, hearing, or speech. With these corrected, much toward the betterment of the conditions will be accomplished. A more difficult condition, but one that may be alleviated by proper persons, is the result of improper home surroundings of the child, such as either insufficient or improper food, and what is still worse, criminal, drunken, or poverty-stricken parents. It is self-evident that such extraneous causes must be removed if possible, as is done in treating every other illness. It is, indeed, very rare to expect a boy to grow up into good, wholesome manhood with his home a veritable hell and his parents acting the rôle of his Satanic Majesty!

In quite a number of children I have found anemia, tuberculosis, or endocarditis, causing a physical defect which when improved materially aided not only the power of the mind in school work but also the moral behavior.

There is another class of cases. These have apparently a sound body with everything at home conducive to health, but the child at thirteen or fourteen years has no more wisdom or reasoning power than the normal child of seven or eight years. In this class are the dullard in school, with private tutors at home, the truant son of a good father and mother, the runaway, the kleptomaniac, the mischievous or stubborn boy who will never do what he is told, etc. These are the kind of cases that often need, to my mind, *medical* attention as well as a case of typhoid fever or pneumonia. How to treat these cases is the question that we as members of our profession have to solve. Prevent the progress of disease if it be a disease, prevent mental deterioration if possible. In some cases, at least, we may succeed. We may be able to save the bad boy from a life of crime, followed by a prison existence. We may be able, also, to keep a good many people out of insane asylums, etc. Just as in tuberculosis, if the incipient stage is properly treated, the final stages, of softening and cavities, may never come.

I do not claim that every case of mental disease is amenable to treatment. As is well known, a gross anatomical lesion as a spicule of bone, a tumor, faulty innervation, or even absence of some portion of the brain, etc., may be responsible for the symptoms. These can be no more removed by medicine than can an amputated extremity be restored by drugs. As Dr. Barr states in his work on Mental Defectives: "To replace what has never been placed is impossible." In speaking of the feebly gifted or backward child, the same writer goes on to say: "The feebly gifted or backward child has not crossed the border—he is not a mental defective but a mental invalid, so to speak, possessed of all his powers, and has the same chance of attaining mental vigor that any sickly child has of being brought to full health through proper treatment."

In cases of scorbutus we find citric acid (orange juice), a change in the diet, and improvement of the hygiene the three cardinal points of the most accepted method of treatment. The principal signs of this disease are a multitude of subcutaneous hemorrhages associated with anemia, lowered vitality, irritability, tenderness of joints, etc. We consider this disease as constitutional with symptoms quite generally present over scattered portions of the body; especially can they be found in the thinner and more delicate tissues, such as the mucous membranes, often also in the dense periosteum, etc.

Granting this fact to be true, I candidly believe, after examining quite a large number of cases of the so-called mentally defective and feeble-minded children, that the brain membranes, which are more delicate than the mucous membranes and certainly than the periosteum, are also subject to these ecchymoses. In fact, in about 10 per cent. of the cases among the better classes, I have been able to arrive at a history of scurvy, hemophilia, tuberculosis, or syphilis. In another 10 per cent. I have noted remarks such as "he has always been a weak child"; "he used to suffer with headaches," etc., then some of the symptoms that would intimate possible cerebral hemorrhages would be mentioned. In a few of these cases, the cerebral condition being only partially cured, it is possible to conceive that traces of pinpoint hemorrhages may be left in the meninges. These may be too small to cause localized pressure symptoms, yet large enough to produce either general mental dulling or irritation. Moreover, a good many of these spots may occur and be so diffusely scattered that an examination of a score of sections, cut as thin as is necessary for microscopical examination, may never show one of the minute partially absorbed hemorrhagic points.

Sudden dilatation of the cerebral vessels, as in some forms of excitement, be it grief or pleasure, may cause a new ecchymotic crop. Hence often, as in a few cases accompanied by epileptic fits, or so-called hysterical or maniacal outbursts, the result is made manifest after a time. With rest, good food, and good hygiene some disappear and some are left to become organized and form cicatricial contractures, perhaps very small, yet large enough to be a constant menace to the mind. From this theory we form an idea how many of the progressively increasing mental disorders may result.

In another class of cases where scorbutus has never existed, I believe it is possible to imagine that such pinpoint hemorrhages may occur in the brain and nowhere else. Of course, there are those cases of mentally defective children where the functions that are at fault never existed, such as the two kinds of moral defectives: the *unmoral*, or the child who never was taught what it is to be moral, and the *immoral*, who will do that which he knows is not moral.

The treatment in the first case is to teach the child, and if he accepts the teaching, he will be cured. The

other child is very different; he may be a mental invalid who is unable to appreciate as morality what the rest of the community in which he lives demands of him. In other matters, he may be exceedingly bright.

Case I.—I have a case in mind of a boy of 16 who runs away from his home every few weeks. He is dishonest and has been arrested dozens of times for all kinds of miscreancy. More than once he has said to me, "Doctor, I don't think you can do anything with me. I'm no good; that's all there is to it." This same boy is an excellent portrait sketcher, a fair violinist, a regular "pool-shark," a first-class swimmer, and a good baseball player. His home surroundings are very good. He is the eldest son of a wealthy and highly educated family. He has three elder sisters and one brother, all of whom are normal. I have had this boy under my care for some time. So-called "goody goody" talk was just as useless as threats of corporal punishment; in fact, after a thrashing he would act still more stubbornly. Four months ago I began to treat him as follows: I gave him saturated solutions of citric and nitric acids, and he was ordered to take one drop of each in a glass full of water three times a day. I increased each dose one drop daily until he was taking 10 drops three times a day. After one week his stomach revolted. I had to return to five drops per dose. This I had to reduce to three drops of each, which dose he is still taking. Since he has been under this form of treatment, which is now four months, the boy has remained at home and his behavior, according to his parents, has improved considerably. At present he smokes only six cigarettes in place of the thirty he used to use daily. He has stopped drinking, comes home before midnight, and has remained in one business position all the time.

Case II.—P. L., aged 15; father died two years ago of tuberculosis, mother and both sisters have endocarditis. No hereditary history of mental derangement. Physical examination, many stigmata of degeneration present—protruding ears, coarse hair, asymmetry of the face, high-arched palate, etc. —heart and lungs normal. Some time ago his mother brought him to the Children's Court as unmanageable. He would pick up rags in the street and sell them and with the money purchase cigarettes or beer. He would torment his sick mother and sisters, and to beat them was quite ordinary. He was very stubborn. The judge severely reprimanded him, made him promise to be good to his mother, stop playing truant, etc., and permitted him to go home on probation. After a few weeks of reform his mother was again compelled to take him before the judge with the same result. One day he was caught by a police officer stealing some pieces of lead pipe. He was arrested and brought before the same judge who sentenced him to thirty days in the Catholic Protectory. After his discharge he was placed under the care of a probation officer, to whom he reported frequently, and his conduct was closely watched. A few months ago this case was referred to me, after the mother again complained that the boy was hard to handle. I reasoned with the boy, tried to make a friend of him, gave him good thoughts, helped him with his school work. For eight days he was almost a model, and his mother thanked me for what I had done. As a reward, instead of asking the boy to call as before, daily, I told him to come every second day. Hardly had this scheme been inaugurated, when, during a visit to the mother, I heard he had entirely changed for the worse. In fact, he did not come to my office—I had to get him. After some more reasoning, I finally got him to take some medicine which would make him a good boy and keep him out of trouble.

This boy was exceptionally stupid, especially in mathematics and deductive reasoning. I tried to make him believe he would become brighter from the medicine. He received the same drugs as in the other case, viz., 1 grain of citric acid and 1 drop of nitric acid C. P. in a full tumbler of water three times a day. When I raised the dose to eight drops, he complained that it gave him vertigo, and I reduced it to five drops, which dose he is now taking. In addition, I arranged a working plan for every minute of the day. His arising and retiring as well as his play are apportioned definitely. In the beginning it was very difficult to have this program followed, but after various threats were resorted to I find it now works splendidly. His manners have entirely changed, but his dress is still very slovenly. He has become a much better student both in deportment and studies. I believe he is on the road to compare with other boys of his age.*

Among the other cases is one whose main fault was inability to articulate properly, associated with marked precocity. In this case there is some improvement also. In two cases of chronic hydrocephalus of two years' standing, following cerebrospinal meningitis, I have tried this remedy without result both by mouth and by injecting directly into the spinal space.

To conclude, out of thirty cases under my observation, in which I have thus far used this method of treatment, twelve are morally defective; eight are Children's Court cases from the Brooklyn Probation Association; eleven suffer various kinds of mental enfeeblement, four being very high-grade imbeciles. The other seven really are only backward or weak minded; two are choreic and three epileptic. So far eleven show decided improvement. In four there is some change for the better, while in six the children are decidedly worse. In the other cases I have not tried the treatment long enough to warrant any conclusion.

To be conservative, I only offer this method of treatment as a suggestion to the profession, and ask it be given a fair trial in conjunction with whatever schooling the children may require, after any removable physical defects have been properly treated. All of us know something must be done in this line by the doctor as a *physician*, not only by the teacher. If this paper does nothing more than stimulate therapeutists to work in a new direction, its object will be accomplished.

848 Greene Avenue.

PRIMARY MELANOSIS OF THE PALATE; NASOBUCCAL FISTULA OF RECENT SARCOMATOUS ORIGIN.†

By J. N. Roy, M.D.,
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It is well known that there exist strange freaks of nature which till now the most profound observers fail to explain. In medicine, numerous examples could be cited; among others, primary melanosis of the palate is, I think, worthy of note. The histologist could easily tell us what melanosis consists of, but he would find it very difficult indeed to explain how and why that melanosis became primarily local-

*Since this paper was written I received a note from his school-teacher, saying she never had a boy in all her experience who tried so hard and made so much improvement as P. L.

†Paper read before the Canadian Medical Association, Montreal, September, 1907.

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ized in the palate. Normally the mucous membrane of the human palate is of a pale rose color, and whenever pigment appears it is symptomatic of a pathological process.

A glance at comparative anatomy shows that, in general, the palate of animals is whitish in color, and the mucous membrane is undulated with numerous transverse furrows. However, the horse, the cow, the dog, the deer, and the fox may normally have a dark palate. The maki, on the other hand, has always a pigmented palate.

The caprices of nature must puzzle the biologist and make him wonder what could be the physiological explanation of how a white palate and a dark palate may exist in the same race of animals.

If the physiology of animals is so capricious, it is not at all the same thing with human physiology. With man melanosis of the palate has always a serious signification; either it is a precursory symptom of future disease, or it is a complication of an already existing tumor, or else it begins with the new growth.

Medical literature is very poor in references to this subject; I have been able to find only two other similar cases reported; therefore, I have thought it might be of interest to record the present case, and I would draw special attention to the beginning of this condition, which dates back twenty years, and to the nasobuccal fistula of recent sarcomatous origin.

In September, 1906, J. D., a blacksmith, 43 years of age, consulted me at the Hôtel-Dieu. He related that in 1886 he remarked on the median raphé of the vault of the palate a small round spot of a diameter of about three millimeters. This spot was not elevated and caused no trouble. A year before he had slightly injured his palate with the stem of a clay pipe. The hemorrhage was trifling and the wound healed quickly, apparently leaving no traces. During the following twelve years this spot increased in diameter to about six millimeters, without, however, becoming prominent. The only symptom he noticed was slight roughness to the tongue on pressure. He consulted a doctor, who prescribed gargles and applications of tincture of iodine. During the first twelve years, the melanosis was painless, but after the applications of iodine pain appeared. Pigmentation extended gradually to the surrounding parts, and the mucous membrane became granular and irregular. Hard, dark masses with a hemorrhagic tendency began to form. Four years later all the space between the dental arch of the superior maxilla was filled with melanotic granulations. The feeling of local irritation succeeded the pain caused by the applications of iodine, which were discontinued for that reason. The irritation disappeared temporarily when the patient rubbed the mass with his tongue. The last four years the lesion became deeper. Till then the whole palate was in a state of melanosis. Then slowly there came a depression more marked on the left side. We cannot trace at present any swelling antecedent to this depression. The palate then became rougher and furrows separated small masses, which apparently were increasing in size. Early in September last, the patient, while attempting to suck, perceived the existence of a nasobuccal fistula. Neither hemorrhage nor suppuration were noted.

On examination it was remarked that the melanosis invaded the whole hard palate. Granulations of a brown and black color and of various sizes were scattered around. They were hard and showed no tendency to hemorrhage. The left side was greatly depressed, and at the union of the anterior two-thirds with the posterior third the probe passed into the left nasal cavity. Pain was felt only if irritating food was taken, or if cold air passed quickly through the fistula. There was a slight discharge and slight necrotic odor. A mass of granulation tissue at the orifice of the fistula prevented liquids from entering the nasal cavity.

The voice was nasal. Taste was dulled; no dysphagia, but loss of pharyngeal reflexes. Gums and checks showed no melanosis.

The patient has always been a great smoker; he used to chew tobacco, and took no care of his teeth, which are quite discolored. The upper teeth are healthy, except the first left molar, which shows caries to the third degree. The third right molar has been extracted. The second left lower molar has also been extracted. The other teeth are quite healthy.

An anterior rhinoscopic examination shows a hypertrophic rhinitis on the left side. The septum is depressible and edematous, and a small cartilaginous spur prevents the perforation being seen. On the right side the septum is in the same condition, and there is hypertrophy of the inferior turbinals. There is no history of epistaxis or nasal discharge.

Posterior rhinoscopy shows hypertrophy of the posterior ends of the lower and middle turbinals. The posterior end of the septum is tripled in diameter. A whitish infiltration appears to come from the middle part of the septum, and gradually grows more marked as it extends backwards.

At this rhinological examination I found no melanosis. The pharynx is slightly congested, the larynx normal.

Diaphanoscopic examination shows the right antrum to be transparent and the pupil luminous. On the left side the cheek is darkened and the pupil obscured. By means of Mahu's method I examined the capacity of the left antrum, and found it held two cubic centimeters of water, which returns from the left nostril quite clear.

The cervical lymphatic glands on left side appear slightly hypertrophied. A close examination of the eyes shows they are normal. The iris is of a clear, gray color without any abnormal pigmentation.

Refraction is: Right eye, $90° + 0.25$ V = 1; left eye, $90° + 0.25$ V = 1.

The patient has always resided in the country and has enjoyed excellent health. The only sicknesses he has had were pneumonia in 1888 and mild cystitis in 1894. There is no history of tuberculosis or lues. He has made use of alcohol without abuse.

Married for eleven years, he is the father of seven children. The two eldest died of convulsions in infancy. The others are in good health. All his ancestors lived to a good old age. There is no cancerous history. His brothers and sisters are in excellent health.

On inspection of the skin there are no pigmented spots. The skin is normal, except for a slight subicteric shade. The examination of the different organs shows nothing abnormal. Urine analysis shows a density of 1,022. There is no sugar nor albumin, but a trace of urobilin.

Examination of the blood is of no special interest. There is nothing abnormal about its composition, and the number of red and white corpuscles varies but slightly from the normal. The presence of pigment in the blood was negative to a most minute examination.

Till now, the cause of this palatine perforation remained obscure.

Although it was impossible to trace lues in this patient, I prescribed large doses of mercury and

iodide of potassium, awaiting the microscopic report on a small granulation removed for examination. Menthol and boric acid salve, and a mouth-wash of chlorate of potassium, completed the medical treatment. Hygienic treatment consisted in forbidding all irritating food and ordering cleansing of the teeth.

In this case we did not think it necessary to search for the *Spirochæta pallida* of Schaudinn, as it is generally admitted that this microorganism is found only in primary and secondary lesions. As to the bacillus of rectilinear shape, its presence is questioned in tertiary lesions.

My friends, Dr. St. Jacques, professor at Laval University, and Dr. Hingston, F.R.C.S., Ed., returned the following report upon the small piece removed:

"On microscopic examination, the section appeared to measure about 5 millimeters in diameter. The epithelial layer still remains, though varying in thickness in some parts. The cells of the deeper layers are in general well divided from the underlying parts, but in some places they appear to merge into the submucous tissue.

"The submucous space is filled with cells of irregular shape, various size and appearance. In some places they are very close to each other; in others they are well separated. Some of the cells are round, others very irregular. Mitosis is not marked. The nuclei vary much in size and shape. The intercellular spaces are filled with granular substance, and here and there are seen, free blood corpuscles. In one place there are mucous glands altered in shape, but showing no signs of malignancy. Blood-vessels are scarce, but blood is seen in spaces without vessel-walls, as found in sarcoma. The cells of this mass are spread with no order whatever. Melanotic pigment is seen, and is both intra- and extracellular.

"Diagnosis: Melanotic sarcoma resembling melanotic endothelioma."

Seen again in November last, the patient said he was in the same state. The lesion appeared to have become deeper, especially anteriorly. The vault of the palate was becoming denuded, and in places small necrotic masses of bone were seen. There remained very little sensitiveness on the left side. He was very anxious to hear the result of the microscopic examination, and knowing that his condition was serious, he told me he would not consent to operative interference. He was given the necessary explanations, and the gravity of his state made clear. Operative measures were discussed, together with the necessary mutilation, possible complications, and probable recurrence. Having again refused the operation, he was given hygienic advice. A resorcin gargle and Fowler's solution were prescribed.

He returned to the country where he now lives, and came to see me in February and April. As yet there is no pain, but the lesion is rapidly increasing. The vault of the palate is becoming more denuded, and small sequestra become detached, thus increasing the size of the fistula. This atypical sarcoma, so long indolent, appears to be making up for lost time, and makes us foresee a fatal ending in the near future.

This case appears to be of interest from several points of view. First, should we put the beginning of this melanosis back twenty-one years, and look upon it as consecutive to injury received at that period? We know that all cutaneous regions strongly or chronically irritated can become pigmented, whether the irritation be physical, mechanical, or pathological. Could that law be applied to our case? It would be difficult to admit it, as the tissues of the human palate have not the property of producing melanotic pigment.

Should we call in a parasitic theory or attribute the cause of this melanosis to the melanin of the blood? Any hypothesis we could lay down would be most problematical, for, we must admit, our knowledge on the etiology of this condition is extremely vague.

This neoplasm surely did not begin with the melanosis, as it is generally admitted that melanotic sarcoma has a very rapid growth. By the clinical history we see that the pigmentation dates back twenty years, that the evolution was very slow, and that the symptoms were slight. Sixteen years after it had appeared the spot was only six millimeters in diameter, and was on a level with the mucous membrane of the palate. Perhaps the irritating action of the iodine caused the increase of the growth of the tumor in breadth and depth. Perhaps it was mere coincidence. The nasobuccal fistula appeared September last, and since then has rapidly progressed. From these facts I am inclined to think that this primary melanosis was benign in nature, and that in late years a neoplasm appeared in this location and became infiltrated with pigment, and gave to this lesion an invading, destructive, and openly malignant growth.

Dalbet affirms that all melanotic tumors arising elsewhere than in the eye and the skin are sarcomatous. The microscopic examination of tissue removed a year or two ago would have been of great interest. Perhaps at that moment we should have found an endothelial tumor. Pathologists do not agree on the histological transformation of endothelioma and sarcoma. Monod and Arthaud hold that sarcoma is an aggravated form of endothelioma. At present our tumor is certainly sarcomatous, although in places an arrangement of cells resembling endothelioma is found.

What is the prognosis? We know that of sarcoma the melanotic variety is one of the most serious. Moreover, when the growth invades the palatine vault and perforates it, the evolution is rapid, and invariably has a fatal termination.

If operative measures had been attempted recurrence probably would have taken place on account of the growth of the lesions towards the nose and left antrum. We should also have had the risk of post-operative complications and considerable disfiguration.

In conclusion, I should like to remark how unusual this case is, presenting a primary melanosis of the palate without coexisting lesions of the eye or skin, a slow evolution of twenty years, and a recent rapid sarcomatous growth.

STREPTOCOCCEMIA ACCOMPANYING APPENDICITIS.*

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ASSISTANT PATHOLOGIST, BETH ISRAEL HOSPITAL.

Septicemia as an accompaniment of appendicitis is not rare, and in the vast majority of cases occurs by the extension of the inflammation to the veins of the mesentery of the appendix and results in their thrombosis. These thrombi may either extend into the larger veins or may become infected and propagate emboli to liver or lungs and secondarily cause sepsis.

The case which I am reporting is exceptional, inasmuch as the septicemia did not occur through a

*Read before the Eastern Medical Society, March 8, 1907.

process of thrombosis but by a direct infection of the blood stream from a streptococcus appendicitis. In searching through the literature on the subject I was unable to find a similar case, while I met numerous cases of the former kind.

That the streptococcus is a habitant in healthy, as well as in diseased, appendices is well known. Hodenpyl, in reviewing thirty-five cases, eleven of which were his own, found the colon bacillus thirty-two times, the streptococcus with the colon once, the streptococcus alone once. Lantz, in a series of 138 cases, found the streptococcus in association with other bacteria forty-nine times. In twenty cases of appendicitis which I have examined bacteriologically, the streptococcus was encountered five times in association.

Just as in other situations, under favorable conditions, these organisms will increase in number and virulence. This is possible when the appendix itself is inflamed from whatever cause. A loss of continuity in its mucous membrane forms a channel of invasion of these bacteria into the lymphatics or blood-vessels directly, causing either a local or a general infection.

It is true that in most cases of infection of the portal system, the bacteria are arrested in the capillaries of the liver or even destroyed there, for the liver can well take care of bacteria and they seldom pass through it. According to Petrone and Pagona, the liver has a protective function against vegetable alkaloids, many mineral poisons, most bacteria and their toxins. This protective function is referred by some to the activity of the liver cells; by others to the endothelium of the capillaries and to the amount of glycogen stored in the liver.

In cases of virulent infection, I believe the protective action of the liver may not be sufficient to hinder the passing of microorganisms through it. Again, in those rare cases where an anastomosis exists between the portal and hepatic veins, this function of the liver would not come into play and the bacteria will pass into the systemic circulation directly.

Another explanation of a systemic infection in appendicitis is possible in those cases in which an anastomosis is present between the blood supply of the appendix and the iliolumbar, pelvic, or spermatic veins. Any of the above possibilities may have been present in the case which I am reporting, although it was impossible to determine the definite route.

H. S., a women, aged thirty-eight years, married, admitted to the Beth Israel Hospital, September 21, 1906, in the service of Dr. D. Robinsohn, to whom I am indebted for the clinical report of the case. The family history is negative. The patient is of good habits; hygienic surroundings poor. Menstruation always regular. No abortions; six children, youngest, two and a half years of age. Last menstruation two weeks ago. She had the usual diseases of childhood.

Six days ago, after a heavy meal, the patient began to feel indisposed. The following day she had a chill followed by fever, headache, intense thirst, nausea, some abdominal pain and prostration. There was no cough, dyspnea, or vomiting. The headache was frontal and persistent. The fever was continuous. Urination normal. Bowels constipated.

On admission the patient was fairly well nourished, skin moist, no eruption, slight dyspnea, flushed face, marked prostration. Ears and mastoids negative. Tongue moist and coated. Moderate congestion of throat. Inguinal glands enlarged.

Heart and lungs showed nothing abnormal. Liver dullness commenced at the fourth intercostal space, flatness at the sixth rib and reaching one inch below free border; the edge was indistinctly palpable and tender. Spleen was not palpable. The abdomen was uniformly rigid, tenderness in right hypochondriac and appendicular regions; slight tenderness in splenic region, tympanitic; no masses. The points of tenderness were not constant.

Vaginal examination showed the uterus normal in position and size. A globular tender mass was felt in the posterior fornix, somewhat more to the left. Rectal examination revealed the same mass (later proved to be a prolapsed ovary). The pulse on admission was 100; it varied during the first week between 100 and 120, increasing in rapidity during the second week to from 120 to 136. Respiration, 24 to 40. Temperature, remittent at first resembling a third week of typhoid, then irregularly intermittent. The urine was straw colored, and specific gravity 1012, no albumin or sugar; microscopically, no casts. Subsequent examination negative. Blood examination showed an initial leucocytosis of 7,400, increasing to 13,000 on the fourth day; last examination four days before death, 24,000, with a polynuclear of eighty-six per cent.

September 25. Four days after entrance the patient developed pain in the right shoulder and elbow joints with redness, swelling, and tenderness.

September 28. A blood culture was taken in glucose bouillon and the streptococcus together with the *Staphylococcus albus* found. The course of the disease now was marked by severe daily chills, vomiting, periods of apathy alternating with delirium. Over the right lower lobe slight dullness and numerous crepitant râles were heard.

October 3. Marked edema of left lower extremity, tenderness over tibia and along femoral vessels (thrombosis of femoral veins). Slight edema of right leg.

October 5. Another blood culture was taken in bouillon and in glucose-bouillon flasks, and on agar and two per cent. glucose-agar plates; all contained the streptococcus in pure culture, three or four colonies to one c.c. of blood on the solid media.

October 6. The patient was curetted because of suspicion of abortion; the débris examined showed normal endometrium, and was bacteriologically negative. Pus from a bulla on the forearm several days before death contained the streptococcus in pure culture.

The terminal course of the disease was that of increasing stupor, diarrhea, incontinence, with the thrombosis and arthritis becoming more marked.

The case was, therefore, one in which the constitutional manifestations were so prominent as to obscure the original seat of the disease. The diagnosis on admission was typhoid fever; the general appearance, the persistent headache, delirium, low leucocytosis, and absence of physical signs in chest were in favor of typhoid fever. The sudden onset with chill, absence of Gruber-Widal reaction were against it. In her subsequent course she presented a picture of sepsis. In the diagnosis of the case, portal thrombosis, subphrenic abscess, and appendicitis were considered; the objective signs, however, were neither definite nor constant. As above noted, sepsis of uterine origin was also suspected.

Autopsy performed by Dr. I. Strauss, pathologist. Rigor mortis, marked, no petechiæ, edema of both lower extremities but especially of the left.

Heart, size normal; muscle pale; one cusp of the tricuspid has a minute vegetation, another a slight erosion. Aortic flaps thickened. Pleuræ, normal. Lungs, edema, hypostatic congestion; a few areas of bronchopneumonia in right upper lobe.

Liver slightly enlarged, punctate hemorrhages on surface; on section showed slight parenchymatous degeneration. Pancreas negative. Suprarenals normal. Kidneys, surface smooth, showing numerous petechiae; capsule not adherent, on section cortex swollen, pale yellow in color, markings indistinct, minute hemorrhages. Stomach and intestines normal. Appendix, five inches in length, distal end distended, clubshaped, with recent adhesions at tip; on incising about a drachm of pus escaped. No thrombosis of the vessels of the mesentery or of the portal system could be found after careful search. Spleen enlarged, flabby and congested; surface and cut section presents numerous small hemorrhagic areas.

Uterus, normal in size; mucous membrane shows signs of recent curetting. Tubes normal; several veins of broad ligament thrombosed (recent). Ovaries, right enlarged, held dermoid cyst. Left also was cystic, containing hair and sebaceous matter, and was prolapsed.

Spreads made from the pus in the appendix showed streptococci and gram negative bacilli; from the spleen showed streptococci only.

Cultures from heart blood and spleen gave the streptococcus in pure culture.

Under the microscope the uterus showed marked congestion; the tubes were normal. The mucous membrane of the appendix was almost completely gone; submucosa infiltrated with mononuclear and polynuclear cells. Kidney, marked degeneration of convoluted tubules with hemorrhages in cortex.

The absence of thrombosis in the mesenteric or in the portal venous system; the absence of secondary foci in the liver, and the fact that no other focus was found that might be considered primary, justify the classification of this case as one of direct blood infection from the appendicitis.

The thrombosis of the veins in the broad ligament, like the femoral thrombosis, was probably secondary to the septic state.

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177 MADISON STREET.

Preservation of Leeches in Winter.—According to a reliable authority the following singular plan is adopted among the Siberian tribes of Russia for preserving leeches during the winter season. The mode appears, as far as practicable, to be worthy of imitation, as so much complaint is made of the difficulty it is intended to obviate. In October, a pit is dug, in marl or clay, in the open air, and the sides and bottom are made perfectly hard and smooth; it is then filled with fresh river water, the leeches are placed in it, and the whole mass of water is allowed to freeze to solidity. Whenever any of the leeches are required, a piece of ice containing them is chopped out of the pit, and is allowed to thaw gradually in a cool place. The leeches do not injure by this freezing, but will bite with greater readiness than those kept in a room during the winter.—*The Lancet.*

Treatment of Bone Cavities of Osteomyelitic Origin.—G. Rottenstein gives the origin of bone cavities as septic and aseptic, the former predominating. The aseptic arise from removal of tumors and gummata; the septic from tuberculosis and acute or chronic osteomyelitis. Duration may be very chronic. The bone is profoundly infected, and can with difficulty be disinfected, while the neighboring tissues are riddled with fistulous tracts and the skin is thinned and adherent to the bones. Sterilization is almost impossible. Various methods have been proposed to fill up the cavities: the autoplastic, the introduction of a foreign substance, as in dentistry, and substitution. The best method so far proposed is that of Mosetig-Moorhof, which the author has made use of in several cases. It depends on the substitution in the cavity of an absorbable, antiseptic material, which can be run in liquid without injury to the tissues and will then harden in the cavity. The material is composed of iodoform, sixty parts, oil of sesame, forty parts, and spermaceti, forty parts. The mixed materials are heated at 80° C. until perfectly homogeneous. They harden at 50° to 60°. The mixture is liquefied when used by heating a few minutes over a water-bath. This mixture is reabsorbable, easy to prepare and to sterilize, and easy to handle, while it liquefies at a low temperature, at which the iodoform is not decomposed. It fills all the interstices of the bone and makes the limb strong for use. The material is at first irregularly placed in the cavity, as may be seen by the *x*-ray; next it becomes regularized, and a clear zone of new bone appears around it. The evolution is extremely slow, but in the meantime the limb is useful. Finally it disappears entirely and the bone is entirely restored. The important points in preparation are sterilization of the skin by repeated washings and alcohol dressings; hemostasis by an Esmarch bandage; removal of all diseased skin; drying of the cavity by curettage, and a blast of warm air projected into the cavity. After operation the antiseptic dressings are renewed up to three to six weeks, and then the limb is used. Cases of five years' standing show a useful limb.—*Révue de Thérapeutique Médico-Chirurgicale.*

Annular Gastrectomy in the Mediogastric Region; Indications, Technique, Results.—René Leriche says that mediogastric annular gastrectomy is a rare operation whose indications are restricted. Yet for selected cases it is the best possible procedure, giving the maximum of facility and safety. The indications for its performance are to be found in ulcer, cancer, and hour-glass stomach. In ulcer, annular resection is rarely necessary, because mediogastric ulcerations that involve both walls of the stomach are rare. If the ulcer occupies part of both surfaces of the organ annular mediogastric resection is the best procedure. Gastroenterostomy is useless. Ulcerations are generally operated on in the healed stage when cicatricial pouching has taken place. Biloculation demands the removal of the central ring of the stomach. This operation is rarely of use in cancer. It is the operation of choice in tumors localized on the faces of the stomach, not simply stenosing. The technique consists of ligature of the coronary, pyloric, and the gastroepiploic arteries. Large clamps are then placed upon the ends of the stomach so as to close the two end sections into pouches. The portion to be removed is then cut with scissors between the clamps. The gastric continuity is reestablished by sutures. The results in ulcers are not yet determined on account of the small number of cases of operation by this method. Out of 25 cases operated on for cancer the mortality has been 18.5 per cent. The remote results are excellent.—*Archives Provençales de Chirurgie.*

Suppuration of Fibromata of the Uterus.—Jacques Delage and E. Gaujoux state that suppuration of the uterus when primary is so rare that it has been estimated as occurring once in one hundred cases. It is very difficult of diagnosis and has no tendency to spontaneous recovery. The fever connected with it is moderate and regular and only the loss of flesh and failure of the general health aid in the diagnosis. Secondarily, it may be the result of gangrene and sphacelus. The causes are those which affect the nutrition of the tumor, such as pressure on the pedicle, torsion, or adhesions. The immediate cause is always an infection coming by way of the vagina or from outside the uterus. Pregnancy is often the cause of this infection, it occurring at the time of labor. In one of the author's cases punctures for ascites were the source of the infection. It may come by way of the blood or lymphatic vessels. The suppuration begins from without, involving the fibromuscular tissues about the tumor. There is no hope of cure outside of operation except by rupture into the intestine or vagina. Operation should be done as soon as the diagnosis is made.—*Gazette des Hôpitaux.*

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CONTRADICTORY ADVICE TO CONSUMPTIVES.

THE great antituberculosis crusade now in process of organization throughout the world has already produced a flood of literature for laymen, but there are so many contradictions in it that the work is bound to be seriously hampered unless physicians come to a more nearly unanimous opinion on disputed matters in prevention and cure. For instance, the layman who is told that improvement takes place mostly in the winter, and not in the summer, is naturally bewildered by the almost universal advice to go South in the autumn, so as to have perpetual summer. It is also well known that in the northern mountains, like the Adirondacks, where such excellent results are obtained, there is a maximum of cloudy days and but little sunshine at any time, particularly in winter. The patient must be astonished, then, to hear that nearly every American text-book asserts that unstinted sunshine is an absolute essential for cure. It has been asserted that there are a minimum of cases and a maximum of cures in very rainy climates, such as our northwest coast and the northwest corner of Europe, yet almost every authority states that the ideal climate should have no rainy days. The cures obtained at North Brother Island, in the city, even in quite advanced cases, are said to be obtained "in spite of unfavorable conditions," but the layman will naturally ask why it is "unfavorable" if it cures so remarkably.

Burton-Fanning, in his work on "The Open-Air Treatment of Tuberculosis," mentions the fact that even in England the glare of the sun is very powerful in producing headache, anorexia, prostration, and even fever, and that protection from the summer sun is essential. It is rather bewildering, then, to the patient to be told by the majority of physicians that he must live in the sunlight in summer. Dr. Jno. E. White of Colorado Springs also says (*Archives of Physiological Therapy*, October, 1906) that the coolest places must be selected in summer, avoiding direct sunlight, and that he has proved that the "sun-bath" almost invariably raises the temperature. Others have reported adverse results of the sun-bath, even hemorrhages, but there are many who advocate its use, even to the naked body, and one New York physician advises clothing which transmits the light, so as to have a perpetual sun-bath.

Every little while there are articles published by men whose opinions cannot be ignored, stating that a moderate amount of alcohol is beneficial in all cases and a necessity when there is fever. Perhaps most physicians prescribe it, yet the literature for laymen often states that total abstinence is essential in treatment. It is also generally taught that alcoholic indulgence is a predisposing causative factor, but the recent report of the Phipps Institute says "that alcohol neither prevents nor cures tuberculosis is evident from the number of alcoholics who have come for treatment, and that it does not strongly predispose to the disease seems to stand out prominently from the vast preponderance of nonalcoholics among applicants for treatment," and it also states that there is no evidence of greater susceptibility in the children of alcoholics. Laymen might twist that into a proof of the old idea that total abstinence was a predisposing cause, but the above report wisely says that all extreme views must be abandoned. Even in selecting his food the patient must choose between the extremists who insist upon a process of excessive feeding, and those who advise a low proteid diet, or follow those who advocate merely a generous amount of food. Should a patient seek another climate, he is again bewildered by the contradictory advice, for he finds that about every place is advertised as advantageous except his home, while there are many who advise him not to leave home at all.

Surely there is need of greater uniformity in advice, for the average layman is unable to sift it out and reject everything except the few essentials on which there are no differences of opinion. It is well to remember also that there is a growing number of observations which seem to prove that what is good for one type, either blond or brunette, is not necessarily good for the opposite, but we have not collected sufficient data for good, safe conclusions, except on general principles. There is then another ground for differences of opinion, for, while a few observers are reporting adverse results in certain types in certain places, the mass of the profession is of opinion that complexion has no influence on the result. It must be very disquieting to a very blond patient, after reading that he can go anywhere from Sweden to Egypt, or from New York to Southern California, to learn from someone else that to go to a hot, sunny place is suicide. Perhaps it would be better to omit all reference to disputed points in literature intended for laymen, unless the two sides can be reasonably set forth.

DUPLICATION OF HOSPITAL APPOINTMENTS.

IN the *Lancet* of October 12, attention is called to a dispute which has arisen in Bristol, with reference to holding duplicate hospital appointments. There appears to be no restriction there as to the number of appointments a man may hold in different hospitals, except that in some instances an appointee cannot connect himself with another institution without permission of the authorities of the hospital to which he is already attached. A new Memorial Hospital is about to be opened, and its directors have made certain appointments of men already connected with the Bristol Royal Infirmary. Thereupon the directors of the Infirmary passed the following rule: "No member of the honorary staff shall hold any union or club appointment. No

member of the full staff shall hold any other professional public appointment other than professorship or lectureship at any university, college, or school. No member of the assistant staff shall hold any other general hospital appointment, nor more than one special hospital appointment."

Some of the Bristol medical men take exception to this new rule. The *Lancet* notes that in London no such rule is enforced, and although it believes that no man should hold more than two principal appointments, it takes exception to the clause, "any other professional public appointment other than professorship or lectureship at any university, college, or school." This, it says, would exclude examinerships and would, in fact, be a direct embargo by a charity on the way in which its honorary officers should spend their time when not employed in the service of the charity in question. The new rule was forcibly advocated by the President of the Infirmary, Sir George White, but the *Lancet* has looked up his business record in "Who's Who" and finds that he is connected in a principal capacity with several large business enterprises, as well as various eleemosynary institutions. Why, it asks, make such a distinction between professional men and laymen? Presumably Sir George is efficient in all his several capacities, but may not a physician be equally efficient under similar circumstances? Certainly a conscientious medical man would not undertake more than he could perform, and would not be tolerated if, in his endeavor to hold appointments in several institutions, he failed in his duty in any particular instance.

Here in New York, this question has not, so far as we know, ever been under serious consideration by any hospital managers. The competition for appointments is so keen, and the supply of good men so ample, that no hospital has any difficulty in securing an attending staff which performs its duties with proper efficiency. The objection to the holding of several appointments in different hospitals by one man comes, not from the hospital authorities, but from the men who are unable to obtain one of the coveted positions. These men argue that no one in active private practice can spare the time for good work on the attending staff of more than one large hospital, and if he takes two or more such positions he must necessarily slur his work more or less, while at the same time he is keeping out one or more other men who would gladly devote the necessary time to the duties of such a position, thereby increasing their own experience and giving the hospital acceptable service.

THE ACTION OF CHRYSAROBIN ON THE KIDNEYS.

Since chrysarobin is used extensively in various skin diseases, especially psoriasis, the question as to whether it is absorbed, and, if so, whether it causes renal disturbances, is still undecided. In books on dermatology we find no, or only uncertain, information on the subject. Crocker, Jackson, Hyde, Montgomery, and Pusey, among others, make no mention of any effect on the kidney. Lesser and Neisser state that they have seen a nephritis distinctly due to chrysarobin. Thompson gave five grains [illegible] and caused gastrointestinal, but no renal disturbances. Kaposi and Von Düring each mention a case of nephritis which set in after the use of chrysarobin, but only after the latter had caused a severe dermatitis. The experiments of Lewin, Rosenthal, Müller, and Weyl on animals are probably responsible for the opinion that chrysarobin has a bad effect on the kidney, they having caused a parenchymatous nephritis by giving it internally.

Winkler (*Correspondenz-Blatt für Schweizer Aerzte,* September 15, 1907) has again taken up this subject. He gave rabbits from one to thirty grains internally for some time; it caused no nephritis, though chrysophanic acid was found in the urine; on applying a six-per-cent. ointment externally neither chrysophanic acid nor albumin was found in the urine; thus it was absorbed in the one case and not in the other, but caused no renal disturbances in either. He found that in man three-tenths of a grain internally would not cause any gastrointestinal symptoms, nor would chrysophanic acid or albumin appear in the urine; one grain caused gastrointestinal symptoms with no change in the urine; one and a half grains caused gastrointestinal symptoms and the appearance of chrysophanic acid, but no albumin or casts, in the urine. A ten per cent. ointment applied externally in man was not followed by either chrysophanic acid or albumin in the urine, so that chrysarobin is absorbed only when given internally, and even then does not cause nephritis. Winkler's observations in man confirm those recorded in the literature, while his observations in animals differ from those of Lewin and others. The kidneys are therefore apparently not in danger of being injured by chrysarobin, as it is used in psoriasis, but nevertheless Winkler recommends examining the urine before and after using it.

Angina Pectoris and Anginoid Conditions.

The overwhelming pain and the sense of impending death that are such prominent components of the clinical picture of angina pectoris have always been obstacles to the accurate analysis of the symptom complex as a whole. The physician is usually too busily occupied in bringing relief as rapidly as possible to take time to study critically the various phases exhibited by the manifestations of the disease. Schmoll (*Münchener medizinische Wochenschrift,* October 8, 1907) points out that numerous motor, sensory, and vasomotor symptoms occur in angina pectoris, and that these will be found to correspond to the peripheral zones, which themselves correspond, according to Head's researches, to definite spinal segments. To a slight degree these disturbances persist even during the intervals between the attacks, and in the author's opinion they are due to reflex stimulation of separate spinal segments through the filaments of the sympathetic nerves entering the cord at these levels. The sensations produced are accordingly projected to the periphery, and are experienced in the areas corresponding to the spinal segments. Anginoid symptoms must not, therefore, be regarded as definite evidence of coronary arteriosclerosis, for they indicate simply the response of the nervous system to disease of the left side of the heart. While the pathogenesis of angina due to coronary sclerosis is the same, clinically differences exist between the two types of cases. The anginoid symptoms are characterized by more or less periodicity in recurrence, the attacks

last hours or days, and are not so dependent on exertion and excitement as those of coronary sclerosis. They also develop more gradually, and the sense of impending death is absent or is less pronounced. Sometimes, of course, those criteria are unreliable, especially in aortic sclerosis and insufficiency, and then the differential diagnosis is dependent on the course of the disease.

The Period of Infection in Typhoid Fever.

At a time when less was known in regard to the behavior of the bacilli causing typhoid fever, it appeared that nothing could be simpler—theoretically at least—than practically to exterminate the disease. As long as it was supposed that, in order to avoid dissemination of the infection, it sufficed to sterilize the patient's excreta and the objects that might be contaminated with these, the problem of prophylaxis did not seem to present alarming proportions, but unfortunately the conditions are not so obligingly simple. The recognition of the facts that persons who have recovered from typhoid fever continue to excrete the specific organism in the urine and feces for indefinite periods, and that even persons who apparently have never had the disease, but have been in proximity to those who have, may carry about and excrete the bacilli, has very much complicated the question. A possibility, or rather probability, that still further increases the difficulties of combating the infection is involved in a recent communication by Conradi in the *Deutsche medizinische Wochenschrift*, October 10, 1907. As the result of the analysis of the conditions encountered in 600 cases coming under his observation in southwestern Germany during the past two and a half years, he has reached the conviction not only that infection is transmitted most often during the earliest days of the disease, before its true nature has been recognized, but also that it probably frequently takes place during the period of incubation, since the bacilli are already in the blood at this time, and are, or may be, excreted while the individual is still apparently in good health. Even if these views should find confirmation, however, they should not be regarded as reasons for discouragement, but rather as incentives to still greater thoroughness in the application of those prophylactic measures that are available.

Aseptic Operating.

An interesting comparison in regard to operative techniques is reported by Schenk and Scheib in the *Münchener medizinische Wochenschrift*, October 1, 1907. About six years ago Schenk and Lichtenstein made a series of bacteriological tests on laparotomy wounds, in order to determine how much bacterial contamination existed in apparently aseptic wounds. Portions of the skin near the incision, of the fat in the depths of the wound, and silk threads left in the wound and drawn out later, were examined, and it was found that the number of sterile wounds was really very small—for example, in forty-three cases the threads were sterile only eleven times. At that time the operative technique comprised only the ordinary measures, and recently another set of tests was made under conditions in which all the refinements of modern operating, including face masks and hoods, rubber gloves covered by cotton gloves that were frequently changed, and a complicated system of skin and hand disinfection, were used. The patient's skin was also covered with a rubber varnish. The results showed that, although the number of cases in which skin staphylococci occurred had been somewhat reduced, the proportion of sterile wounds was not very different from before, and the number of cases with nonfebrile postoperative course was also not markedly greater. It appears that wholly germ-free operating is not yet possible, even under the most rigid precautions, though it does not necessarily follow that it is therefore permissible to neglect any of these or to regard them as superfluous.

The Technique of Spinal Anesthesia.

In the production of spinal anesthesia two factors which are of great importance are the amount of cerebrospinal fluid removed and the solvent used for the anesthetic employed. Cases are on record in which too rapid an escape of the fluids caused severe headaches in adults and convulsions and shock in children, due probably to the sudden resulting hyperemia of the brain. Moreover, removal of too much fluid causes too rapid distribution of the anesthetic used and sudden action upon the medulla, instead of the gradual anesthetic effect which is more desirable. Writing in *Russkii Vratch*, B. H. Tomashevski says that of all solvents the best and most logical is the cerebrospinal fluid itself. He describes and pictures an apparatus by which the amount of the liquid withdrawn is measured directly. It consists of a graduated syringe attached perpendicularly to a modified spinal trocar of Bier. After the trocar is introduced, its stop-cock is closed and another one leading into the graduated syringe is opened. If the liquid withdrawn is to be used as a solvent for the anesthetic, the latter is introduced in the dry state into the syringe before the operation, having been sterilized by heating for one hour at 100° C. for two successive days.

News of the Week.

Dr. Bulkley's Annual Lectures on Diseases of the Skin.—The Governors of the New York Skin and Cancer Hospital, Second avenue and Tenth street, announce that Dr. L. Duncan Bulkley will give a ninth series of "Clinical Lectures on Diseases of the Skin," in the Out-Patient Hall of the hospital, on Wednesday afternoons from November 6 to December 18, 1907, at 4:15 o'clock. The course will be free to the medical profession.

Report of the Royal Commission on Tuberculosis.—In a second *ad interim* report, the Royal Commission on Tuberculosis suggests that there are two forms of the disease, one of which is rapidly fatal and the other tending to undergo spontaneous cure. The cable despatches state that the report contains an account of elaborate inoculation experiments carried out by Dr. Cobbett on a variety of animals with human tubercle bacilli. The results were remarkable and constant. One group of bacilli caused a rapidly fatal general tuberculosis. The other, when given in far larger doses, had only a slight local effect, tending toward spontaneous cure. The report does not assume that any new discovery has been made, but the results tabulated suggest that further experiments may establish that there are two types of the disease, having a different prognosis from the very beginning.

Cart-Tail Antituberculosis Addresses.—A novel means of displaying an itinerant tuberculosis exhibition has been organized under the auspices of the Kensington Tuberculosis Dispensary of Philadelphia and the Kensington branch of the

Y. M. C. A. During the noon hour a course of lectures will be delivered to the mill workers in the northeastern districts of Philadelphia from a wagon fitted with a suitable exhibit to illustrate the points made by the speakers.

Plague in San Francisco.—According to announcements made by the officials of the Marine Hospital Service, the plague situation in San Francisco shows little change. The efforts at rat extermination by means of phosphorus paste and a mixture of equal parts of plaster-of-Paris and flour, are beginning to show good results. The authorities in Oakland, Alameda, and Berkeley are taking measures to prevent the spread of the plague on their side of the bay. The sum of $10,000 has been promised by the City Council of Oakland as a monthly expenditure to prevent the spread of the disease. The campaign will consist of a sanitary survey, an inspection of the dead, necropsies of all bodies which are considered suspicious of plague, and general measures for the destruction of the rat and its parasites.

Prevalence of Diphtheria in Chicago.—According to the weekly bulletin of the Health Department, diphtheria is spreading in this city. Reports of 127 cases were received last week, against 96 for the preceding week. To check the disease the City Health Department announces that it will prosecute persons who do not obey quarantine regulations. In explanation of the spread of the disease, the bulletin says: "Patients recently recovered from the disease, and with diphtheria bacilli still in the throat, are being allowed to associate with well children. Virulent bacteria not infrequently remain in the throat for days after the membrane has disappeared and the child feels well. During these days the child is just as dangerous to other children as at any time of its illness."

Free Antitoxin in Illinois.—There have been 105 stations in 102 counties of the State established for the free distribution of antitoxin by the State Board of Health. It is said that 100 more are to be established at an early date out of the $15,000 annual appropriation.

Smallpox and Yellow Fever.—From June 28 to October 25 there were 5,039 cases of smallpox in the country. Of this number only sixteen were fatal. Between September 1 and October 25 two cases of yellow fever were reported, one at Baltimore and one at Fernandina, Fla. Death resulted in one of these cases. Both patients were aliens, arriving on steamships from Cuba.

Scarlet Fever in a Pennsylvania Town.—An epidemic of this disease is causing alarm in Glen Lyon, a mining town about ten miles from Wilkesbarre. Seventy-five cases and twenty-eight deaths have already been reported.

The Russian Cholera Outbreak is reported as especially severe at Kieff, where it is causing hundreds of deaths daily.

An Antivivisection Play.—In one of the Berlin theaters a play was produced last week with the title "For the Sake of Humanity," and intended to excite interest in the antivivisection propaganda. One of the two authors is a Berlin physician. The play has as its leading character a worker in experimental medicine, who, in one episode said to be reminiscent of Irving's nightmare scene in "The Bells," is haunted by a dream in which he sees the specters of his experimental subjects.

A Hazardous Experiment.—The newspapers announce that one of the London slot machine companies is preparing to install in public places apparatus designed to furnish small quantities of milk on the deposit of a coin. It is stated that the apparatus is so constructed as to render it easily kept clean, but the possibility of conducting such an enterprise without its becoming a danger to public health seems very remote.

Award of Damages for Alleged Unjust Commitment.—In the suit of a woman residing in New City, N. Y., against two physicians, for $50,000, on the ground that they unjustly pronounced her insane, and were instrumental in causing her commitment to the Middletown Insane Asylum, the jury, after deliberating twelve hours, made an award of $25,000. This was in spite of the testimony of several experts declaring that the plaintiff was insane.

Organization to Increase Medical Fees Not Illegal.—The presiding judge has acquitted the Bower County, Iowa, physicians who were indicted for uniting in order to raise the scale of fees.

Michael Reese Hospital of Chicago.—The management of this hospital recently announced the adoption of the "open-door" method, so that now any physician or surgeon can take a patient to that institution for treatment, irrespective of whether the physician is on the staff of the hospital or not.

Bequests to Philadelphia Hospitals.—By the will of the late Isaac Saller of Philadelphia the sum of $1,000 is bequeathed to the Jewish Hospital Association and $500 to the Jewish Maternity Hospital.

New Hospital for Chicago.—A hospital accommodating 300 patients, and combining the best in modern hospital buildings and arrangement, has been planned by the Lithuanian-Americans in Chicago. While it will be built by the Lithuanians, no line of nationality, color, or creed will be drawn. Six acres at Forty-sixth and Western avenues have been purchased for the site and an option is held on six acres adjoining. Inmates suffering with tuberculosis and other contagious diseases will be isolated. There will be one quadrangle for children, another for men, another for women, and special attention will be paid to the treatment of nervous diseases.

Christian Scientists Fined.—An adherent of the Christian Science cult and his wife in Mt. Holly, N. J., who were convicted recently of manslaughter on the charge of not providing proper medical attendance for their child, who died as a result of their neglect, have been sentenced to pay a fine of $100 each.

For a New Optometry Bill.—Representatives of the New York State Optical Society and of the Optometrical Society of this city have announced their intention of preparing a new optometry bill to be presented at the coming session of the Legislature. One of the objections to last year's bill which caused Governor Hughes to veto the measure was that it did not place the examinations provided for under the control of the State Board of Regents, and it is stated that the framers of the new bill intend to remedy this defect.

Rockefeller Institute.—The following appointments have been made to the staff of the Rockefeller Institute for Medical Research: Dr. Hideyo Noguchi promoted to Associate in Pathology; Dr. G. W. Heimrod, Assistant in Biological Chemistry; Dr. W. A. Jacobs, Fellow in Biological Chemistry; Mr. P. A. Kober, Scholar in Biological Chemistry; Dr. R. V. Lamar, Scholar in Pathology.

American Physiotherapeutic Association.—The first annual meeting of this organization will be held at French Lick Springs, Indiana, December 5, 6,

and 7, 1907. The secretary is Dr. Otto Juettner of Cincinnati, Ohio.

Sixth District Medical Association of Georgia.—The next convention of this organization will be held at Macon on November 13, 1907, under the presidency of Dr. John R. Shannon of Forsyth. The secretary is Dr. Eugene B. Elder of Macon.

Medical Association of the Southwest.—At its meeting held in Hot Springs, Ark., on October 12, this organization elected the following officers: *President,* Dr. Thomas E. Holland of Hot Springs; *Vice-Presidents,* Drs. S. S. Glasscock of Kansas City, Kan., B. J. Vance of Chicolah, Okla., S. C. James of Kansas City, Mo., and J. E. Gilchrist of Gainesville, Tex.; *Secretary-Treasurer,* Dr. F. H. Clark of El Reno, Okla.

Thurber (Mass.) Medical Association.—The following officers were elected at the fifty-fourth annual meeting of this society held in Milford on October 17: *President,* Dr. Charles H. Randall of Franklin; *Vice-President,* Dr. Halbert L. Keith of Milford; *Secretary,* Dr. A. J. Gallison of Franklin; *Treasurer,* Dr. C. B. Hussey of Franklin.

Restriction of the Sale of Cocaine in Illinois.—A new cocaine law has been drawn and sent to the Illinois Legislature. A bill prepared by C. H. Avery of the State Board of Pharmacy is designed to put the drug out of the reach of all but physicians. It differs from the present law in that it not only more accurately describes what is meant by cocaine, but imposes a heavy penalty for the illegal selling of it. It goes so far as to forbid physicians from prescribing the drug to persons known to be addicted to its use. The only legal sale to be allowed is on the prescription of a registered physician, which must give the name and address of the person prescribed for, the date it was filled, and be kept permanently on file by the druggist. It must be filled but once, and no copy of it made. The penalty for violations is a fine of not more than one thousand dollars or imprisonment in jail for a year, or both.

Civil Service Examinations.—The State Civil Service Commission will hold examinations November 16, 1907, for the following positions: Dentist, State Institutions; health officer, Village of Port Chester, $600; physician, State Hospitals, $900 and maintenance; trained nurse, State Institutions, $420 to $600 and maintenance. The last day for filing applications for these positions is November 9. Full information with application forms for any of these examinations may be obtained upon postal card request from the Chief Examiner of the Commission, Mr. Charles S. Fowler, at Albany.

Association of Erie Railway Surgeons.—At the recent annual meeting of this Association the following officers were elected: *President,* Dr. F. D. Bain of Kenton, Ohio; *Vice-President,* Dr. G. H. Witter of Wellsville, N. Y.; *Secretary and Treasurer,* Dr. B. F. Wakeman of Hornell, N. Y.; *Executive Committee,* Drs. S. Heilman of Sharon, Pa., C. E. Sawyer of Marion, Ohio, and H. F. Gillette of Cuba, N. Y. The next meeting will be held in Buffalo during October, 1908.

Obituary Notes.—Dr. Julian La Pierre of Norwich, Conn., died on October 21 of cardiac disease, at the age of sixty-three years. He was a native of Norwich and was educated at Bowdoin College. He was graduated from the Bellevue Hospital Medical School in 1871, and had practised in Norwich and vicinity ever since. He was a member of the Norwich Medical Association, New London County Medical Association, of both of which he had been president, and of the Connecticut Medical Society. During the Spanish war he was surgeon of the Third Regiment, Connecticut Volunteers. Since 1893 he had been visiting physician to the Backus Hospital. Dr. La Pierre took an active interest in educational and municipal affairs, and had served in several public offices.

Dr. Hosea J. Babbin, Medical Director, U. S. N., retired, died on October 25 at his home in Brooklyn. During the Spanish-American war he was president of the examining board at the New York Navy Yard. Later he was in charge of the Naval Hospital, New York, and was transferred to the retired list as a Medical Director with the rank of Rear Admiral. He was born in Canada and was a graduate of McGill and Harvard Universities.

Dr. Jeannette Reid Durkee died on October 27 at her residence in Brooklyn. Dr. Durkee was born in Binghamton, N. Y., but for the last fourteen years had lived and practised in this city.

Dr. Cushman Day of Brooklyn died suddenly on October 26 in Boston, at the age of thirty years. He was a graduate of Tufts Medical School, and for the past two years had been an interne in the Boston City Hospital.

Dr. Jas. F. Rhinehart of Oakland, Cal., died on October 14 after an operation for appendicitis. Dr. Rhinehart was a native of Springfield, Ky., and was born forty years ago.

Dr. Samuel D. Mercer of Omaha died on October 10, at the age of sixty-five years. He was born in Marion County, Illinois, and received his medical education at the University of Michigan and the Berkshire Medical College. He served in the Civil War as assistant surgeon, and in 1866 began practice in Omaha. He became chief surgeon of the Union Pacific Railway, was president of the Board of United States Pension Examiners, was secretary of the Nebraska Medical Association, vice-president of the American Medical Association in 1885-6, and was one of the founders of the Omaha Medical College. About a year ago ill health compelled him to give up active work.

Dr. Valentine Manahan of Enfield, N. H., died on October 15, at the age of eighty-two years. He received his medical degree from the Jefferson Medical College of Philadelphia and practised in Manchester, Antrim, and Springfield, remaining in the latter place fifteen years, until he came to Enfield in 1866.

Dr. R. O. Y. Warren of Butte, Mont., died on October 19, at the age of forty-seven years. He was a native of West Virginia, and was graduated from the Baltimore College of Physicians and Surgeons in 1885. He practised for a time in Missouri and then removed to Montana sixteen years ago. For ten years he was resident physician and superintendent of the State Asylum for the Insane at Warm Springs.

Dr. Dale Lucas of Kansas City, Mo., died on October 14 after a brief illness, at the age of thirty-two years. He was born in Hillsdale, Kan., and was graduated from the medical school of the University of Kansas in 1906.

The First Harvey Society Lecture.

The first of the third series of lectures of the Harvey Society was delivered on Saturday evening, October 26, in the large hall of the Academy of Medicine. The speaker, Professor E. O. Jordan of the University of Chicago, took for his subject "Problems of Sanitation." He began by reading a description of London twenty-five years ago. In this the dirty, crowded, ill-smelling streets, the dilapidated,

filthy houses, the dark and foul river which really was a monster sewer, dominated the picture. And yet London at this time was not the worst of the large cities. It was noteworthy that the severest criticisms made of the civilization of the nineteenth century related to questions of sanitation, of public hygiene. Even at that time, however, there was a marked improvement over conditions in the middle ages. The conditions then were almost incredible. Filth was everywhere, and was not even remarked. The personal habits of the people were filthy in the extreme. The streets were littered with rubbish of all kinds, with dead animals, garbage, and human excrement. And the death rates corresponded to these conditions. But as death and disease were regarded as the consequence of sin they were not thought capable of being diminished. Not until a scientific basis for the origin of infectious diseases was given by the germ theory did the views concerning disease and death change.

The campaign against disease could be carried on in various ways. Thus a great deal could no doubt be accomplished by individual nursing, by proper medical attendance, good food, etc. This had done in the past and would do in the future. As a mass method, however, it was not to be compared with the measures which we know under the head of preventive medicine. There were two classes of measures in the prevention of disease: (1) those dealing with the well-being of the individual and (2) those dealing with environmental conditions. *Personal* hygiene had necessarily to be largely a matter of education. It was therefore always a slow process. In connection with *public* hygiene it was well to remember that a stream could not rise higher than its source and that the demands should not be too great. Public hygiene should seek to provide for a group of individuals those conditions which the most intelligent of the group would himself choose.

It was instructive to note the relative frequency of certain causes of death, to get an idea as to what had been accomplished. The speaker then exhibited a table showing the order of the causes of death in Massachusetts in 1856 and 1904. In the former period consumption was first, scarlet fever next, typhoid fever came sixth, and dysentery seventh. In 1904 consumption had moved to second place, scarlet fever to twenty-first, typhoid fever to thirteenth, and dysentery to seventeenth. It was notable that the infectious diseases had so well receded. This was undoubtedly due largely to progress in public hygiene. This point was particularly well shown by the statistics of typhoid fever in Lawrence and in Albany. In both these towns there had been a marked decrease in the typhoid mortality since the installation of filters for the public water supply.

But we should not look to the achievements of the past; our concern was what to do for the future. In many instances there was still need for more thorough information. Thus in the case of typhoid it was seen that the mortalities from this disease were still much higher in this country than in Europe. This could be seen from the table. This showed the death rate from typhoid fever in certain cities:

New York	1.44		
Chicago	2.47	Hamburg	0.56
Boston	2.78	Berlin	0.43
Cincinnati	2.68	London	1.23
Lawrence	3.00		

The mortalities might therefore be called the "residual typhoid" mortalities. This residual typhoid was due to milk, flies, oysters, shallow wells, direct contact, and to bacilli carriers. An instance of this kind of infection was furnished by the experience of the city of Washington. Here an elaborate filter was installed in the water system in November, 1905. This was followed in 1906 by a higher typhoid death rate than in either of the preceding three years. So there was still considerable to learn in this disease.

In the summer diarrheas of infancy we had no doubt accomplished something by urging the advantages of pure milk and fresh air. But we did not know to what extent domestic infection was a factor. And what was the next step to be? Were we to work for certified milk conditions, or were we to pasteurize? In this connection the speaker called attention to the unreliability of many statistics on infant mortality. These were not accurate unless the birth rates were accurately known. It was notorious that in this country birth statistics were extremely unreliable. Two towns in Europe were compared. In these the infant mortalities calculated on the total population or on the total death rate gave figures that exactly reversed the conditions actually existing in the towns as shown by the calculations based on the birth rate. According to Newman, the infant mortality in England and Wales had not appreciably decreased in the past two decades. In this country both Boston and New York showed marked declines in deaths in infancy.

However, it was gratifying to know that the campaign of education was well under way. And in the gradual suppression of tuberculosis it had already achieved a great measure of success. The field of public hygiene was also becoming broader. At the present time we were still handling certain problems in too amateurish a way. Thus we should take more cognizance of dust and smoke in cities as they affect the respiratory organs, of noises and their effect on the nervous system; and violence still claimed far too many victims. The time was ripe also for dealing with dangerous trades, and with the dangers in shops from machinery generally. The employers should be made to realize that such action was not only more humane, but was far less expensive than the present system. In factories the cost of the slight modifications of the machinery to make them far more safe to handle was really trifling. In England twenty-four industries were recognized by law as being dangerous trades; in Germany their number was fifteen.

The public was gradually awaking to a realization of the fact that the public health is a matter of paramount importance. Unfortunately, it was still unable to appreciate that the service should be far better recompensed than it now is. Public health service should be made a distinct career, and should be made attractive to the right sort of men. The medical schools at the present time made too little provision for this branch of medicine, and yet it was fully as important as curative medicine, if not more so. It was to the everlasting credit of the medical profession that it did not falter when it came to the eradication of diseases, even though this meant fewer patients for the practitioner. The speaker said that the medical schools in connection with our large universities should combine courses in the medical school with courses in the engineering school, and so thoroughly equip men for a career in public health work.

At the conclusion of the address a vote of thanks to the speaker was moved by Dr. W. H. Park, after which the chairman announced the next lecture in the course, "The Etiology of Tumors," to be delivered by Prof. James Ewing of Cornell Medical School, November 16.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

SIR SAMUEL WILKS AT GUY'S—THE KING'S SANATORIUM—THE NORMAN KERR MEMORIAL LECTURE—VIVISECTION REPORT, MR. COLERIDGE'S TRUTH—MEDICAL EXHIBITION—OBITUARY.

LONDON, October 11, 1907.

SIR SAMUEL WILKS, to the great delight of Guy's men, presided last Friday at the annual meeting of the Guy's Student's Physical Society. An address was delivered by Dr. G. A. Gibson of Edinburgh, in which he discussed the theories of Addison's disease. The facts, he said, showed a certain variability of clinical phenomena, and it seemed probable that a classification of the types might shortly be established. Recent investigations rendered it almost certain that the disease was due to a lack of internal secretion. The conception of the disease by the great man whose name had been fixed upon it was, from a clinical standpoint, almost complete. But the pathological explanation, which was long thought final, had been modified by changing currents of thought.

Sir Samuel Wilks proposed a vote of thanks and commented with his usual perspicacity on some of the points in the lecture, mentioning that it was Trousseau who proposed the name of "Addison's disease," and relating how Addison was able to refute the early objection of only "coincidence." Referring to blood pressure, he remarked that those who devoted attention to it should not forget the factor of the rapidity of the blood stream, for the pressure was really greater when the stream was slow. He thought there were more deaths from hemoptysis and cardiac disease at night, when the patients were lying down, than in the day, when they were erect and going about. The vote was carried by acclamation and in acknowledging it Dr. Gibson remarked that in examination of football players before and after playing the blood pressure had always been found to have fallen after the game. Speaking afterwards to a vote of thanks to Sir S. Wilks for presiding, Dr. Gibson applied to him the lines of Oliver Wendell Holmes:

> "For him in vain the envious seasons roll
> Who holds eternal summer in his soul."

The King's Sanatorium has now been open for more than a year and some details of the working have been made public. You will remember that it is due to the munificence of Sir E. Cassel, who presented the King with £200,000 to devote to such objects of philanthropy as His Majesty pleased. The King determined on a sanatorium for the accommodation of persons of slender means, in professional or other employments for which no provision existed. The purpose has been accomplished and persons of these classes attacked by phthisis have been treated with such success that they have returned to their ordinary avocations greatly benefited

The situation of the sanatorium is an ideal one and the building and its equipment are in accordance with the latest views on tuberculosis. Every person employed is periodically examined and the weight and state of health recorded. Patients are called at 7:30 A.M. and are on their balconies by 9:30 to see the medical officer and take his instructions as to their day's exercises. From 12 to 1 rest is compulsory. Luncheon follows and two hours' exercise after it—generally walking. Tea at 4 to those who like it. Then recreation with rest from 6 to 7 o'clock, followed by dinner at a quarter past, and bed at 9:30. As a rule, the patients eat as appetite may tempt them—no overfeeding being in favor—and indigestion does not seem so troublesome as in the other plan, so much favored in Germany. The patients usually have a better appetite after a week or two's sojourn and begin to put on weight—in some cases quite rapidly. Out of 206 patients discharged up to last month, 120 had returned to work and 16 died, while 59 reported that they were continuing the treatment. There is a research laboratory attached to the sanatorium, to which one may look for valuable investigations and records.

The Norman Kerr memorial lecture was delivered on Tuesday evening by Dr. R. W. Branthwaite, Inspector under the Inebriates Act. He stated that after 25 years' study of the subject he had come to the conclusion that inebriety is due to some inherent defect in the mental mechanism, mostly congenital but sometimes more or less acquired. This defect is brought into prominence by alcohol, apart from which it might remain hidden. He regarded it as doubtful whether habitual inebriety is ever really acquired in the absence of any pre-existing defect. "I am very skeptical indeed," he said, " as to the probability of any normally constituted individual becoming a habitual drunkard, even if he permits himself to indulge occasionally in a fair measure of careless drinking, without the intervention of nerve shock or other influence sufficiently potent to disturb the equilibrium of nervous and mental mechanism." The lecturer proceeded to state that out of 2,277 admissions to State and certified inebriate reformatories 62 per cent. were proved to be either insane or defective in varying degree and only a little over 37 per cent. could be described as of average mental capacity. As to the insane, he was satisfied that the majority had become alcoholics because of their tendency to insanity, not as a result of alcoholism, the preceding drunkenness being premonitory of the coming mental disorder. In the other class, the mentally defective, physical signs of arrested or distorted development were present and such cases always gave evidence of imperfectly developed moral sense and control over impulse, as well as defective judgment. Even those inmates classified as "of average mental capacity" could not be considered as entirely reformable; everything depended on the degree of defect. As to treatment, Dr. Branthwaite said influences on the moral resolution are useless unless the mental condition approaches the normal. Drugs are of extreme value to relieve symptoms during the transition from long-continued drunkenness to enforced sobriety. As to control, it was too often delayed too long; it should be resorted to before the defect is increased by degeneracy. Legislation, the lecturer said, had only partly achieved its purpose of substituting reformatory for prison treatment. Until this is further accomplished the Act will not be obtained. Earlier control is wanted without regard to the patient's opinion. The principle of guardianship, adopted in some countries, might be tried in England, and if that failed there should be power for compulsory committal to reformatories on certificate and evidence.

A third volume of minutes of evidence has been issued by the Royal Commission on Vivisection. This includes 12 days' sittings, and various witnesses were examined. Much of it is rather dull, but the sensational papers attach importance to the statements of Mr. Stephen Coleridge, who was under examination for three days and formulated twelve charges against the Home Office as to its administration of the Act. Now Mr. Coleridge has prated so much of the ethical and moral view that you might suppose him to be a person with a very sensitive conscience. Asked if he would accept inspection by a person of character, he said: "Certainly not; all these experimenters have the greatest contempt for the Act of Parliament. They deny a breach of the Act just as I do of the Motor Car Act. I drive a car, and when I go beyond the speed limit and a policeman asks me, I say no, I am not. Nothing will keep me from going beyond the limit except a policeman in the car and nothing will keep an experimenter within the Act except the inspector in his laboratory." Surely, said the questioner, if you gave your word you would not expect to be disbelieved? "I do not say so," he said. Lord Lelby observed, "You are not very ethical about motor cars," to which he retorted, "Vivisectors regard the Act in the same way." No doubt they will feel obliged to him for the comparison. But he has now revealed what credit is to be attached to his word when he describes the horrors he is paid to circulate by weaker people with more regard for truth.

The third Medical Exhibition organized by the *British and Colonial Druggist* was opened on Monday and closes this evening. Its success seems to have exceeded that of last year, when nearly 5,000 medical men visited the display. A commendable point in the administration is that it is only for medical men, and in order to keep it so those who receive invitations and are unable to attend are asked to destroy their ticket. Drugs, medical, and surgical appliances, and whatever is designed to add to the comfort of invalids, are found in the exhibition. Beds, chairs, couches, and other furniture of the latest designs are well worth inspection. The proprietors of the *Druggist* do the thing uncommonly well, even to providing a band and refreshments.

A committee of inquiry into the management of the Donegal asylum reports that an inmate confined there had been dealing in sheep, had hired land for grazing them, and is now the owner of a number of sheep kept on the said land. The report adds that the asylum attendants had hired land from this inmate for grazing their own sheep and that at frequent intervals the inmate had been allowed to go out to transact business at fairs in charge of attendants who were interested with him in sheep dealing. He had received a telegram of a sale in the asylum and been paid in the grounds by a purchaser. The committee recommended that his profits should be applied to the cost of his maintenance and a special meeting is to be called to consider the report.

Dr. George F. Elliott died on Sunday, aged 73. He was Consulting Physician to the Hull Royal Infirmary, in connection with which he worked for some 35 years, lecturing

also in the School on Practice of Medicine. He qualified in 1855, B.A. and M.B., Dublin, proceeded to the M.D. in 1866, and the next year obtained the M.D., Oxford. In 1875 he joined the London College of Physicians as a member and was elected to the Fellowship in 1883. In early life he served in the navy and was present during the blockade of the Baltic in the Russian war and also at the taking of the Taker forts.

Dr. John S. Nairne, F.R.C.S. and Consulting Surgeon to the Glasgow Women's Hospital, died on the 8th of September, aged 61. He was the father of the Glasgow Obstetrical Society, a far-seeing clinical observer, and skillful surgeon. He was, too, a scholar of great attainments. On retiring from active work a year ago he received a handsome testimonial from the community he had served through his life.

THE WINDOW TENT.

To the Editor of the Medical Record:

Sir:—The writer invented the window tent, but never used his name with it in print, and took out no patents on it. The name was suggested by some enthusiastic open-air advocates of Boston, who, with the writer's consent, used the affair in incurable consumption. They gave the writer a statement crediting him with the invention, and recently turned over to him complete records of thirty cases of confirmed phthisis, who, in the summer of 1901, were instructed in the use of the window tent. The window tent and its use were for the first time described in print in the Boston *Journal* and in the New York *World*, October 20, 1901, when the previous summer's use of the window tent was illustrated and described at length and in detail, without using anybody's name. While there is difference between inventing and creating, on the one hand, and copying and improving, on the other, the additions and improvements to the window tent, made in New England, the West, and New York, where invention is seemingly claimed, are both ingenious and philanthropic, and deserve universal vogue and commendation. This work has been done far better, I believe, than I ever could have hoped to accomplish it. Norburne B. Jenkins, M.D.

New York.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 17, 1907.

Treatment of Simple Infections of the Staphylococcus with the "Vaccines of Wright."—This paper, by H. F. Hartwell and R. I. Lee, presents the results of work done in the Pathological Laboratory of the Massachusetts General Hospital. The authors find that while in general the vaccine treatment is a very complicated process, it can be utilized in a simple manner in localized surface infections such as boils, carbuncles, and septic wounds. In practically all such cases it is fair to assume, say the authors, that the inoculating organism is the *Staphylococcus aureus*. It is not necessary to prepare the vaccine from the identical organism of the given case, but equally good results follow its preparation from a vaccine of the *S. aureus* from any source, practically a stock vaccine. Acting on this principle and basing their views on the results obtained in about 100 cases, they offer the following conclusions: (1) Treatment with vaccines is the most effectual treatment for boils and carbuncles. (2) Although the vaccine treatment does not prevent recurrence, cases of chronic furunculosis can be absolutely controlled by occasional inoculations. (3) Vaccine treatment is a valuable surgical adjunct in appropriate cases. (4) The treatment of this class of cases can be successfully carried out without the estimation of the opsonic index and without any special technical training.

New York Medical Journal, October 19, 1907.

A Contribution to Heredosyphilology.—R. W. Taylor contributes the history for a series of cases occurring in the same family, involving twelve individuals and extending over a period of 37 years. The salient points in the cases are the following: (1) The seeming benignancy of syphilis in the father and its malignancy and inveteracy in the mother. (2) The synchronous development of similar specific osseous lesions in two sisters, one a heredosyphilitic, the other a hitherto healthy child. (3) The evident effect of treatment of the mother upon gestation; death ensuing in two children when it was neglected, and seeming immunity being conferred when it was persisted in. (4) The development at the age of thirty of classical hereditary lesions, without antecedent manifestations on the subject, in whom there was no infection by the acquired disease. (5) The apparent escape of four successive children while the mother presented mild, sparse gummatous lesions which were moderately well treated. (6) The evolution of specific manifestations at the eighth and the sixteenth year in the last and tenth child, *K.*, who otherwise had been without a blemish during life, and had never had the acquired disease. The author says that these cases suggest the serious inquiry as to the ultimate fate of the survivors who seem to be in robust health and have never shown a blemish and to the ultimate condition of their progeny and adds that the facts he has narrated with reference to this particular family circle impressively emphasize the urgent need for active, prolonged medication of the syphilitic mother and father. These sources of disease and race deterioration should be more generally and thoroughly investigated and treated, he says, than they have been in the past.

Prophylaxis of Tropical Disease.—J. H. White of the Marine Hospital Service discusses this question with reference to leprosy, plague, and yellow fever, detailing under each heading what have been found to be the most practical and efficient means of checking epidemics. Concerning yellow fever he says that we now know positively the following facts about the stegomyia mosquito: (1) It generally breeds in artificial containers. (2) It prefers clean water, although under compulsion, that is to say, in the absence of clean water, it may even utilize a cesspool. (3) It has been classed as a really domesticated animal, and is distinctly a house mosquito that cannot stand the glare of the sun. (4) It thrives best in a humid climate. (5) It has no inclination to travel, and, while undeniably doing so, it is always as a matter of accident, its migrations, as a rule, being limited to feet rather than to miles. (6) It is almost certainly an exotic, and ought to be with absolute certainty, an exile. But in spite of all our knowledge and the various prophylactic measures thereby suggested, outbreaks of the disease will occur and the origin of many cases is obscured. Then we must have a thorough organization from sanitary forces, etc., essential features of which are (1) A central office in touch with all parts and provided with a perfect record system so that every detail may be referred to at a moment's notice. (2) Division officers under the command of competent executives to personally direct the work and provided with a force of intelligent workers sufficient in number to cover the division fully at least once a week. (3) A school of instruction in detail work of mosquito destruction. (4) All employees should be trained to act in squads of three or four, and the proportion of untrained to trained men in any squad should, so far as possible, be held down to one in three, and in this kind of work more than in any other known to me, the master's hand must be ever on the helm. The division chief must be sleepless in his vigilance, for nothing short of absolute efficiency will attain, promptly, the end in view. The latter part of the paper elaborates the working details of such an organization.

The Differential Diagnosis Between Chronic and Recently Acquired Herniæ from a Medicolegal Standpoint.—H. J. Butte points out some of the distinguishing features between old and recent herniæ. These concern the shape and consistency of the sac, the pigmented appearance of the hernial surface in the older cases, the size and shape of the ring, reducibility, pressure, or absence of acute inflammation, size and shape of the inguinal canal, presence or absence of truss marks, the fact that when a truss has been worn for a long time the pubic hairs are matted down, curled up, or worn off to a considerable extent, due to mechanical pressure and function, the relaxed pouch in old scrotal herniæ the frequent failure of trusses to hold chronic herniæ in place, and the constitutional symptoms such as nausea, vomiting, etc., which often follow recently acquired herniæ, the result of traumatism. At the end of his paper he summarizes in parallel columns the respective features of recently acquired and chronic herniæ.

Journal of the American Medical Association, October 26, 1907.

Epidemic Acute Poliomyelitis in Norway.—F. Harbitz and O. Scheel gives an account of an epidemic of acute poliomyelitis occurring in Norway in the years 1903-6, with special reference to the nature and pathology of the disorder. In 1905-6 a total of 1,053 cases was reported, with 145 deaths, or 13.8 per cent. Both adults and children were affected, the latter chiefly. The mortality was high in some districts, very slight in others. While most of the cases were followed by the usual paralysis, some were very mild and otherwise atypical,

but the morbid process was probably the same. There was some evidence pointing to contagion in some cases, and the disease seemed to leave a certain immunity. The authors have had opportunity to examine necropsy material from nineteen cases. Aside from the central nervous system, the findings were in all essentials negative. As regards the nervous system, they summarize their conclusions as follows: "In a severe or fatal case of acute poliomyelitis we, as a rule, have before us a diffuse inflammation of the entire cord with its pia mater, of the entire medulla oblongata and pons, of the basal ganglia and often also of the cortex of the brain to a greater or less extent, always in connection with a similar inflammation in the pia mater." They examined also four milder cases in which the patients had died of complications during the stage of repair; and in these cases by the use of special methods they were able to demonstrate the existence of degenerated conditions in the central nervous system greater than they had expected to find. The common character of the pathological process in cases clinically resembling Landry's paralysis, bulbar paralysis, and localized myelitis was also made evident in their examinations. As regards multiple neuritis in these cases their findings were negative, only what must be regarded as secondary changes being found in the peripheral nerves. A case of what was clinically meningoencephalitis occurring with this epidemic showed similar pathological anatomic conditions. Their investigations furnished no evidence of any relationship between this disease and cerebrospinal meningitis. They consider that there is no question but that acute poliomyelitis is an infectious disease dependent on a specific microorganism. This is true at least of the epidemic cases. The diplococcus described by Giersvold was found in the cerebrospinal fluid in three of their cases, but was lacking in the majority. While they cannot speak definitely as to its specificity, they think it demands further investigation. It is evidently an organism difficult to demonstrate; it seems to die rapidly, and experience shows that microorganisms soon disappear in the nervous system. It is their belief that poliomyelitis is due to the direct action of some germ, and many facts favor the assumption that the atrium of infection is in the digestive tract, the nervous system becoming involved through the lymph stream along vessels and nerve trunks or through the blood.

Scarlatina and Dukes' Disease.—A. C. Cotton notices the slowness of acceptance of Dukes' disease as a clinical entity by the medical profession. While all admit the occurrence of cases hard to place and of too frequent apparent exceptions to the law of immunity governing the contagious exanthemata, the skeptics insist that the clinical evidence is yet insufficient to prove the real existence of the fourth disease. Cotton gives a summary of the symptoms of Dukes' disease as he understands it. It is differentiated from scarlatina by: 1, Long period of incubation; 2, absence of initial vomiting; 3, moderate fever of brief duration; 4, normal ratio of pulse to temperature; 5, absence of characteristic scarlatinal tongue; 6, the absence of, or if present, the fine character of desquamation; 7, the freedom of sequelæ; 8, probably the absence of leucocytosis. When one or more cases of apparent mild scarlet fever occur in a family giving a clear history of former attacks of scarlet fever, Dukes' disease may be suspected. There were but few cases of rubella, as we understand that disease. Cotton is confident that the health department reports represent less than one-fourth of the epidemic. Twenty-four physicians personally interviewed admitted having had 478 cases, though reporting only 117, the others being diagnosable only as suspicious.

Medical Treatment of Cholelithiasis.—G. Dock says that two things have contributed to put the treatment of cholelithiasis on a certain basis: First, Naunyn's demonstration that gallstones are chiefly due to infection and stagnation of bile, supplemented by Kramer's experiments showing that the colon and typhoid bacilli precipitate bile in the test tube, and, second, the revelations of the actual conditions by surgeons. Preventive measures consist in regular healthful habits as to diet, regulation of the bowels, moderate exercise, avoidance of tight clothing and anything that can cause congestion of the portal circulation. Systematic deep breathing is perhaps useful in overcoming such congestions. Among drugs, salicylates are probably of definite value as disinfectants and cholagogues, but they should be watched and stopped if undesirable effects appear. The presence of the stone is less important than the existence of the infection, and the therapeutic problem is not to lessen pain so much as to lessen inflammation and the attendant risks. The majority of the cases, in the attack, are not surgical, but they should be viewed with a surgical eye, and if the physician is unable to do this he should have a surgeon's cooperation. For the attack, anodynes to relieve pain, but not entirely to becloud the clinical picture, are advised. Local hot applications and the hot full bath are useful, but copious washing of the stomach with hot water or hot Carlsbad water is better. Rest so far as possible and movements of the bowels should be encouraged. The after-treatment depends on the suspected conditions in the biliary tract, and after the acute symptoms have passed especial attention should be given to the occurrence of bile in the urine or stools, leucocytosis, etc. The passage of gallstones out through the common duct is a comparatively rare event and in many cases in which this is supposed to have been the case perforation has actually occurred. Perforation can easily happen in the severer attacks of bilious colic, but it sometimes occurs with symptoms so mild as to be overlooked at the time and only discovered by operation or autopsy. Olive oil may possibly be of some service in reducing gastric hyperacidity and hypermotility, thus improving intestinal digestion and relieving some of the symptoms.

Congenital Squint.—W. C. Posey remarks that it is doubtful whether or not a distinct discrimination is always made between congenital and concomitant squint. The usual diagnostic point of difference, the limitation of the movements of an eye, is not always easily detected in young children, and when seen may be referred to a postnatal cause. It is only after the visual centers begin to be educated that the flaw in the mechanism becomes manifest, moreover, actual paralysis may not appear until the demand on the defective cerebral center has begun to impair its function. There are, however, other signs that can aid the diagnosis, and among these he mentions the inequality of the primary and secondary deviations, the absence of involvement of the iris and ciliary body in congenital palsies, and the reaction of degeneration in the levator in acquired cases in which ptosis is present, the detection of nystagmus in congenital squint, etc. The centers, or peripheral, as in case of muscular abnormality or orbital malformation. Heredity plays a large part, and the defect is especially frequent in Jews. The types of deviation in congenital squint are manifold, as is shown in seventy cases briefly reported in the paper. A not uncommon type is divergence of the visual axes, and there is frequently an anatomic basis in divergent orbits or some abnormality of muscular insertion. A summary of the types in the seventy cases is given, and the author insists on the importance of the early recognition of this abnormality, not only on account of the ocular defect, but also because of its significance as a symptom of possible obscure central nervous defect. The treatment is necessarily quite different from that of concomitant squint, no orthoptic exercises are of any use, operation is the only recourse, and this often presents great difficulties. The case should be studied in every detail and the ordinary rules may have to be abandoned. A single operation is seldom sufficient, tenotomy of one or more muscles and advancement of associates will usually have to be performed. The article is fully illustrated.

The Lancet, October 12, 1907.

Vincent's Angina Involving the Larynx and Trachea.—H. W. Bruce reports the case of a man of 47 years with a purpuric rash, mainly on the lower extremities for some five days, with a bloody diarrhea. He did not complain of his throat, but on the day after admission to hospital his respiration suddenly became obstructed and a laryngotomy was necessary. Subsequent examination of the throat revealed a sloughing uvula and a soft palate typical of Vincent's angina. Culture tests confirmed the diagnosis. The laryngotomy tube was retained for four days. Meanwhile there was considerable cough and expectoration and a very foul discharge from the tube. The tissues of the neck about the wound became swollen and indurated and in two or three days began to slough. A gangrenous process spread downwards and outwards on both sides of the neck, on the left side as low as the clavicle. It then stopped spreading and a sharp line of demarcation from the neighboring tissues began to form. Signs of pulmonary involvement soon appeared and the man died in a septic condition on the eleventh day. Autopsy showed the uvula nearly separated by the sloughing process. The lateral edges of the epiglottis and the edges of the ary-epiglottic folds were covered with a superficial green slough. The laryngeal mucosa below the false cords and of the trachea nearly down to the

bifurcation were in the same condition. Several of the tracheal rings were bound by the same necrotic process. A diffuse bronchopneumonia was found in the lungs. The lesions in general resembled those of hospital gangrene. The process in the neck was doubtless secondary to that in the respiratory tract and resulted in direct infection of the laryngotomy wound by the laryngeal and trachial discharges.

Fatal Case of Angioneurotic Edema.—The patient of H. Bazett was a poorly nourished man of 33 years who was found dead from suffocation on the physician's arrival. It was learned that he had had scarlatina at the age of six years and had thereafter been subject to frequent attacks of violent abdominal colic, lasting sometimes for nearly 24 hours. Associated with them, though never apparently synchronous, occurred sudden swellings of various parts of the body—hands, thighs, and scrotum. These swellings were apparently induced by slight injuries or chills. In childhood they had attacked the face and throat but never since. No medicine had been of any avail. In the final attack swelling began after the skillful extraction of a bicuspid tooth with an apparently healthy gum. In twelve hours the cheek began to swell on that side, the swelling extending over the face and eyelids. Toward night of the same day the neck began to swell and then the throat. During that same night he awoke choking, sprang up, and tried to clear his throat with his finger, but died in the suffocating attack. A diagnosis of angioneurotic edema was made by the reporter and was concurred in by several physicians who saw the case. There was no family history pointing to any hereditary influence. Autopsy, 42 hours after death, showed some edema of the larynx on the ary-epiglottic folds. Immediately after death the structures around the faucial aperture were swollen and this swelling increased during the 24 hours succeeding death, but had nearly disappeared by the time the autopsy was made.

Influence of Diet on the Liver.—C. Watson details the results of two series of observations. One experiment consisted in feeding a large number of rats on an exclusive ox-flesh diet, this being essentially a mixed diet of protein and fats. In this experiment it was observed that the percentage weight of the liver in meat-fed rats was, as a rule, considerably greater than in the control bread-and-milk fed subjects, the difference being such as could not readily be explained by mere variation in the blood-supply of the organ. An objection may be raised that the use of an exclusive flesh diet is too unnatural a régime to allow any deductions to be drawn which can be applied to conditions obtaining in man. To meet this objection attention is therefore more particularly directed to the detailed results of a second series of observations, which consisted in comparing the percentage weight of liver tissue in wild rats living, it is assumed, on a highly nitrogenous dietary with those of an equal series of animals obtained chiefly from the same source which were fed on a diet of bread and milk in fixed proportions, a diet which contained a much smaller proportion of nitrogenous food. This diet of bread and milk is one which has been proved to be well adapted for the growth, general health, and fertility of the ordinary tame rat.

British Medical Journal, October 12, 1907.

What Can the Family Doctor Do for the Inebriate? J. S. Bolton would begin the treatment of alcoholism with a hypodermic dose of apomorphine, even if the patient is delirious. He will quiet down and go to sleep with perhaps antecedent vomiting. The next step is to determine whether the man wants to give up alcohol or simply to get straightened out. Patients cannot be cured against their will, but sometimes new hope may be put into them and they can be shown that a permanent cure is perfectly possible. Combinations of atropine and strychnine may now be used, also hypodermically, two or three times daily. For a stomachic capsicum and cinchona tinctures are recommended, preceded if necessary by a calomel purge. Albuminuria is no contraindication of the foregoing. In fact, the urine often clears up under the treatment. As the general condition improves the frequency of the injections should be lessened. Depression and despair pass away. The nerves are steadied and appetite returns. It is needless to say that such a treatment can be carried out only under strict regular medical supervision. The patient must be warned against overconfidence. If he becomes restless he should at once submit to a brief renewal of treatment. A relapse is not more difficult to treat than any original attack. Old, harmful associations must be broken up and the mind and body both occupied in useful work and healthy recreation.

Malignant Disease of the Cecum Rendering an Inguinal Hernia Irreducible.—The patient of C. T. Plowright was a man of 57 years, with an irreducible hernia of long standing in the left side and causing him considerable pain. On the right side was a reducible complete inguinal hernia. After a week of palliative treatment without result, the sac was opened and was found to contain a loop of large intestine markedly adherent to the sac. On freeing the gut a hard mass of malignant disease was found in the concavity of the loop, and in the center of this mass a small abscess cavity containing 2 or 3 drams of foul, appendix-abscess-like pus; this was evacuated, and the loop of intestine was excised, together with about 2½ inches of healthy gut on each side of the growth. The cut ends of the intestine were fixed in the original incision in the inguinal canal, an end-to-end anastomosis not being considered advisable, owing to the presence of the pus. The patient made an uneventful recovery. The colotomy opening so formed was only meant as a temporary measure, but the patient having been fitted with a double inguinal truss, the pad on the left side being replaced by a cup-shaped receiver for the feces, found that he could get about his work all day without any inconvenience and refused to have an end-to-end anastomosis done. One year after the operation he had gained weight, the colotomy wound was healthy and there was no evidence of secondary deposits in the liver. The mass removed represented one foot of large intestine with a growth involving the central six inches and at one point protruding into the hernia. The center of the growth contained a necrotic area. Diagnosis by the microscope was a columnar carcinoma.

Modification of Leishman's Method of Estimating the Opsonic Index.—H. B. Dodds after experiments with blood and citrated emulsion of tubercle bacilli, said the results showed marked discrepancies between the Wright and Leishman methods, a normal index working out, for instance, to 2.0 or to 0.5, and seldom exactly to 1.0. After trials in various directions it appeared that the inconstant factor vitiating results was the differing number of leucocytes in the respective bloods. Counts of the leucocytes, estimations of the index by Wright's and by Leishman's method modified, were then made, and it was found that the figures, expressing the index by Leishman's method and the number of leucocytes, varied inversely, the emulsion being constant. By a simple formula, based on the above proposition, several apparent indices were corrected, and were then found to agree closely with those estimated by Wright's method; but still discrepancies occurred, and for the following reason: It is usually convenient to obtain blood by the pressure of an elastic or other band; if the same drop of blood thus obtained is used both for the index and leucocyte count, good results are produced. But this needs agility, and in practice would require an assistant. If different drops of blood are used, the hemocytometer and incubation pipettes may contain differing numbers of leucocytes; it is inconvenient to get blood without pressure, as a deep puncture has then to be made, possibly daily. Finally, a simple plan was hit upon; after mixing blood direct from the finger—under any pressure, with the bacillary emulsion, the number of leucocytes in the mixture itself was counted, either before or after incubation, each batch being done in the same way. For this the red blood corpuscle pipette serves, and the process is more rapid if there is one for each blood; but any pipette and any dilution desired may be used by drawing up successive volumes of the mixture and diluent as recommended by Wright. After using a drop or two to make a film the mixture is kept in its capillary tube till required for the leucocyte count. The total number of leucocytes need not be estimated, the figure expressing the average for the fields sufficing. A fallacy exists that the phagocytes are not in constant proportion to the total number of leucocytes. The actual modification of Leishman's method is very simple. The capillary pipette is that in ordinary use; it is convenient to make a bend in it 2 to 3 inches from its distal end. A rubber tube, as in the hemocytometer pipette, is easier to manage than a rubber teat, or a Wright's throttled pipette may be used. A mark is made above the bend, giving a long column of blood and emulsion, making for greater accuracy of dilution and providing enough of the mixture for its two purposes—namely, for making a film and for leucocyte count. The emulsion consists of (tubercle) bacilli suspended in citrated normal saline—say, 0.75 per cent. each of sodium citrate and sodium chloride. This emulsion is sucked up to the mark above the bend; it will be found that it is difficult or impossible to do this with a rubber teat owing to fluidity of the emulsion (unless a throttled pipette be used). The pipette may now be laid down, and the column of emulsion will be found to stay steady while a puncture is made in the finger. A short column of air having been

taken up, a column of perfectly fresh uncoagulated blood is aspirated to the mark, and the whole rapidly blown out on to a glass slide, so that the citrate may at once act on the blood and so prevent coagulation; this is not so efficiently done if blood is taken up first. The two fluids are then mixed, aspirated, sealed, and incubated, unless a portion be reserved for the leucocyte count. The films are made in the usual way, by blowing out and mixing before spreading; this remixing is important if the estimation of the leucocytes is made after incubation. The film need not be fixed before staining with carbol fuchsin; the index is calculated in the usual way. To correct the apparent index, multiply the control index by its corresponding number of leucocytes and divide the result into the other index multiplied by its corresponding number of leucocytes.

Deutsche medizinische Wochenschrift, September 26 and October 3 and 10, 1907.

The Ocular Diagnosis of Typhoid Fever.—Chantemesse describes a method of obtaining an ocular reaction to typhoid toxin somewhat similar to the conjunctival reaction occurring in tuberculosis. To prepare the necessary reagent typhoid cultures are sterilized at 60° C., the bodies of the bacilli are dried in vacuo, and are then triturated for several hours in an agate mortar. The watery extract of the resulting powder is heated to 60° and the clear liquid is poured into an excess of absolute alcohol. The resulting precipitate is dried in vacuo, and to perform the test 8 to 10 mg. of the powder so obtained is dissolved in a cubic centimeter of water. One drop of this fluid is placed in the lower conjunctival sac of the patient and if the case is one of typhoid infection in a few hours a local reaction appears characterized by redness, a sensation of burning, lacrymation, and a small amount of fibrinous exudate. The intensity of the reaction is subject to the individual idiosyncrasies of the patients and to the amount of toxin applied. In persons not suffering from typhoid fever little or no reaction follows, whereas if the disease is present the local symptoms are very pronounced, and what is especially characteristic, persist for from one to three days. The author states that in 200 applications no unpleasant sequelæ resulted. In testing fifty nontyphoid patients no positive results were obtained, whereas in seventy cases of the disease the result was positive. In a number of instances the ocular reaction was obtained at an earlier stage of the disease than the agglutination reaction.

The Dissemination of Typhoid Fever by Bacilli Carriers.—Kossel says that it has been found that not only do persons who have once suffered from typhoid sometimes continue for a very long time to throw off bacilli in their stools, but even individuals who apparently have never had the disease but who have been in proximity to a typhoid fever patient may excrete the organisms in the feces or urine. This state of affairs apparently may go on for years so that these individuals may during whole decades or even their entire lives be a source of danger to their environment. The habitat of the organisms in these cases is supposed to be the gall-bladder which continually reinfects the intestinal contents. Kossel describes in detail several small epidemics of the disease apparently due to an individual of this description who was employed in a dairy supplying milk to the city in which the epidemics in question occurred.

Echinococcus of the Optic Nerve.— Papaioannou says that echinococcus is not at all uncommon in Greece owing to the fact that most of the peasants live in a manner that predisposes to the disease. Many of them are shepherds who live in close association with their dogs, and the wells and springs that supply drinking water are also frequently sources of infection. According to the statistics gathered by the author, 72.4 per cent. of echinococcus cases in Greece affect the liver, 3.4 per cent. the spleen, 2.5 per cent. the kidney, 7.7 per cent. the peritoneum, 4.7 per cent. the lung, 1.2 per cent. the breast, .8 per cent. the orbit, 1.2 per cent. the bones, 4.7 per cent. the muscles, .4 per cent. the thyroid, and 4 per cent. the broad ligament. He describes several cases of the disease, in particular one in which the optic nerve was the seat of the cyst formation. The patient was a boy of twelve years, who six years previously had developed severe pain in the right eye, which for a time was the seat of an inflammatory condition. Vision failed rapidly and disappeared completely at the expiration of a month. On coming under the author's observation there was a pronounced exophthalmos and the pain had recommenced. The diagnosis of malignant new growth was made, but while evacuating the orbital contents the cyst burst and its true nature became apparent.

Cutaneous Inoculation with Tuberculin in Adults.—Bandler and Kreibich describe observations made on adults to determine the effectiveness of Pirquet's method of cutaneous inoculation with tuberculin. Pirquet's direction for children was to use old tuberculin diluted four times, but as the authors were dealing with adults they employed the reagent in concentrated form. The inoculation was performed by applying two to three drops of the tuberculin to the skin of the arm or the back, and then scarifying the spot by means of a lancet. The same scarification was carried out in another spot as a control without the introduction of the tuberculin. Out of thirty-seven cases in which no manifest tuberculosis existed fifteen patients gave no reaction at all at the first inoculation. On repetition of the test in two cases a weak reaction was observed. Of the remaining thirty-two cases ten gave a weak or undeterminate reaction and the other twelve gave a distinctly positive result, manifesting itself in the form of swelling and redness at the site of scarification. Another series of patients comprised individuals suffering from local cutaneous tuberculosis; out of twenty-six such cases in twenty-two a strongly positive reaction was obtained; the other four were cases of advanced miliary tuberculosis which did not give any reaction on inoculation or on the injection of tuberculin. The unresponsiveness of such patients to tuberculin has already been pointed out by various observers. The microscopic structure of the lesions produced at the site of inoculation is also described.

The Resection of Large Nerve Trunks Without Paralysis.—Roeder says that a number of instances have been reported in which the resection of peripheral nerve trunks has not been followed by the usual sequelæ. As cases of this sort are still very rare, it is advisable to collect all the evidence possible bearing on the subject. So far there is no satisfactory explanation of the occurrence. It has been suggested that, somewhat as is the case with the blood-vessels, collaterals may form and take up the function of divided nerves. Goldman believes that in cases in which the continuity of the nerves has been destroyed by neuromas, the damage to the nerve was congenital and was compensated for during intrauterine life by the development of new branches bridging the gap due to the neoplasm. In the author's own case two neuromas were removed from the upper arm and shoulder of a young woman. In order to extirpate the tumor in the former situation it was necessary to resect a portion of the ulnar nerve with which it was intimately related. It was expected that paralysis would follow, and the distal end of the nerve was grafted into the median nerve trunk, but the next day on removing the dressing it was found that the patient had perfect control of the extremity. A year later another similar but much larger growth was removed from the pelvis and in doing so the anterior crural nerve had to be sacrificed. Here again no impairment of function followed and the patient while recovering from the anesthetic moved the member in all directions. A similar observation was made in connection with the removal of a smaller growth in the neck, involving the spinal accessory nerve.

Percussion in the Treatment of Pseudarthroses.—Schäffer recommends that in cases of delayed union after fractures, owing to deficient callus formation, the bone in the neighborhood of the break be subjected to forcible percussion with the ulnar edge, of one or both hands. The blows must be more vigorous than those ordinarily employed in massage, since the intention is to induce a periostitis and so stimulate the processes of repair. In one instance in which the procedure was tried together with massage and the application of a removable dressing of water glass new union after fracture of the tibia four months previously was rendered firm in about six weeks and bony union resulted. In another similar case of eight months' duration the results were equally satisfactory, and the author thinks that the advantage that immobilization of the limb is not required during the treatment is a great point of superiority over the usual operative measures. In the first one of the author's cases the injection of blood was to have been tried and in the other wiring of the bone ends was contemplated, but these measures were rendered unnecessary in each instance. It is stated that the patients did not object to the procedure.

Sydenham Society.—News comes of the probable end of the new Sydenham Society of London, Eng., which for many years has been a publication society of leading medical men of Britain. The revenues and literary attention of the society have been given almost exclusively to translations of French, German, and Italian monographs of high character, and to richly illustrated atlases, all of which are very nice to have in one's library, but are too elaborate and expensive for practical, everyday purposes.—*Clinical Review.*

Book Reviews.

Alcohol, the Sanction for Its Use. Scientifically Established and Popularly Expounded by a Physiologist. Translated from the German of Dr. J. Starke. New York and London: G. P. Putnam's Sons, 1907.

The title of this volume is an adequate indication of its contents. The book is divided into two main parts called, respectively, Medical and Physical; and each of these consists of several chapters. The volume commences with a very useful chapter containing an epitome of the chief conclusions reached in the discussion. From this chapter we extract the following, as referring to the medical aspect of the subject: "The alcohol of alcoholic drinks does *not* of itself possess the property of inducing persons to take ever-increasing amounts. Furthermore, it is easy for any healthy person to restrict his use of alcohol within the bounds of moderation. As a rule a person comes to know well enough the amount of alcoholic drinks which is wholesome for him; therefore everybody is perfectly well aware of what is moderate and what is not. . . . 2. The moderate use of alcohol has nothing to do with drunkenness. . . . 3. The moderate use of alcohol has nothing to do with the development of any disease whatever. . . . 4. The moderate use of alcohol is for many a man of the present day a very important hygienic measure. . . . 5. The fact that the physician often interdicts alcoholic drinks in a few diseases, restricted in number and more or less severe, does not militate against the moderate use of alcohol by the public, since the same is the case with regard to other articles of food and drink which are generally harmless." The book is one that should be read by all interested in this subject, whatever their preconceived views may be; there is much in it that is of interest, and much that is likely to provoke controversy. It will serve a purpose as an antidote to some of the modern publications on the subject in which philanthropic or partisan views and assertions are more noticeable than scientific facts and reasoning.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by W. T. Longcope, M.D., Philadelphia. Vols. I and II, Seventeenth Series, 1907. Philadelphia and London: J. B. Lippincott Company, 1907.

The first two volumes of the Seventeenth Series of International Clinics do not differ materially in any respect from their predecessors, and the high excellence of the contributions continues without change. The opening article of Vol. I by L. F. Barker of Johns Hopkins is on the psychic treatment of functional neurosis. The topic is treated with the lucidity and literary finesse which are characteristic of Professor Barker. Among the other contributions we notice, as one embodying patient original research, the essay of G. W. Norris of Philadelphia on the Functional Capacity of the Heart. The author employed Katzenstein's method of investigating the functional capacity of the heart in a number of patients. An article by Theodore Diller of Pittsburg on Exhaustion and Toxemia as Underlying Factors in the Production of Neurasthenia presents the etiology of neurasthenia, hysteria, and deliriant states from the viewpoint of modern theories, and the cases reported certainly seem to offer evidence of the probable correctness of the hypothesis. An interesting article by Tuffier of Paris presents the latest experimental work in operations on the thorax in pneumatic chambers. He prefers the Brauer apparatus, but suggests for the purpose of preventing infection as well as reducing the amplitude and number of respirations the administration of air surcharged with oxygen during the operation. Dr. Hudson Makuen contributes an article on Hysterical Deaf Mutism, which very clearly and concisely develops the points of interest to practitioners in this condition. In the second volume is a still more varied array of valuable contributions on therapeutics, medicine, surgery, gynecology, pediatrics, neurology, and pathology. A brief article by R. J. Cole of Johns Hopkins on the Vaccine Treatment of Infectious Diseases will interest those who are working along the lines laid down by Sir A. E. Wright. Dr. J. M. Taylor of Philadelphia contributes a very practical and authoritatively written essay on The Management of Exhaustive States in Men, in which he describes among others Muldoon's famous system recently applied to a statesman of national fame. An excellent and very concise article on the detection of the ova of intestinal parasites in the feces by Maurice Latulle of Paris gives all that the practitioner needs to know on this subject, while that of F. P. Rous of Michigan gives a résumé of the examination of the cerebrospinal fluid. A plea for local anesthesia in operations for inguinal hernia by J. A. Bodine of New York offers much food for reflection, as it is based on a very large experience—428 operations. The gem of the collection, from the practitioner's viewpoint, is the article of Dr. J. B. De Lee of Chicago on Postpartum Hemorrhage and Its Treatment. C. D. Palmer's article on Dysmenorrhea and Its Treatment is also of practical value and replete with suggestions. These articles are merely mentioned as particularly of interest to the practitioner. The volume, however, contains much other valuable material which limited space forbids us to discuss.

A Manual of Treatment of the Diseases of Children. By W. F. Radue, M.D. Chicago: The Clinic Publishing Company, 1907.

The purpose of this book is explained by the author in the preface: "This little work was undertaken to explain, as briefly as possible, the dosimetric or alkaloidal treatment of the diseases of children; with a short description of each disease, and the usual doses of the various medicines used." No one, therefore, will mistake this volume for a work on pediatrics. Within its special therapeutic limitations it seems to be a useful book.

Modern Medicine. Its Theory and Practice in Original Contributions by American and Foreign Authors. Edited by William Osler, M.D., Regius Professor of Medicine in Oxford University, England; Honorary Professor of Medicine in the Johns Hopkins University, Baltimore; Formerly Professor of Clinical Medicine in the University of Pennsylvania, Philadelphia, and of the Institutes of Medicine in McGill University, Montreal, Canada. Assisted by Thomas McCrae, M.D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Volume II. Infectious Diseases. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1907.

The first fifty pages of the second volume of this system are devoted to an extremely readable article by Dr. Ludwig Hektoen on the general nature of the infectious diseases. This serves as an introduction to the succeeding chapters on the separate maladies, and gives a very lucid critical survey of the somewhat inchoate mass of material bearing on this subject that has accumulated during recent years. The succeeding five chapters on typhoid fever by Dr. McCrae form an interesting monograph, in which the discussion of the sociological and prophylactic problems is commendable. The complications are also described with unusual fullness and it is gratifying, in a work edited by Osler, to find over twenty pages on the subject of treatment alone. Hydrotherapy materially receives consideration at much length, and in this connection it is interesting to note the sharp distinction drawn by the author between the effect of tub baths and of the packs or sponges that are often resorted to as a substitute for the former. The tub bath is said to be quite different in results from the less active measures and actually modifies the course of the disease and wards off complications; whereas the use of packs and sponges is only symptomatic. The next two chapters on typhus and relapsing fevers are also by Dr. McCrae. Dr. W. T. Councilman contributes the article on smallpox, which includes an interesting review of the investigations on the causative agent of the disease carried out by the author and his coworkers. Vaccination is discussed by Dr. George Dock, and the next chapter on chickenpox is also by Dr. W. T. Councilman (though his initials appear here as W. F.). In the article on scarlet fever by Dr. John H. McCollom the view is expressed that the protozoon-like bodies described by Mallory in the skin of patients suffering from the disease are probably not degeneration products, but are protozoa and have an etiological relation to scarlet fever. Measles, rubella, the fourth disease, erythema infectiosum, whooping cough, and mumps have been allotted to Dr. John Ruhräh and diphtheria to Dr. McCollom. Influenza and dengue are written of by Drs. F. T. Lord and T. D. Coleman, respectively, and thirty pages on meningitis have been contributed by Dr. Henry Koplik. The chapter on erysipelas is by Dr. James M. Anders, and Drs. John H. Musser and George W. Norris are the joint authors of the three chapters on lobar pneumonia, covering 110 pages. Aerotherapy as advocated by Northrup is recommended for this disease and hydrotherapeutic measures are stated to deserve more confidence than other forms of local treatment, especially jackets and poultices, the use of which is deprecated. The chapters on toxemia, septicemia, and pyemia are the work of Dr. Richard M. Pearce, and that of acute rheumatism is by Dr. Frederick J. Poynton. Asiatic cholera is treated of by Dr. W. P. Dunbar, and the late Dr. Jas. Carroll has contributed an authoritative chapter on yellow fever. The volume closes with chapters on plague and bacillary dysentery, written by Drs. W. J. Calvert and K. Shiga, respectively.

Society Reports.

AMERICAN PUBLIC HEALTH ASSOCIATION.

Thirty-fifth Annual Meeting, Held at Atlantic City, N. J., September 30, October 1, 2, 3, and 4, 1907.

DR. DOMINGO ORVANANOA OF MEXICO, PRESIDENT, IN THE CHAIR.

The Outlook for a General System of Registration of Vital Statistics.—Dr. CRESSY L. WILBUR, Chief Statistician, Bureau of the Census, Washington, contributed a paper on this subject. The author presented a map showing the extent of the registration area in 1895 and 1907. In 1895 there were only eight registration States for deaths. In 1907 there were fifteen registration States for deaths. There were no registration States for births in 1895, and even in 1907 the registration area for births was represented by only a few interrogation marks on such States as Massachusetts, Pennsylvania, and Michigan, indicating their possible addition within a short time, owing to the operation or effective enforcement of recent legislation. Study was made of the conditions of population, as density, literacy, etc., affecting the extension of the registration area, and of the favorable and unfavorable circumstances relative to the adoption of effective laws. It was estimated that in the light of experience of slow progress in the past, the United States could hardly expect to have a satisfactory system of registration of vital statistics, including both births and deaths and covering the entire country, much before the middle of the present century, at which time, if all of the present agencies now effectively cooperating shall accomplish this result, the nation will have reached a place of advancement in this respect that would be quite equal to that occupied at the present day by Japan. A standard certificate of death had been prepared by the Association and the Bureau of the Census, and extensively employed with resulting advantage in causing uniformity of the data collected; yet many States and cities had continued to employ their old forms, whose variety was multitudinous, and offices that had adopted the standard blank had not hesitated to materially change it, so that the information obtained was frequently entirely different from what it purported to be when returned to the Bureau of the Census upon the actual standard blank. The amazing thing about the way in which many deaths from tuberculosis were reported, as abscess of the chest, brain fever, marasmus, etc., was the general indifference of registration officials to the necessity of securing accurate statements of causes of death. Finally, he said if the people of the United States wanted a thorough system of registration of vital statistics they could get it. It would not be necessary to wait fifty or sixty years for the slow adoption and enforcement of adequate laws. The process could be hastened, and without departing from the constitutional requirement that the primary control of registration should be by the States, and not by the federal government. If Congress, if the people of the United States were really interested in this matter, and were determined that this thing should be done, the States would readily be brought into line.

Dr. JOHN N. HURTY of Indianapolis emphasized the importance of accurate registration of vital statistics. They had been trying to collect accurate statistics of deaths in Indiana, and now they were getting over ninety-five per cent. of deaths recorded, while the United States Census Bureau required but ninety per cent. The medical profession, as represented by the Indiana State Medical Society, had done everything it could, while individually the members of the medical profession at large had not come forward and assisted in this work. They had, however, been compelled to do so and give the records of death. Indiana was now prepared to give a complete registration of births. The law was behind the State Board, imposing a severe penalty for not recording births and deaths. If a dead body was buried in Indiana without a permit, and that permit was not issued until a certificate of death was returned complete, the Coroner disinterred the body and required the necessary data on the death certificate. They had a special police officer whose income was dependent upon fees, and he was continually on the watch for instances of illegal burial. According to the law births shall be recorded within twenty days after their occurrence. They had asked the legislature to make it immediate. The penalty of not reporting a death was, for the first offense, a fine of from ten to fifty dollars; for the second, a fine of fifty to one hundred dollars, and for the third, one hundred dollars. They had a clause in the latter stricken out at the last minute when the bill was on its final passage, namely, that upon a third conviction of the violation of this law for failure to report deaths or births a physician shall lose his license to practice in that State. This clause was stricken out by a lawyer, and not by a doctor, as the clause was approved by the Indiana State Medical Society.

Dr. QUITMAN KOHNKE of Covington, La., suggested to the officials of the Census Bureau that a uniform system of laws be submitted to each State for adoption. Law was the main reason why mortality statistics were not the same in every State. He hoped the Census Bureau would assist the whole country in getting a uniform system of laws to make the statistics of one State comparable to those of another.

Dr. HENRY MITCHELL of Asbury Park, N. J., said that in an experience of about fourteen years in New Jersey they had found that it was not a question of law, but one of enforcement of the law.

Sources of Error in the Laboratory Diagnosis of Diphtheria.—Dr. HIBBERT W. HILL of Minneapolis submitted what was actual proof and what must be assumed to make a bacteriological diagnosis of diphtheria logical and a practical success. First, the finding of diphtheria bacilli in a culture taken by itself proved nothing except their presence in the culture. Granting that the culture was properly taken, the finding of bacilli proved their presence in the throat, etc., from which the culture was taken, nothing more. Third, the presence of diphtheria bacilli in the throat plus appropriate symptoms justified the assumption that the patient had the disease, the evidence being that from 98 to 99 per cent. of all patients showing this condition had the disease. Fourth, the presence of diphtheria bacilli in the throat, without symptoms, required further data as to exposure. If a clear history of the absence of exposure could be obtained, it was legitimate to assume that the diphtheria bacilli found were likely to be non-virulent, the evidence being that eighty per cent. of such cases were not virulent. If exposure was established, a legitimate assumption was that diphtheria bacilli were virulent, and therefore, when present, might infect others who would come down with the disease in a short time, the evidence being that the infection obtained from a clinical case was almost invariable. Fifth, failure to find diphtheria bacilli in a culture was about 90 per cent. conclusive of their absence in the throat. If a second culture were taken, and also proved negative, the two consecutive negatives taken together afforded about 99 per cent. conclusive evidence. If two or three or four negatives were obtained, the absence of diphtheria bacilli was established with direct finality.

Dr. JOHN N. HURTY asked whether it was not possible that a non-virulent diphtheria bacillus in one throat might become virulent in another. For instance, the health officer might visit a school and find two or three cases of virulent diphtheria, and yet if cultures were taken from the throat of every child in the room, diphtheria bacilli would be found, but as these were making a good

defense against the disease, it was assumed that the bacilli were non-virulent. In Indiana they had been acting on the assumption that the bacilli were virulent when found in these children's throats. When found, action was taken immediately. If one went into a family to see a case of diphtheria it was clinical diphtheria or laboratory diphtheria, and whichever it was, antitoxin should be used on all children in the household, giving them immunizing doses. He had used antitoxin liberally whenever diphtheria existed, and felt that in several instances in his State he had stopped epidemics of the disease. For instance, in one county he rode twenty-seven miles, and in that time visited sixteen families, finding six cases of diphtheria. He immunized every child in each family, and this was the end of the diphtheria, in that there was no further spread of the disease. They did not inquire as to whether the children were infected with virulent or non-virulent diphtheria bacilli, and he believed this was good practice to recommend.

Dr. William C. Woodward of Washington, D. C., called attention to the distinction that existed between medical diphtheria and legal diphtheria. A year or two ago the question arouse in the District of Columbia as to the exact status of a child in whose throat or nose diphtheria had been found, but who showed no clinical symptoms of the disease, and a wise corporation counsel decided that if diphtheria bacilli were found in a man's or child's nose or throat that that man or child had diphtheria. The question of the presence or the absence of the clinical symptoms counted for nothing in law, and a man or child was a danger to the community who had diphtheria, and should be treated as such. Whether that was going to hold in the case of diphtheria patients he did not know.

Dr. B. Franklin Royer of Philadelphia was much impressed with the statement of Dr. Woodward as to what constituted legal diphtheria, and yet the speaker questioned if in a court of law one could prove legal diphtheria by finding the bacillus in accordance with bacteriological methods in the throat or nose cultures. These methods at present were snapshot, were not satisfactory to clinicians, nor to bacteriologists. The great trouble was that so many organisms were met with which closely resembled the diphtheria bacillus it was with great difficulty it could be positively excluded. Those who dealt largely with bacteriology agreed that a negative test of virulence with a culture that had been injected into a guinea pig was the only reliable test which would exclude some of the forms of diphtheroid organisms, and the simple presence of an organism pronounced by a bacteriologist from his routine culture methods, such as were used in public health work, was not sufficient evidence. A positive report that such an organism as the diphtheria bacillus was present would not be accepted in a court of law, if someone questioned whether it was a virulent organism or the true diphtheria bacillus. If its virulence had been tested, and it killed a guinea pig with typical lesions, it would be accepted.

Dr. Charles V. Chapin of Providence, R. I., said that as a health officer he undertook to restrain a boy who had diphtheria bacilli in his throat from mingling with other children, but he was not sick, and the court decided that he did not have diphtheria. Disease was one thing, but infection with disease germs was another thing. He felt very sure that the courts would interpret the term disease as applying to a pathological condition of the human body. They would not apply the term disease to a condition in which there was the presence simply of the organisms which might cause disease, and when, for some reason or other, they did not cause disease.

Dr. J. J. Kinyoun of Florida said a great many health officers and the majority of physicians placed too much stress on positive tests or preliminary cultures. He thought that just as soon as they attached less importance to preliminary tests and more importance to discharge tests, the better it would be for patients. In other words, the free use of antitoxin would cure more cases of diphtheria and render the office of health officer less difficult. As to what constituted diphtheria legally, he felt that the judge who rendered the decision referred to by Dr. Chapin was wrong, because if that generaly held, health officers would have to abandon practically all quarantine measures.

Dr. William Bailey of Louisville said he did not appreciate fully the close distinction that was made between legal and non-legal diphtheria. Whatever might be the judgment of a court, he thought that any child who had the bacillus of diphtheria in his throat ought to be put under control. He would not like a child of his to mingle with such a child, and even if it could be decided technically that in a given case the bacilus was non-virulent, it might become virulent. On the same principle one might take a rag or cloth that had come in contact with a smallpox patient into court, and while the court would not decide perhaps that the rag had smallpox and could not be convicted, yet he thought it was wise to take care of the rag the same as he would a child who had the bacilli of diphtheria in his throat.

Dr. Charles A. Hodgetts of Toronto, Ontario, mentioned an industrial school in Ontario of 250 scholars, in which for two or three years, now and then, there were true cases of diphtheria which were isolated. Of this number over fifty per cent. of the pupils were found to be the carriers of diphtheria bacilli. Those found to be sick were given immunizing doses of antitoxin and were segregated. The school teachers and children, however, grew tired of this segregation, and very soon the children were allowed to mix with one another. It would not surprise him if at any time cases of diphtheria were reported from that school. These cases should be dealt with in a rigid manner.

Dr. Hill, in closing the discussion, said it was necessary to take action as soon as possible whenever the existence of diphtheria was suspected among school children.

Control of So-Called Minor Infectious Diseases.—Papers were read on this subject by Drs. A. G. Young of Maine and Alfonso Pruneda of Mexico City, in which the authors discussed measures for controlling whooping-cough, measles, etc.

Dr. Gardner T. Swarts of Providence, R. I., said there was nothing more annoying than a lack of control of the minor infectious diseases. Health officers and physicians could not impress upon the public too strongly the importance of controlling measles and whooping-cough, for as long as these diseases were treated with indifference both by physicians and the people so long would they continue to spread contagion. Even though they could not be altogether prevented, they could be checked in a measure. The sooner physicians impressed upon school authorities and teachers that these minor diseases were dangerous to the public health, and laws and ordinances were enacted to that effect, the better it would be for mankind.

Dr. Quitman Kohnke said the importance of the so-called minor infectious diseases depended on locality, environment and climatic condition. Each locality should be guided by the local importance of any particular disease, and should adopt such measures as were justified.

Typhoid Fever at Knoxville, Tenn., and Its Relation to the Water Supply.—Messrs. Robert S. Weston and Ralph C. Tarbett of Boston contributed a joint paper on this subject. The evidence was against the supposition that the water supply was a cause of the high death rate from typhoid fever at Knoxville. The writers maintained that if the geographical distribution of each case for two or three years could be studied as it occurred, the causes of the disease would be shown and the remedy would suggest itself. Their studies show the importance

of paying more attention to the hygiene of the household independently of the great problems of public water supply and sewerage. Undisinfected typhoid excreta and other infectious material which could become insect borne should be destroyed, and typhoid patients should be forced by education and law to protect their neighbors against infectious disease.

Dr. Quitman Kohnke said that his experience in New Orleans bore out the opinion that typhoid fever there was in at least ninety per cent. of the cases brought from other places, notably summer resorts. Typhoid fever should be considered important wherever it occurred, and it would be competent in his opinion for the Association to issue recommendations based upon those facts.

Dr. John A. Macdonald of Brandon, Manitoba, said that typhoid fever had been prevalent in Brandon and thereabouts for twenty-four years, every fall. Sometimes it would come on in August and run its course in epidemic form for two or three months. One thing very noticeable this year was the absolute absence of flies until about six weeks ago. It is a curious coincidence, if such it might be termed, that typhoid was absent until the flies appeared. During the greater part of the summer very few flies were seen and it seemed to him that this was a noticeable observation in connection with the possible dissemination of typhoid fever by flies.

Dr. Edward V. Hug of Lorain, Ohio, said that Lorain was one of the first cities to adopt the mechanical filtration method of dealing with water. For several years this city had no sewer system. This was prior to 1892, and during those years the death rate from typhoid was about 44 per 100,000 population. During the past two years, 1906 and 1907, so far the death rate had reached 34 per 100,000. But during these years the city had been building a new plant, with a capacity of six million gallons a day.

Dr. Hibbert W. Hill had seen outbreaks of typhoid fever beginning with the freezing of the water supply and terminating when the river, for instance, thawed. In a town in the Red River Valley, with a population of four thousand people, ten per cent. of the inhabitants had typhoid fever due to a polluted water supply. The epidemic began when the river was frozen, but ceased when the river had thawed out again.

Dr. Henry D. Pease of Albany, N. Y., corroborated what Dr. Hill had said with reference to winter epidemics of typhoid fever due to the pollution of water supplies. He mentioned five or six epidemics of typhoid fever that had occurred, some in small towns, and some in large ones, which followed the course that was mentioned.

Contact Infection.—Dr. Charles V. Chapin of Providence, R. I., said the valuable report on typhoid fever in our army during the Spanish war and the observations of the English in the Boer war indicated very clearly contact infection as the chief factor in camp typhoid. Jordan's report on typhoid fever in Winnipeg also laid great stress on this mode of infection, and many recent writers in Germany and America attached great importance to it. It was the author's opinion that the larger part of the typhoid fever in the United States to-day was caused in this way. Only a small part was due to infected water or milk, and still less to infected air. There was ample room for improvement in the management of contagious diseases. We must teach those who had the care of the sick not to waste so much time on the invisible dry and dead microorganisms of the air, but to use more soap and water on their hands. Better still, try not to infect the hands or clothes in the sickroom. There was a great deal of unnecessary handling of the patient and of infected articles by health officers, physicians, and nurses. By paying more attention to contact infection, isolation in the family and hospital would be easier and more successful.

Uncinariasis in Florida.—Dr. J. J. Kinyoun undertook an investigation of this disease to ascertain the prevalence of the infection and to see how far the average practitioner would be interested in such an investigation and eradication of the infection. He examined the children of two orphanages in Jacksonville. There were 39 cases of the disease in all. Careful examination of all the cases showed that the children were undeveloped and were of low mentality. He contended that the majority of cases were infected through the skin, and a few through the alimentary tract. Although the latter could not be altogether excluded, the avenues of infection were far less than that of the skin. He urged that a systematic study of the prevalence of the disease in the State be undertaken.

High Altitudes in Tuberculosis.—Professor Weinzirl of New Mexico said that his observations had led him to conclude that the great changes in the daily temperature observed at high altitudes acted as a stimulant on patients, and this was the main factor in the high dry climate cure of tuberculosis. That dryness, altitude, and sunlight were important mainly because they were instrumental in producing these great temperature variations, which insured cold nights and refreshing sleep, while the stimulation produced a better appetite, better digestion, and the assimilation of food, thus affording the consumptive strength for combating the disease.

Effect of Heating upon the Determination of Leucocytes in Milk.—Prof. H. L. Russell and Mr. Conrad Hoffman of Madison, Wis., contributed a joint paper on this subject. In the methods heretofore proposed for the determination of the cellular content of milk, an important factor influencing the accuracy of the determination had been overlooked. It was found that pasteurized milks almost invariably showed a higher cellular content than unheated milks. The authors found that the heating of the milk to 70° C. for fifteen minutes increased the cellular content from 1 to 30 per cent. above that of the unheated milk. This increase was found to be most marked between 60° and 70°, the temperature at which the fat globule clusters were broken up to form a more or less homogeneous emulsion. Many cellular elements were normally entangled in these clusters, and were liberated only when the latter were broken up. That these cells were so enmeshed was clearly shown by allowing whole milk to separate by gravity and then examining the cream and skimmed milk thus obtained. The cream showed a very high cellular content as contrasted with that of the skimmed milk. When milk was first heated, the number of cells found in the cream was materially diminished, and those in skimmed milk increased. It was evident that the cellular elements were carried up with the cream, and unless the milk was heated, a large number would be drawn off with the supernatant fluid, and thus escape enumeration. Examination of this fluid from unheated and heated samples gave much higher results for the former than the latter. Heating of the milk prior to centrifugalization permitted of increased accuracy, as was evidenced from a large series of duplicate determinations, which showed an average variation of only 2.7 per cent. It was accordingly deemed advisable to heat all milks prior to examination for leucocytes, high enough to destroy the fat globule clusters.

Determination of Intestinal Bacteria in Milk.—Dr. Daniel D. Jackson of Brooklyn, N. Y., said a demonstration of the value of the lactose bile medium for determining the presence of intestinal bacteria in water had led to its use in the determination of *Bacillus coli* in milk. The restraining action of the bile salts on growths of the numerous other species of bacteria in milk admitted of its use, whereas the Smith solution gave entirely unsatisfactory results for this purpose, due to overgrowths and to the production of gas by species other than *Bacillus coli*. Contrary to expectation, it was found that when other

species were present, the *Bacillus coli* did not increase in number in milk, but gradually decreased so that the extent of fecal contamination could be measured. The range was found to fall within the same dilution as in water analysis. A clean milk, or one that had been pasteurized, rarely gave the test for *Bacillus coli* in the 1-10 dilution. A carelessly handled milk would give the test in the 1 c.c. dilution. A contaminated milk would give positive tests in the 1-10, 1, and 10 c.c. dilutions.

Diphtheria Diagnosis.—Dr. B. R. Rickards of Boston referred to some of the factors which enter into the bacteriological diagnosis of diphtheria. The question of types on which a positive report should be given was discussed from both the standpoint of diagnosis and release, the question being raised that in some cases greater leeway should not be allowed in release cultures owing to the clinical evidence of the organism. The personal element still entered into diagnosis to a certain extent, but could and should be reduced as much as possible. It was better for the diagnostician to have no knowledge of the clinical data of a case until the bacteriological diagnosis was made, owing to the mental bias which might otherwise be produced. In testing diphtheria organisms for virulence, varying results in the virulence of organisms isolated from the same culture had been noted and further work along this line was very necessary. The writer believed that there should be greater uniformity in the various laboratories as to what forms should be considered as positive for diagnosis and release, and he emphasized the necessity of further experimental work on most of the points regarding the value of coordinating diphtheria diagnosis and diagnostic procedures in general, in order that it might be placed on a standard basis.

The Diagnosis of Rabies.—Dr. A. W. Williams of New York City said that three methods had been used in helping to establish the diagnosis of this disease. First, animal inoculations; second, sections for the presence of small-celled accumulations about the blood-vessels and ganglion cells; third, sections and smears for the presence of the so-called Negri bodies. The second method had fallen largely into disuse, because the histological changes upon which its value depended had been shown to be non-specific for rabies. The first method was used as a decisive test when results from the third method were doubtful. The results obtained from the use of the third method were as follows: (1) Negri bodies demonstrated, diagnosis rabies. (2) Negri bodies not demonstrated in fresh brains, diagnosis very probably not rabies. (3) Negri bodies not demonstrated in decomposing brains, diagnosis uncertain. (4) Suspicious bodies in fresh brains, diagnosis probably rabies. The demonstration of the Negri bodies by smears was the most rapid and efficient method so far published. Improved technique had lessened the number of suspicious or uncertain cases. He described the technique of the smear method at present in vogue in the research laboratories of the New York City Health Department.

Milk.—There was a symposium on this subject. Professor E. B. Voorhees of New Brunswick, N. J., said the public should realize that even at twelve cents good milk was the cheapest and best nourishment it was possible to buy. To produce pure milk at the present selling price in the big cities at a profit to the farmer was impossible. The most careless dairyman could not turn out even his inferior grade of milk for less than 4.7 cents a quart, while an average cost of production of five cents was the lowest practical rate. A very small additional expense in the price of milk was necessary to guarantee absolute purity and general quality of milk.

Professor C. B. Lane said that the majority of dairymen would prefer to sell only the best milk procurable, if the public would pay for it, and he declared that the general public was quite willing to stand the higher rate. More stringent legislation was needed to procure permanent results. At the present time the man who added water to the milk was fined. Generally, the man who sold impure milk went scott-free, and this despite the fact that the latter was much the greater menace. He advised national laws modeled after the British statutes which permit a consumer to sue for damages a dealer who supplies him with impure milk.

Dr. Thomas Darlington of New York advocated that each community should look after its own milk supply. He recommended systematic and constant inspection, in the first place, and, in the second, the prevention of the sale of any milk which was unwholesome and adulterated. Every dairy and every creamery supplying the city of New York had already been inspected. As for preventing the sale of unwholesome milk, he had only to mention that the Court of Special Sessions a day or two ago had 260 cases before it. Gastrointestinal diseases had been markedly reduced since the proper inspection of milk had been enforced.

Professor R. A. Pearson of Cornell University discussed the protection of milk under five headings, namely, health of the cow; cleanliness of the cow and her surroundings; condition of the utensils in which the milk was handled; cleanliness of the employees, including their health, and the cooling and storing of the milk. Speaking of the tuberculin test, he said that when farmers clearly understood its true value, they would want this test made. When they were shown by demonstration that which they failed to understand, they were anxious to have this test. Very many milk producers were honest and anxious to do what was right. They needed instruction. A campaign of education had been begun. It needed support. Every milk producer should have the opportunity to know the latest concerning his business, then many of them would make the desired improvements in their dairies, and the realization of ideal dairying would go hand in hand with the necessity of enforcing laws.

Social Ethics as Influenced by Immigration.—Dr. Peter H. Bryce of Ottawa, Canada, said that immigrants were pouring into the United States and Canada at the enormous rate of a million and a half annually, and it was a grave question whether this tremendous influx of human flotsam and jetsam would be assimilated or continue a foreign mass and a menace to the nation. Invasion of foreign labor had driven American girls from mills and factories to a higher plane of employment. But the standard of intelligence was too low for foreign competition seriously to affect American mechanics. The mental status of immigrants to-day was higher than that of many years ago. Steamship companies forced by close competition expended enormous sums in new ships, deliberately seeking the immigrant as a means of making up their losses. This was one of the evils of the problem with which America and Canada had to contend.

The Mexican delegates reported that their country was constantly raising the barriers against undesirable immigrants, and urged that the United States Government at Washington formulate a new code of laws that might be adopted also by Canada and Mexico.

Trachoma and Immigration.—Dr. Augustin Chacon of Mexico City said that immigrants to that Republic had been the cause of an epidemic of this disease of such serious proportions that it would be absolutely necessary for the government to adopt radical measures for the protection of the country.

Ophthalmia Neonatorum.—Dr. F. Park Lewis of Buffalo presented this subject to the Association. A committee was appointed to confer and cooperate with a like committee of the American Medical Association and with the committees appointed by other medical societies, to prevent this disease.

Officers.—The following officers were elected for the

ensuing year: *President*, Dr. Richard H. Lewis of Raleigh, N. C.; *First Vice-President*, Dr. Gardner T. Swarts of Providence, R. I.; *Second Vice-President*, Dr. Chas. J. Hodgetts of Toronto, Ontario; *Third Vice-President*, Dr. Manuel Iglesias of Mexico City; *Treasurer*, Dr. Frank W. Wright of New Haven, Conn.; *Secretary*, Dr. Chas. O. Probst of Columbus, Ohio.

Winnipeg, Manitoba, was selected as the place for holding the meeting in 1908.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held April 25, 1907.

DR. HIRAM N. VINEBERG IN THE CHAIR, *pro tem.*

Specimen of Papillary Adenoma of the Ovary.—Dr. LEROY BROUN presented this specimen, which was of special interest because of its unusually large size. The patient from whom it was removed was forty years old, married, having had one child, and one miscarriage. She was a domestic and in good health until May, 1905, when her abdomen began to enlarge. At first this enlargement would diminish by free catharsis, but soon it failed to be reduced in size and a tumor of the right side was noticed. The patient entered the Woman's Hospital after having been in Bellevue for four days treated for supposed pneumonia. When she was first seen by Dr. Broun she was absolutely pulseless and the extremities were cold. After placing her in bed the pulse improved. The respirations were from 40 to 50. A close examination of the lungs showed no evidence of any pneumonic process. There was free fluid in the abdomen. A rapid operation was performed on the day following her admission and a tumor of the right side was removed. There was present albuminous fluid from the ruptured cyst. The patient did well, the pulse becoming stronger. The specimen was from the right ovary and there was also a papillary adenoma of the opposite ovary, not removed on account of the patient's bad condition. Dr. Broun thought that it was generally recognized that these tumors were not malignant in character, and also that they occurred in pairs in fifty per cent. of the cases. There were no adhesions.

Dr. BROOKS H. WELLS said that these tumors, colloid and papillary cysts, were very often malignant.

Dr. GEORGE H. BALLERAY endorsed the opinion of Dr. Wells. In those cases where the tumor had ruptured, there was great danger of the disease attacking the peritoneum; if the tumor was removed before rupture took place, there probably would be no recurrence.

Dr. W. GILL WYLIE said that a great many of such cases seemed to be fatal ones.

Dr. LEROY BROUN said there was a difference between the kind of tumor he presented and one the seat of papillomatous degeneration. These papillary growths were malignant, or readily took on malignancy. If no involvement had taken place by continuity, and if there was no secondary involvement, he believed there was a reasonable chance for recovery.

Specimen of Placenta Prævia.—Dr. GEORGE H. BALLERAY presented a fetus about the fourth month and its placenta; the patient had been the subject of a placenta prævia centralis. He had never seen a case before the end of the sixth month. Multiparity had something to do with placenta prævia. This was Dr. Balleray's fortieth case. When separating the placenta he tore right through into the broad ligament and had to pack the uterus for five days. On the seventh day he removed the stitches. On the eighth day a profuse hemorrhage occurred and the house physician packed. On the tenth day there was another profuse hemorrhage and the woman became almost pulseless. In the operating room she bled, became pulseless, and an intravenous injection was given, which improved the pulse. She was now doing fairly well, all except her anemia. If he had recognized at the beginning what he had to deal with, he said he would have packed the lower segment of the uterus and delivered her later.

Dr. LEONARD S. RAU said he wished to emphasize the point that it was very important *not* to deliver hastily.

Dr. H. N. VINEBERG said that it had always been his rule to empty the uterus at once in these cases. The only fatal cases were those in which the uterus was packed with gauze and kept under observation. He believed the uterus should be emptied as soon as the diagnosis was made.

Two Specimens of Chorioepithelioma Malignum.—Dr. H. N. VINEBERG presented these two specimens, both of which had been removed from women who had borne a number of children and who had later hydatid moles. The first case was that of a woman who had gone ten days over time and began to bleed, and continued to bleed for two months. She had a general anasarca, and a large amount of albumin and casts in the urine, and a tumor that reached to the umbilicus. The question arose as to whether it was a hydatid or a fibroid undergoing sarcomatous degeneration. She was removed to the hospital, operated on, and a hydatid was found. The uterus was emptied and improvement was very rapid. She left the hospital ten days after the operation. At the end of three weeks she again began to bleed profusely and again she entered the hospital and the vagina was packed. When the gauze was removed she again bled so profusely that hastily gauze was packed into the uterus to arrest the hemorrhage. The next day the uterus was removed. The growth presented was found in the right horn of the uterus. The second specimen was removed from a patient forty-seven years old, who had passed her period two weeks and began to bleed. Her general condition was good. He suspected a hydatid mole. She was curetted at the hospital and a large quantity of hydatids were removed. The bleeding did not cease entirely and later it became necessary to remove the uterus. A chorioepithelioma malignum was found.

Why the Ovaries Should Not Be Removed.—Dr. W. GILL WYLIE spoke on this subject. He said this was a subject that he had been interested in for thirty-five years, since he had made a study of women, the ovaries, and the genital organs. For ten or twelve years he had been thoroughly convinced that the ovary had been a much abused organ and a great many things had been attributed to it by doctors. Many ovaries had been removed which should not have been. The gynecologists had been in the late years forced into a peculiar situation. Without question after McDowell, Syms, and others had taken up the removal of ovarian tumors, their success and persistency in advocating this measure led to the right steps in abdominal surgery. Dr. Wylie's early career began in the '70s in Bellevue Hospital, and during that time he could not recall a single case of any kind of abdominal surgery or operation done. No doubt many cases of ovarian tumors were allowed to die. He had never then heard the term salpingitis mentioned. He then went to the Woman's Hospital in 1872-1873, and during his service of eighteen months there he saw not more than thirteen abdominal operations, and they were all selected cases. The death rate was excessive, being often larger than the percentage of recoveries after abdominal operations. In 1882 he entered Bellevue Hospital as visiting physician. Up to that time no abdominal operation for tumor had been successful. Then Dr. Wylie operated upon every case and, of the first 100 cases, he lost ten per cent. At that time the work of Tait and Hegar had attracted attention. Tait was removing tubes and ovaries

for disease, and Hegar was removing ovaries for special growths and fibroid tumors. About that time Battey recommended the removal of ovaries for cases of hemorrhage that was difficult to control; also for severe cases of dysmenorrhea. All this led to great interest in the subject. Dr. Wylie saw a case that had been operated on at Roosevelt Hospital for laceration of the cervix; this case afterwards gave trouble; he found that he could feel a softened and enlarged mass on the side and this proved to be a case of pyosalpinx. This led him to take up the subject. He then began to operate upon these cases. A report to the New York Academy of Medicine of fourteen cases operated upon by him attracted some attention. After a time he found that the removal of the ovaries had other effects than what were expected; in other wards, in a certain class of women, especially in the imperfectly developed, hystcroepilepsy and other nervous phenomena, as well as catarrhal troubles appeared. He soon found that unless he could make a diagnosis of inflammation, which probably would cause an occlusion of the Fallopian tubes, that operation was not justified. Serious nervous conditions were produced and the menopause was precipitated. Also peculiar and marked local changes were produced. It made the young women aged in their genitals, particularly in young women under thirty years. In looking over the catalogues, especially of the general hospitals, he found as many as twenty-five per cent. of the abdominal operations were done on young women for the removal of microcystic ovaries without adhesions. In Washington Remey reported one hundred and twenty-six cases in which only eighteen could be called pyosalpinx and forty had adhesions. After a very careful study of this subject Dr. Wylie had come to the conclusion that the ovaries should not be removed in any woman before forty-five, unless it was necessary to do so to save her life, or for some other good reason. If one took an imperfectly developed woman under thirty years of age and removed both ovaries serious nervous symptoms would develop which would not have developed if portions of the ovary had been left. If one operated upon inflamed or infected tubes, it was best to save a portion of the ovary whenever possible. It had been Dr. Wylie's practice during the past ten or twelve years to treat with more consideration the tubes and ovaries. In removing fibroid uteri he believed that it would be wrong not to leave a portion of, or all of, the ovaries. Our present American life caused young girls to reach puberty with imperfectly developed genital organs, and these were the ones in particular who presented such marked nervous disturbances when the ovaries were removed. In the service at Bellevue Hospital there was a wonderful difference to be noted between the cases and those met in private practice. More than one half of his operations were reoperations, where a former operation had failed to produce the desired results. In many of them the ovaries had been removed to relieve certain symptoms.

Why the Ovaries Should Be Removed.—Dr. Leroy Broun said that the part assigned to him could be divided into three heads, as follows: 1. Ovaries, the seat of gross pathological lesions 2. Ovaries that were cystic in character, hydrops folliculi 3. Ovaries apparently healthy in instances of the removal of the uterus for myomata or other diseases. To the first class belonged ovarian abscesses, cysts, solid tumors, and papillomatous diseases, and conservative surgery in such conditions he believed to mean the entire removal of the ovary. On this point there was no difference of opinion so far as solid tumors and papillomatous disease was concerned. In the effort to preserve even a small portion of an ovary it was the desire of some operators to excise the abscess from its bed and leave some ovarian tissue *in situ*. So also in ovarian cysts was this effort made to leave a fringe of ovarian stroma. It was unquestionably true that such a procedure was anatomically possible, but he could not convince himself that such a procedure in either instance conserved the best interests of the patient. One could not tell by an ocular examination the state of the ovarian stroma left behind after parting it off from the wall of a cyst adenoma, and they could not give the patient positive assurance that a subsequent operation would not be necessary. The same statement held good of an ovarian abscess, but not to the same extent. Here one could excise, or open and drain and obtain a physical relief from the symptoms. At times this relief was permanent. When, however, the patient desired the assurance that no subsequent operation would be necessary, his experience was emphatically against the effort to preserve a portion of the diseased ovary, but to remove the entire ovary. The second class included those ovaries the seat of small blood cysts, or were polycystic, or were cases of "chronic cystic ovaritis." With such conditions it seemed that they could never arrive at a common ground. Dr. Broun's experience in such cases was that the best interests of the patient were conserved in non-operative interference. Many operators had had patients on whom they had punctured cysts, or resected them, and had been rewarded by a complete relief for a time, after which all of the old symptoms returned. He granted that many ovaries might be resected without recurrences; but he also believed that in the majority of these instances the portion of the ovary left would become edematous and as cystic as formerly, with or without a return of the old symptoms. Undoubtedly there existed in a large number of these patients complaining of symptoms referable to the ovaries and in whom they found only a polycystic condition, a marked neurasthenic state; in such cases fresh air, abundant good nourishment, and a proper hygiene would yield better results than puncturing and resection. If it became necessary to operate for any reason, a complete removal of the ovary was preferable, reserving the resections for those patients who might insist that it was preferable to do so, so that a part of the ovary should be left, being willing to assume all responsibility of a possible secondary operation. In supravaginal amputations of the uterus for fibroid tumors or other disease, it was formerly his custom to leave one or both ovaries if they were in an apparently healthy condition, but he had given up this practice and in every instance of the removal of the uterus he removed with it both tubes and ovaries. The ovaries were formerly left in on account of the theory that these organs gave off an internal secretion that would soften the necessary phenomena of the menopause. Dr. Broun had never found any difference in the symptoms of the patients whose ovaries were left, after the uterus had been removed, from those in whom the ovaries were removed with the uterus. In closing Dr. Broun emphatically protested against putting notions into patients' heads about saving parts of ovaries. If they expressed such desires it then was the surgeon's duty to explain to them fully that while such a procedure was possible, yet there were certain possibilities of a failure to a great extent to get relief from the symptoms for which they consulted the physician, and that it might be necessary later on to do a subsequent operation. With these facts laid before them, it was not usual that the patients would elect such a procedure. Their desire was to get well and to be given a reasonable assurance that no further operations would be necessary.

Dr. J. Riddle Goffe wished that this question might be settled and all agree. It was true that during the past years, and up to the present time, gynecologists and general surgeons had not attributed to the ovaries that function, physical, mental, moral, and spiritual that they were entitled to, and it behooved them to correct their latitude and longitude of the thing. He believed that the true

rule for every surgeon to follow when the abdomen was opened and the uterine appendages within reach, especially the ovaries, would be to declare the organs innocent unless they could be proven to be guilty. No ovary should be removed entirely as long as there was any part susceptible of ovulation. In answer to Dr. Broun's query as to how many of these cases returned for secondary operation when the doctor had conserved portion of the ovary, Dr. Goffe said that, in his experience, he had from time to time had cases in which it was necessary to do a secondary operation; but the number of cases in which this secondary operation was required was reduced, compared to the cases in which success attended the conservative work upon these organs. In his cases where the uterus was removed, especially in women under forty years of age, there had been cessation of menstruation for a short time. When he had done a panhysterectomy the nerve storms were something terrific. In the gross lesions of the ovary, dermoid cysts, papillomatous cysts, and sarcomatous tumors all were agreed upon the course of procedure. In hydrops folliculi of the Graafian follicles operators used to remove the ovaries; even Dr. Broun said that these ovaries might be left alone. Dr. Goffe had seen ovaries removed because of cyst of the corpus luteum; yet these cases were never known to develop to such a great size or to give alarming symptoms. A fibroid of the corpus luteum was a small tumor, with yellowish discoloration, irregular in outline, any many men preferred to remove it. Sometimes these might become calcified, but they were perfectly harmless and never led to serious conditions. It was a very lame excuse given when the ovaries were removed because they were sclerotic.

Dr. Brooks H. Wells said he wished to emphasize every word that Dr. Goffe had said. He looked upon the ovary as an important structure. Good surgeons conserved normal tissue; therefore, leave the ovary alone after removal of the fibroid or other conditions of the uterus and tubes, if they are normal. The only cases in which he removed the ovaries were when he dealt with cancer, and in those cases of purulent inflammations of the ovaries and tubes, where the ovaries and tubes were bound together in one mass, the ovary constituting part of the wall of the pus sac.

Dr. Egbert H. Grandin said that all were agreed that when the ovary was not diseased, the woman wanted it, and no good surgeon would take it out. If it was diseased, it was a poor surgeon who would leave it in. With the tubes and ovaries before them, if they appeared healthy, he would be a poor surgeon who would take them out. But there were border line cases in which he defied anyone to state with any degree of positiveness whether the ovary was diseased or not. If an abdomen had been opened because of certain symptoms, and after careful differentiation the symptoms had been referred to one or to both ovaries, as a result of his experience, if he made up his mind that the ovary was diseasd and caused the symptoms, that ovary came out and was not left behind. If an ovary was sufficiently diseased as to require removal, all of it should be removed, and not a part left in. A surgeon aimed to preserve that which was sound, and to remove that which was diseased. No woman went to a doctor complaining of symptoms referable to the ovary, unless the symptoms did come from that ovary. Then, if the abdomen was opened, and the ovary found to be polycystic or otherwise diseased, it should be removed. In purulent disease, especially gonorrheal, he said they should not stop short of taking away both ovaries. A diseased ovary had no favorable influence on a woman; a woman with a diseased ovary was not as healthy as when without a diseased ovary.

Dr. George H. Balleray said the point was whether or not the patient was suffering from pathological conditions referable to the ovaries. What was the real cause of the pain? Was it some pathological condition of the ovary? If so, the ovary should be removed.

Dr. William S. Stone said that if we took ten women of the same age, on whom the same operation had been performed, for instance, a supravaginal hysterectomy with the removal of ovaries and tubes, it would be a fact that the changes in the external genitals would vary a great deal. Did the character of the operation determine these changes? It did not. These results, especially in women under thirty years of age, varied greatly. In cases of gonorrheal pus tubes, a long-continued discharge from the uterus might have something to do with determining the subsequent condition of the external genitals. Older women who had suffered for years from a gonorrheal discharge from the uterus were apt to have severe atrophic changes of the vagina and external genitals.

Dr. H. N. Vineberg cited a case to illustrate his own practice. A woman had been brought to the hospital who had had an operation performed by another surgeon two years previous; he had removed the tube and ovary upon the left side. She had symptoms from a hernia, and much pain on the right side. He decided to open the abdomen and cure the hernia. He found at operation that a cyst occupied one-half the remaining ovary. She was but twenty-two years old, so he removed the cyst, and stitched together the remaining portion of the ovary. Recently a physician asked him about a woman whom he had delivered. The woman was this patient. She had been perfectly well. In this case both tubes were removed and only a small portion of one ovary was left behind. Dr. Vineberg felt that in young women, even though they might have to open the abdomen again, it was better to leave some ovarian tissue behind. When there was an inflammatory condition of both tubes and ovaries, and a diseased uterus, the question then arose whether it would be best for the patient to remove everything. In those cases where a portion of the ovary was left behind it was not so much the ovary that caused trouble, but the uterus.

Stated Meeting, Held May 23, 1907.

Dr. Howard C. Taylor in the Chair.

Paralysis of Both Upper Extremities, Following Pelvic Elevation, or Trendelenburg Posture.—Dr. Herman J. Boldt presented a woman who was operated upon on March 5, 1907, for the removal of an intraligamentous myoma. The tumor was pedunculated and originated from the left side of the uterus. Technically the operation was difficult, so that the patient was in the position of pelvic elevation for about three-quarters of an hour. The paralysis was present immediately, and was recognized as soon as the woman had recovered from the anesthetic. While one neurologist of repute considered it to be from another cause than posture, there was, in his opinion, no ground for such assumption. So far the woman was still a complete invalid. Dr. Boldt said he did not know of another instance on record of such total paralysis. In the cases so far observed recovery soon occurred.

A Series of Specimens of Extrauterine Pregnancy.—Dr. Louis J. Ladinski said that the specimens he presented were removed from patients who had entered his service at the Beth Israel Hospital during the past few months, and consisted of every form and variety of extrauterine pregnancy, thus affording a most interesting and concise exhibition of the entire subject from a clinical standpoint. Before demonstrating these specimens, he gave the cardinal signs and symptoms in the order of their importance, which, in his opinion, were pathognomonic of the condition. *Signs.* (1) First in importance was a negative sign, the exclusion of intrauterine pregnancy. This was readily accomplished by employing the sign of early pregnancy that he advocated in a paper recently published. (See Medical Record, Vol.

71, No. 15, April 13, 1907, page 597.) (2) Enlarged uterus. Consistency of uterus similar to normal uteri. (3) Bleeding from the uterus. This did not, as a rule, occur before the sixth or seventh week of pregnancy, but after that period it was present in nearly all cases. Bleeding from the uterus might, however, cease sooner or later after the pregnancy was interrupted, in consequence of a tubal abortion, or after a perforation or rupture of the tube. (4) Characteristic mass on one side. A tube distended, either in the isthmal, ampular, or infundibular portion by a gravid sac presented a fusiform, elastic, tender mass, which, from its shape, location, mobility, sensitiveness, and peculiar feel, could readily be differentiated from a hydrosalpinx, pyosalpinx, ovarian, and parovarian cysts, and pelvic tumors. *Symptoms* (1) Amenorrhea, which was invariably present, though a history to that effect might not always be obtained. (2) Pain, paroxysmal in character, was always present and was referred to the affected side. (3) Negative symptom, which was of value only before rupture, was an absence of elevation of temperature. In the presence of all these signs and symptoms, a positive diagnosis could invariably be made. In the absence of some of the above signs and symptoms, a probable diagnosis might be made, and it was even safe to make a positive one if there were not present additional symptoms referable to other lesions. The signs and symptoms given referred to the stage prior to rupture. At the time of rupture, or immediately following it, there were the additional well-known signs and symptoms of shock, sudden pain, and internal hemorrhage. The condition to be diagnosed subsequent to the rupture that destroyed the products of conception had to do with a pelvic or abdominal hematocele or abscess. With the exception of two or three cases in his series, which numbered now about 100, the abdominal route was the one of choice. The operation was performed as soon as a diagnosis was made and consent given. Shock and collapse and extreme anemia were not considered contraindications to operation. In several cases the collapse was so marked that an anesthetic was not required. Intravenous infusion was resorted to to sustain the patient before, during, and after the operation, according to the requirements of the case. Free blood and clots from the peritoneal cavity were removed with hand or wiped away with moist pads or strips of gauze. No irrigation of the peritoneal cavity, or drainage in any case, was employed. He had lost but a single case, and that patient died of a tertiary hemorrhage on the fourth day after the operation, in which there was, in all probability, a rupture of a varicose vessel in an hemophiliac, and was not tubal pregnancy at all.

Almost Fatal Hemorrhage from Ectopic Gestation Without Rupture of the Tube Wall; Operation and Recovery.—Dr. Philander A. Harris of Paterson, N. J., presented this specimen, a well-formed fetus about 1⅜ inches in length, and the amniotic cavity from which it had escaped through knife dissection occupied presumably two-fifths of the dilated tube. Surrounding the amniotic cavity, and filling the interspace between it and the tube wall, could be seen an almost uniform layer of organized clots about one third of an inch in diameter. The patient was 27 years of age, married, first menstruated at the age of 12, and regularly every twenty eight days until the present illness. She always had terribly severe pains the first day of menstruation. The menstrual term lasted five to six days, and she soiled eighteen to twenty napkins. No pregnancy until the present tubal pregnancy. Her last menstruation occurred February 12, 1907. After that she saw no blood until the 16th or 17th of March. Then she had a little pain across the hypogastrium and the appearance of blood in the vagina. A little blood appeared almost daily from March 17 until April 1 or 2. On April 21 she had severe pains in the hypogastrium, which were more severe on one side of the pelvis than on the other. She also vomited. This very severe pain lasted about one-half an hour. April 22 she felt somewhat tender across the lower abdomen. April 23 she had a very severe colic in the hypogastrium; this was attended with pain in the right shoulder. She vomited three or four times. The colic lasted half an hour. Again, on April 25, she experienced severe pain in the epigastric region; she vomited, and she said she felt as though she was dying. Her physician, Dr. Tuers, was sent for and found her almost exsanguinated. He at once diagnosed the condition as one of tubal pregnancy. Dr. Harris saw her one hour later. There was no pulse at the wrist, and the patient said she was thirsty. She had extreme palor, but did not exhibit the restlessness which was so often seen in the tragic stage of tubal pregnancy. She was taken to the hospital, placed on the operating table, a few whiffs of ether were given, and an intravenous injection given. The abdomen was opened and a pint or two of dark fluid blood was removed, and a lot of large dark clots were taken from the cul-de-sac of Douglas and a distended right tube, measuring two inches in diameter and apparently still enveloping the fetal products, was tied off and removed. She was sent to her room with a pulse of 130, respiration of 40. The blood which was found in the peritoneum in this case escaped from the ostium abdominale. There were no evidences of a destruction, or even a perforation, of the walls of the distended tube. The patient made a rapid and complete recovery.

A Case of Tight Knot of the Cord, with Consequent Antepartum Death of the Fetus.—Dr. Robert A. Frank reported this case. The patient was 31 years old; had had one living child nine years before, the labor lasting thirty-six hours and requiring low forceps. The present pregnancy was normal. There was a slight excess of liquid amnii, but no true hydramnios. The fetal movements were first felt during the sixth month. Within one-half hour of the onset of labor the membranes ruptured, the liquid being dark in color but without odor. Frequent but inefficient pains occurred for thirty-two hours, by which time the cervix was nearly fully dilated. Delivery of a large child was accomplished by high medium forceps. The last fetal movements were felt one day before the onset of labor, and no fetal heart-sounds were heard throughout the labor. The child was dead, but fully developed, and showed signs of beginning maceration. The placenta was normal. The cord was 90 cm. in length; 30 cm. from the placenta was a simple, very tightly-drawn knot, which caused deep indentation of Wharton's jelly. Above the knot the vessels were dilated; below the knot they were empty, contracted, and almost invisible. Only nineteen authentic cases, in which fetal death was due to the same cause, were found in a search of the literature. As loose knots occurred in 0.5 to 1 per cent. of all births, it was surprising that the tightening of the knot was so uncommon, especially as it had been experimentally determined that a traction of 25 to 90 gm. exerted upon a knotted cord sufficed to cut off the fetal circulation.

Chorioepithelioma. Remarks on Microscopical Diagnosis, Prognosis, and Relation to Cysts of the Ovary.—Dr. James Ewing read this paper. He said that since Marshand first described the origin and nature of chorioepithelioma, in 1895, an extensive literature had accumulated, and the main points at issue concerned the variations in structure, the possibilities of basing a prognosis on the microscopical appearances, the existence of a benign type, and the relation of cysts of the corpora luteum to chorioepithelioma. There were considerable variations in the structure of this tumor. There were at least two rather characteristic histological pictures encountered: (1) The usual structure presented an extensive growth of huge branching and papillary masses of syncytium, associated with thick cords and islands of the smaller polygonal Langhans cells and covering placental villi, which were themselves often thickened by a new growth of mucoid connective tissue. The villi were sometimes missing, but since

finding them in a tumor which had extensively infiltrated a large portion of the uterine wall, he had not regarded their presence as a sign of malignancy. The masses of syncytium were very prone to invade the perivascular lymphatics, thus early penetrating the deeper portions of the endometrium, while their remarkable capacity to erode and enter the uterine veins was the chief basis of the repeated hemorrhages and of the early and extensive metastases. (2) The tumor cells were of more uniform size, typical syncytium, Langhans cells, and villi, could not be distinguished; but most of the cells appeared to be derivatives of the syncytium, being of large or giant dimensions. An origin from the syncytium or Langhans cells might sometimes be shown by the occurrence in some tumors of intermediate forms between syncytium and these large tumor cells. Accepting the current dictum that the large cells, which extensively invaded and even traversed the uterus in normal gestation, were derivatives of the syncytium, this tumor was a chorioepithelioma. Probably there were transitional tumors between these two types of chorionic tumors. With regard to benign chorioepithelioma, Dr. Ewing said that it was early observed that while the majority of chorioepitheliomata pursued a malignant course, yet others of apparently identical histological structure progressed with every evidence of a malignant character, but after a time, when the growth was interrupted, perhaps by partial removal, instead of going on to its usual fatal termination, the process completely subsided and the patient recovered. The result was all the more remarkable in view of the long interval, two years sometimes elapsing between the first appearance of the growth and its attempt at removal and the final outbreak of interval metastases and fatal cachexia. In the present state of knowledge of chorioepithelioma, the following conclusions seemed to be valid: (1) Two processes, histologically distinct, were being described as chorioepithelioma, as above described. These tumors of the first class were all potentially malignant; but at least one had been cured by curettage, and others had subsided after incomplete removal, even after internal metastases had occurred. They occurred usually after early abortion or followed hydatid moles, were usually circumscribed, tended to perforate the uterus early, and, unless associated with hydatid moles, might not cause much enlargement of the uterus. These tumors of the second class usually developed slowly, greatly enlarged the uterus, and possessed only moderate malignancy. It might be difficult to distinguish them from a harmless cell invasion. These tumors might be properly called atypical or benign chorioepithelioma. (2) When typical proliferating syncytium and masses of Langhans cells appeared in the curettings, the process was always potentially malignant. Curettage in the early stages and partial removal after perforation of the uterus and metastases had arrested the process, but this result was dependent upon local circumstances or on the general resistence of the patient, and should not be accepted. When curettage showed only syncytial wandering cells, curettage was a safe initial procedure, unless the local condition suggested extensive involvement of the uterine wall. (3) The presence of true decidual tissue in curettings was no guarantee that a malignant chorioepithelioma did not coexist. After reporting a case of primary carcinoma of both Fallopian tubes, Dr. Ewing said that Orthmann had collected 84 cases of primary tubal carcinoma, some of which were bilateral. Of these, 44 were preceded by chronic inflammation of the tube, pyosalpinx in 26, tuboovarian cysts in 10, atresia of the abdominal ostium in 7, extensive chronic inflammation in 1. He pointed out that tubal cancer was rarely associated with uterine, but frequently with ovarian cancer. In 17 cases of widespread uterine cancer, Orthmann found no tubal involvement; in 18 of ovarian carcinoma or sarcoma, the tubal involvement occurred in ten. With regard to sarcomatous degeneration of fibromuomata, in 1,880 cases of fibroids 48 showed sarcomatous changes. Cullen had recently reported 17 instances of sarcomatous transformation or degeneration of uterine fibroids. In regard to most of these cases, the question might be raised whether the presence of certain very cellular foci in an ordinary fibroid was sufficient evidence to warrant the conclusion that the tumor was sarcomatous or had changed its character. Such a conclusion would seem to demand the demonstration that an ordinary fibroid had existed for some time, and then, coincident with rapid increase in size, had completely changed its gross and microscopical appearance.

Seventh Annual Conference of the Sanitary Officers of the State of New York.

This Conference was held in Buffalo on October 16-18, the first meeting being called to order on Wednesday afternoon, October 16, by Dr. Ernest Wende, Health Officer of Buffalo. Mayor Adam and Mr. Gratwick, Chairman of the Chamber of Commerce, delivered addresses of welcome, after which State Health Commissioner Eugene H. Porter delivered the annual address. He first outlined the work accomplished by the department during the past year, especially the investigation of summer resorts and of the sanitary condition of various cities in the State. The number of summer resorts was so numerous that, with the money at the command of the department, it was impossible to inspect them all in a single season, but it was hoped that the work would be so far completed next year that many cases of "summer-resort typhoid" would be prevented. An investigation of the conditions favoring the spread of typhoid fever in a number of the towns and municipalities of the State had also been made and the results were being tabulated. When these reports were finally passed upon the department believed that it would be able to give to each of these municipalities substantial aid in correcting the existing dangers to health and life. But the department did not undertake to do the required work. The town must work out its own sanitary salvation. In order to gather information regarding the pollution of the streams and lakes of the State, a sanitary survey had been made and sanitary maps had been proposed of many of the water sheds, those of the Oswego, Upper Hudson, Lower Hudson, Susquehanna, Genesee, and Niagara being now practically completed. All of the public water supplies and sewage disposal plants in the State had been looked into and samples had been tested. Reference was made to the examinations of the eyes and ears of school children about to be conducted by the teachers in incorporated villages of the State. In the State Hygienic Laboratory examinations of meats, beers, wines, and whiskies had also been conducted, which showed an improvement in the character of these food supplies. Attention was called to the tuberculosis exhibition, which it was announced would be loaned to various municipalities through the State at the conclusion of the conference. Special circulars on sanitary matters for popular distribution were under preparation by the department. Although the appropriations for the department had been increased by almost $42,000, in comparison with other States the New York department was receiving a very inadequate money supply. Reference was made to the Cancer Laboratory in Buffalo, and the commission took occasion to remark that the health officers should as far as possible allay the disquietude of the public on the subject of the contagiousness of cancer. The department was not at present able to endorse the recommendation of the Medical Society of the State of New York, that all candidates for the position of health officer should be possessed of a special diploma in public health.

At the second session of the Conference there was a "Symposium on Tuberculosis." Prof. V. A. Moore of the New York State Veterinary College at Ithaca read a paper on the dissemination and control of tuberculosis as illustrated in the bovine species. Attention was drawn to the large number of tuberculous cattle scattered throughout New York State, and the need of adequate supervision and

control over these infected animals was pointed out. Dr. JOHN H. PRYOR, trustee of the New York State Hospital for Incipient Pulmonary Tuberculosis, dealt with the early diagnosis and treatment of tuberculosis. Dr. EDWARD DEVINE of New York City, secretary of the Charity Organization Society, dealt with the social aspects of tuberculosis.

At the third session Dr. ADNA F. WEBER, Chief Statistician of the State Department of Labor, read a paper on "Labor Legislation in Its Relation to Public Health," in which he drew attention to the various sections of the labor laws of the State which dealt with the health of employees, making special reference to the child-labor law.

THEODORE HORTON, the Chief Sanitary Engineer of the State Department of Health, discussed "Sewage Disposal for Institutions and Small Communities."

At the fourth session, Dr. JOHN T. WHEELER, Director of the Division of Communicable Diseases, read a paper on "Practical Points on Quarantine," in which he emphasized the need for prompt diagnosis of smallpox and a thorough vaccination of the community. He also urged the health officers to use antitoxin freely for abortive and preventive purposes in diphtheria. Then followed a "Symposium on Medical School Inspection." Dr. H. E. SCHMID, President of the Board of Health of White Plains, advocated placing in the hands of teachers circulars in which the early symptoms of the common communicable diseases were outlined, so that they could aid in the early recognition of cases occurring among their pupils. Dr. HARLAN P. COLE of New York City, Consulting Orthopedist of the State Department of Health, discussed physical defects in school children, referring to the need of examining children's teeth, of encouraging a development of the full lung capacity, and particularly of looking out for the minor departures from the normal so often seen in school children and which later, following an attack of acute disease when the power of accommodation has been lost, might develop into marked deformities. Dr. HERBERT D. SCHENCK of Brooklyn, Consulting Ophthalmologist of the State Department of Health, dealt with the detection of defects of the eye, ear, nose, and throat, making special reference to and giving the details of the examination about to be conducted in the schools throughout the State.

The sixth session was omitted to give the members an opportunity to visit the Buffalo stockyards and the packing houses, under the direction of Dr. Benjamin P. Wende, Inspector in Charge of the Federal and Municipal Meat Inspection Bureaus.

The seventh and closing session of the Conference was devoted to a "Symposium on Pure Milk," to suggest what health departments can do to secure the same. Dr. THOMAS DARLINGTON, the Health Commissioner of New York City, showed what could be accomplished by the inspection of dairies and farms. He believed that this was the only practicable method of dealing with the problem for large cities whose milk supply was drawn from a very widely scattered territory. Dr. ERNEST WENDE of Buffalo followed with an address on the permit and license system, and Dr. HENRY R. HOPKINS still further developed the idea of control of the production and sale of milk by the "telltale" milk register, which enabled a health department to trace the source of milk suspected as a means of conveying contagion. Dr. GEORGE W. GOLER, Health Commissioner of Rochester, spoke of what he had done and what had been done by other health authorities in improving milk supplies by educational measures. The address was illustrated by stereopticon views. The last paper of the evening dealt with the use of the score card system and was read by ELLIS W. SANTEE, M.D., Dairy Expert of the United States Department of Agriculture. This, too, was illustrated by stereopticon views. The Conference closed with resolutions of thanks to all those who had contributed to the success of the Conference and to Commissioner Porter for the work that he was carrying on for the protection of the health of the people of New York State.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending October 26, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	350	137
Diphtheria	313	18
Measles	142	9
Scarlet Fever	208	8
Smallpox	..	..
Varicella	40	..
Typhoid Fever	106	23
Whooping Cough	6	2
Cerebrospinal Meningitis	6	8
Malarial Fever	..	..
Totals	1171	205

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended October 25, 1907:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Oakland	Sept. 1–30	3	..
San Francisco	Sept. 28–Oct. 5	8	1
Indiana, Indianapolis	Oct. 7–13	1	..
Kentucky, Louisville	Oct. 4–10	2	..
Illinois, Chicago	Oct. 13–19	2	..
Louisiana, New Orleans	Oct. 6–12	2	..
Michigan, Saginaw	Oct. 6–12	1	..
Missouri, St. Joseph	Oct. 6–12	4	..
Oregon, Two Counties	Aug. 1–31.	3	..
New Jersey, Newark	Oct. 6–12	3	..
Washington, Tacoma	Sept. 29–Oct. 5	1	..
SMALLPOX—FOREIGN.			
Brazil, Para	Sept. 22–28	13	9
Pernambuco	Aug. 0–15.	..	108
Rio de Janeiro	Aug. 26–Sept. 1.	9	3
		(Received out of date.)	
Canada, Halifax	Oct. 6–12	1	..
China, Shanghai	Aug. 26–Sept. 8	..	27
Egypt, Cairo	Sept. 3–9	1	2
France, Marseilles	Sept. 1–30	..	20
Paris	Sept. 22–28	1	1
Germany, Barmen	Sept. 22–28	1	..
India, Calcutta	Sept. 1–7	..	2
Rangoon	Sept. 7–14	..	1
Java, Batavia	Sept. 1–7	7	..
Mexico, Aguas Calientes	Sept. 29–Oct. 5	..	4
Portugal, Lisbon	Sept. 22–28	3	..
Russia, Moscow	Sept. 15–21	1	..
Odessa	Sept. 22–28	1	..
Riga	June 1–30.	52	3
St. Petersburg	Sept. 1–14	4	..
Warsaw	Aug. 18–24.	..	6
Spain, Barcelona	Sept. 24–30	..	2
Denia	Sept. 29–Oct. 5	2	..
Valencia	Sept. 23–Oct. 6.	44	4
Vigo	Sept. 22–28	..	1
CHOLERA.			
China, Hankow	Aug. 24–31.	6	4
Shanghai	Aug. 26–Sept. 8.	10	104
Formosa	Sept. 7–14	1	1
Japan, Southern kens	Sept. 23	..	Epidemic
Kobe	Sept. 7–14	67	26
Osaka	Sept. 7–14	..	Present
Yokahama	Sept. 17–23	4	..
India, Bombay	Sept. 18–24	..	17
Calcutta	Sept. 1–7	..	13
Cochin	Aug.	..	3
Rangoon	Sept. 1–7	..	2
Korea, In Northern part	Sept. 11	..	Present
Nakanoshima, Island	Sept. 5–11	11	2
Manchuria, Dalny	Sept. 15–21	2	1
Port Arthur	Sept. 15–21	4	4
Philippine Islands, Manila	Aug. 31–Sept. 7	3	3
Province of Leyte, Carigara	To Aug. 31.	2 daily.	
Russia, St. Petersburg	Sept. 1–7	16	11
Straits Settlements, Singapore	Sept. 1–14	..	18
YELLOW FEVER—UNITED STATES.			
Florida, Fernandina	Oct 17	1 From S. S. 41f from Santiago	
YELLOW FEVER—FOREIGN.			
Brazil, Manaos	Sept. 15–21	..	3
Para	Sept 22–28	4	4
Cuba, Alacranes	Oct 18	1	..
Cienfuegos	Oct. 18	1	..
Habana	Oct 16	2	1
		One case from Cienfuegos	
Jovellanos	Sept. 24	1	..
Santa Clara	Oct 16	1	..
Trinidad, Matanzas Province, near Unio de Reyes		2	..
PLAGUE—UNITED STATES.			
California, San Francisco	Oct 13–19	5	5
Washington, Seattle	Oct 16–19.	1	1
PLAGUE—FOREIGN.			
Brazil, Pernambuco	Oct. 6–15.	..	1
Rio de Janeiro	Aug 26–Sept. 1	2	2
Sao Paulo	Aug. 25.	..	1
China, Hinghua	Aug. 24.	..	Present
Hongkong	Aug 25–31.	1	1
Nantai, Suburb of Foo Choo	Aug 24 present among natives.		
Egypt Alexandria	Sept 16–28	6	4
Port Said	Aug 19–26.	1	..

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Original Articles.

KUHN'S LUNG SUCTION MASK FOR THE HYPEREMIC TREATMENT (BIER) OF PULMONARY TUBERCULOSIS.

By WILLY MEYER, M.D.,

NEW YORK.

PROFESSOR OF SURGERY AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL; ATTENDING SURGEON TO THE GERMAN HOSPITAL; CONSULTING SURGEON TO THE NEW YORK SKIN AND CANCER HOSPITAL AND NEW YORK INFIRMARY.

THAT artificial hyperemia alone can cure a tuberculous process, belonging to the domain of surgery, is an established fact. This important principle in our therapeutic resources was discovered by Bier fifteen years ago. It has been shown that, if the treatment be properly and faithfully carried out—in most cases requiring many months of patient application—the functional results in the cures of tuberculous joint disease, obtained by this method, are often superior to those resulting from the use of the knife, chisel, and saw.

One of the many tasks that still await solution in connection with this method is the proper practical adaptation of the principle, involved, to the various types of tuberculous disease belonging to the domain of internal medicine and the specialties, principally to pulmonary tuberculosis.

It is self-evident that tuberculosis of the lungs must yield to hyperemic treatment just the same as do tuberculous affections of the joints, tendon sheaths, testicles, etc.

Nature herself has demonstrated this again and again.

I would repeat here that the idea of making use of an increased volume of blood for the purpose of combating surgical tuberculosis was conceived by Bier as a result of his studies of the observations, made by other authors, almost a century ago, namely, that tuberculous pulmonary foci are found with great frequency in individuals with heart lesions causing an *anemic* condition of the lungs, while in the presence of a *hyperemic* state of the latter they are rarely found. Farre and Travers (1815), Louis (1826), and Frerichs (1853) have shown by numerous post-mortem examinations, that patients afflicted with stenosis of the pulmonary artery are very liable to be stricken with phthisis, whereas Rokitansky in 1838 proved on basis of his large dissection material at the Vienna hospitals, that tuberculosis of the lungs is extremely rarely found in combination with venous pulmonary hyperemia due to valvular disease of the heart or deviations of the spinal column, in fact, that tuberculous foci in the lungs heal and show the characteristic cicatrization in the presence of such heart lesions. According to his statistics there were among 143 cadavers with a hypertrophic heart fifteen that showed traces of the previous existence of a tuberculous process in the lungs. The rest showed no signs whatever of any such disease.

Many other interesting proofs of the fact *"that the amount of blood within the lungs determines the degree of liability of the patient to pulmonary tuberculosis,"* are cited by Kuhn. It would lead me too far to enumerate them here.

Greatly impressed with the importance of these facts, it is but natural that Bier should have suggested trying his "Stauungs-hyperaemie"* also upon phthisical patients.

In 1903 he proposed the very simple manipulation of making these patients inspire through the nostrils under slight compression of the nose, allowing them unobstructed exhalation through the mouth. Lately he also used glass suction apparatus of various sizes and shapes, principally over the apices of the lungs.

Two years later, Leo of Bonn revived the proposition made by Jacoby, who tried to accomplish the same end by placing the patient in a pronounced Trendelenburg posture. Of course, this procedure is rather disagreeable for the patients, and less effective, since in this way the blood can only *gravitate* to the lungs. However, the method, if applied in moderate degree, should not be lost sight of as an adjuvant.

The third to advance a useful and generally applicable method, was Ernst Kuhn of Berlin, military surgeon and assistant to v. Leyden, at the Charité Clinic. He constructed the so-called "lung suction mask," which I beg to show you to-night.

The subject of Bier's treatment having been of greatest interest to me for many years, I hope you will forgive the surgeon for trespassing upon your domain. Besides, we so often find tuberculous pulmonary affections in connection with surgical tuberculosis, that, naturally, the surgeon too is directly interested in this burning question.

The construction of Kuhn's mask is based on Bier's original idea of having the patient inhale in a slightly obstructed manner, so as to produce negative pressure in the thoracic cavity. We know that the respiratory distention and contraction of the thorax is automatic, a physiological act. Now, if we prevent the easy filling with air of the elastic lung tissue, as is the case under ordinary circumstances, when the thorax expands during the act of inspiration, the air within the lungs is rarefied and the blood aspirated. In other words, we produce an artificial hyperemia of the lungs by suction.

It was evident, however, that it would be an advantage to be able to increase or decrease this hyperemia by degrees, and it was with this point in view that Kuhn proceeded to construct his lung suction mask. Made of thin celluloid, the mask has the shape of the mouth piece

*A short word, covering the principle of the procedure, is not to be found in the English language. "Obstructive Hyperemia" might be suggested, but the word represents the cause only, not the effect. "Stasis Hyperemia" would be an absolutely false interpretation of the process. What pathologists call a stasis is exactly what must be prevented in applying artificial hyperemia. "Artificial" or "Passive Hyperemia" also expresses but poorly the mechanical cause and physiological effect of the procedure.

we use to cover the patient's face with when administering one of the volatile drugs for general anesthesia. (Fig. 1.) The edges here, too, are protected by rubber tubing which can be filled with air. The mask is divided transversely by means of a celluloid wall, which rests with its border on the upper lip. This border also is provided with an inflatable pad. In this way we have two separate cavities, one for the nose and one for the mouth, there being no communication except by a slide covering a narrow slit in the transverse dividing wall. This slit is opened only if nasal respiration is temporarily or permanently interfered with. The mask is placed over nose and mouth of the patient and held in place by two elastic straps passing below the ears and fastened in the back by means of a buckle. (Fig. 2.) Another slide, attached to the outer side of the nasal section of the mask, controls the degree of obstruction desired. (Fig. 1A.) This is the principal part of the device, inasmuch as by it we regulate at will and by degrees the amount of obstruction to the passage of air into the alveoli of the lungs. It has a scale of 6°, and covers a slit somewhat less than 1-16 of an inch (1 millimeter) wide and somewhat longer than the one in the partition membrane between mouth and nose cavity. Two caps, that can be screwed off, each embracing a small celluloid plate, form the valve for expiration, same as we find this in the ordinary narcosis inhalers. (Figs. 1B and C.)

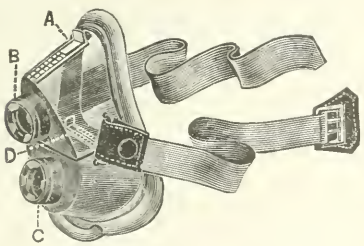

Fig. 1.—The Kuhn Suction Mask

If the regulating slide be entirely open, the patient can inhale quite some air, but naturally never as much as without the mask.

Inspiration is done through the nose and expiration either through the mouth alone or through both mouth and nose.

Of course, if desired, the valve over the mouth section of the mask could be entirely removed. But this should be done in the case of intelligent patients only, as then special attention has to be paid to the act of respiration. During sleep this valve, too, should always be in place.

The mask is worn in the beginning 2-3 times a day for 15 minutes; later, the time is increased to 1 hour 2-3 times per day. The primary unpleasant effects from wearing the mask, consisting in headache and dizziness will not last, but disappear quickly as the applications are continued.

While using the mask the patient would best rest on an easy chair on the piazza or near an open window.

Disinfection is done (with the rubber straps unbuckled) in a *cold*, three per cent. solution of lysol or carbolic acid. Afterwards the mask is rinsed in cold water in order to get rid of the odor of these disinfectants. It is advisable to remove the two caps on top of the mask often and clean and dry the small celluloid plates. They are apt to become sticky, but proper care must be taken to always have them work easily. It must be borne in mind that celluloid is a very combustible material.

It is interesting to know that the idea of improving the condition of phthisical patients by influencing respiration has been worked out by a number of men many years ago.

It is thanks to the courtesy of Dr. E. R. Baldwin of Saranac Lake that I am able to tell you something about this to-night. Three weeks ago I had to visit one of my patients residing at Saranac Lake, and took up with me Kuhn's mask, which I then just had imported. I showed it to Drs. Baldwin and Allen up there, and the former told me that a colleague in New York City, Dr. Chas. E. Quimby, worked along these lines for years and that also a number of advertising men outside of the profession had evidently tried to accomplish the same purpose by means of various similar, though much more complicated devices than the one I could show to-night.

I beg to here read the letter I received from Dr. Baldwin, under date of October 4:

"My dear Dr. Meyer:

"With reference to the various therapeutic measures which have been employed in the past and which, in some degree, have embodied Bier's hyperemic principle as applied to pulmonary tuberculosis, I would mention the following:

"An empirical device introduced by the Rev. Dr. Buckley, the well-known leader of the Methodist-Episcopal church, who himself was said to have had tuberculosis and been much benefited by the use of a breathing tube, containing a ball valve which, I think, was arranged to impede expiration. There has been on the market also a tube known as the Howe breathing tube, which was a somewhat similar contrivance. I have already given you a picture of a device introduced by Dr. Dennison of Denver, the mechanism of which I am not familiar with.

"These empirical devices do not, however, compare in importance, in my opinion, with the use of the pneumatic cabinet which, although long since discarded by most phthisio-therapists, has been persistently used by a few, notably Dr. C. E. Quimby of New York. While the rationale has been somewhat different, I believe Dr. Quimby's theories and practice of the cabinet method have included Bier's principles in effect.

"These are the only things bearing on the history of the subject that have casually occurred to me, but I trust they will serve your purposes.

"Yours very sincerely,

(Signed) "Edward R. Baldwin."

All these men have been more or less on the right track.

To-day, thanks to Bier, we know the *true scientific principle* of their success, and this principle is: Intermittent artificial hyperemia, so-called "Stauungs-Hyperaemic." To-day we are in a position to let *every* patient suffering from phthisis benefit from this "physical method of treating pulmonary tuberculosis" in a simple and, at the same time, agreeable manner.

I have no doubt that this mask will soon be found on the market in a variety of designs, although I think the closer they adhere to Kuhn's model the better.

I myself intended to bring out—with the help of the Kny-Scheerer Co.—a mask made of aluminum. This would have had the advantage of being easily disinfected by boiling—which, of course, cannot be done with Kuhn's celluloid mask; besides, it would be non-combustible and rarely in need of repair, and

if so, this could have been attended to here; furthermore, the mask would have been considerably cheaper than the Kuhn mask, the present market price of which is $8. Unfortunately a U. S. patent on Kuhn's mask forbids this. However, negotiations have been entered into for the purpose of overcoming the obstacles if possible.

Those who cannot or do not wish to spend any money for such a mask, that can be conveniently regulated, may, of course, improvise methods to obstruct inspiration. For instance, they may obtain obstruction to inspiration by placing eye-glasses or some kind of a clamp upon the nostrils, controlling the degree of obstruction by placing them higher or lower. Furthermore, small, perforated corks may be placed within the nostrils, the degree of obstruction to be controlled by the size of the perforations. Empty spools with holes of various calibers may be put into the mouth and held by the teeth, the lips closing air-tight around the spool, will produce obstructed mouth-inspiration, etc. This latter device, will, of course, be found rather annoying to the patient on account of the effect it will have in drying out the mouth and the respiratory passages. All these devices or methods are rather crude, and do not permit of any such exact regulation of the degree of obstruction as the apparatus I have shown you this evening.

Personally I have used the mask on three patients, one of them having pulmorary disease connected with tuberculous bone lesions. Another, a young man of 23 years, who had hemoptysis a year ago and spent the winter in Texas, is using it since the early part of August. He is here before you to-night. He spent the summer months at the hotel, where I stopped, he acting as head of the telegraph office. I got interested in his case and gave him one of the few masks imported for me. He applies it three times one hour daily and feels, subjectively, a decided improvement in his general condition and there is much less coughing. He expects to go to Colorado soon and will, of course, continue the regular use of the mask for several years to come.

The advantages of the mask, as pointed out by Kuhn, are principally two-fold:

1. The healing of the tuberculous foci in the lungs by "Stauungs-Hyperaemie" (Bier);

2. The increase of red and white blood corpuscles as well as hemoglobin in the blood.

It should be specially emphasized here, that the application of the mask is not known to have done harm in a single instance.

For further details I would refer those interested in the question to Kuhn's original articles in the *Deutsche medizinische Wochenschrift*, 1906, No. 37 —to his later article and that of Stolzenburg, both in *Münchener medizinische Wochenschrift*, April 16, 1907, as also to Kuhn's latest paper in the *Münchener medizinische Wochenschrift*, 1907, No. 35.

Here I will but mention:

1. That the beneficial influence of the mask will naturally be best shown in cases of *incipient* pulmonary tuberculosis, or better still, when used as a prophylactic.

2. That also advanced cases are greatly benefited by it, *as long as chronic toxemia and pronounced weakness of the heart do not render impossible any kind of improvement.*

3. That the risk of hemorrhage from the lungs does not forbid its use; on the contrary, there seems to be a diminished liability of a return, as the granulations in the lung tissue apparently get stronger under the application of the mask, same as we observe this in granulations on the surface of the body, while under hyperemic treatment.

4. That post-mortem observation of the lungs of a patient who died of chronic intestinal tuberculosis and in whom the mask had been used for several months, has shown the foci isolated and surrounded by a mass of new-formed connective tissue, the latter being in the stage of cicatrization. Further observations of pathologists will be received with great interest.

5. That, on account of the larger quantity of blood being aspirated into the lungs, more oxygen enters the circulation; furthermore, that in consequence of the resistance offered to inspiration, the entire system of respiratory muscles is strengthened, on the basis of the idea underlying the well-known "Swedish movements" method.

6. That by thus improving the constituency of the blood, the use of the mask not only incidentally improves the usual anemia of phthisical patients, but promises to become one of the most powerful physical aids, so far known to us, in our fight against ordinary anemia.

7. That, according to the degree of obstruction to inspiration arranged for, the mask produces the effect of various high altitudes on the general system, that is to say, it rapidly increases the number of red and white blood corpuscles, of the latter especially the polynuclear neutrophiles, and the percentage of

FIG. 2.—The suction mask in position.

hemoglobin. This is produced by the irritating effect of the condition of reduced tension of oxygen in the blood on the blood-producing tissues of the body, principally on the bone-marrow.

Inasmuch as the increase of the blood elements begins very early, one hour after applying the mask, it will be interesting to watch whether this obstructed inspiration might not be used to advantage in surgical patients, especially after abdominal operations, to produce artificial leucocytosis.

8. That the mask incidentally has proved of great benefit in relieving the pulmonary circulation in cases of advanced valvular disease of the heart, as also in cases of obstinate asthma.

This physical treatment of pulmonary tuberculosis will, of course, not do away with the well-tried and time-honored treatment by means of tuberculin,* pure air, rest, forced nutrition, proper drugs, etc.

It is but another, though *most important link* in the chain of our therapeutic resources in the fight against and probable ultimate conquest of this scourge of mankind.

It increases the natural protecting forces of the organism, by means of strengthening the normal functions of the body.

*The effect of tuberculin injection will probably be increased by artificial Stauungs-hyperaemie." (Leo.)

It will prove to be of especial value in dispensary practice and in the treatment of such phthisical patients as are not endowed with the riches of this world and cannot afford to leave their homes and their families.

I, therefore, believe that Kuhn's mask for the treatment of phthisical patients should be promptly introduced into sanatoria as well as in private practice, thus allowing also *patients afflicted with pulmonary tuberculosis* to benefit from Bier's wonderful discovery.

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RADIUM FOR THE TREATMENT OF CANCER AND LUPUS.*

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In the absence of a positive cure for cancer, surgical or medical, every real aid in the treatment of this disease is worthy of present study, not alone for the quota of good it itself may accomplish, but also as affording a clue to further advances.

This paper is simply a contribution to radium therapy, fortified by citation of a few selected cases. The writer begs to disclaim any intention of putting forward radium (or anything else) as a "cancer cure." This remark is made because at the present moment there seem to exist in some quarters a remarkable psychological state of mind which apparently blinds its possesors to the obvious fact that searchers for truth may impartially report facts and efforts to treat cancer, or even report cures of *some* cases of cancer without in the least wishing to be understood that the same method will cure *all* cases. Certainly the Roentgen ray, radium, and in my opinion trypsin and amylopsin, all and each when properly applied exert a deterrent influence upon the growth of the cancer cell, and until the moment of the advent of a cure for cancer as positive as is the cure of syphilis by mercury, I believe that the practitioner may avail himself usefully of the above, as well as of other agencies.

The Roentgen ray, now beyond question, cures many cases of superficial cancer. But in actual practice it has seemed to me that radium is superior to it in similar cases, granting that we employ the pure radium salt, and again for an actual attack upon a cancerous tumor the Roentgen ray can never be as successfully applied as can radium by the art of embedding it in a suitable receptacle within the cancerous mass. Other reasons for advocating the therapeutic value of radium may be briefly given as follows:

1. Accuracy of dosage. One may use a standardized pure radium bromide of a carefully measured radioactivity. This radioactivity is invariable and the measure of treatment, therefore, may be couched in terms of time units, as, for instance, a total of so many minutes or hours, either at one sitting or consecutively. The difficulty, if not the impossibility, of accurate measurement of Roentgen ray dosage is well known.

2. As regards the gamma rays of radium, their penetrating power by reason of their greater velocity, has been shown to be much greater than that of the Roentgen ray. We may, therefore, expect and do actually obtain a deeper and wider action.

3. In the use of radium, if enclosed in aluminum or mica receptacles, we utilize the beta or cathode ray. This we cannot do in Roentgenization except accidentally and as secondary radiations due to the impact of the *x*-rays. This fact gives the practitioner, for the first time in medicine, the opportunity of directly using the cathode ray, viz., the negative particle; and this differentiates radiation by radium very strongly from radiation by the Roentgen ray. This fact alone would lead us *a priori* to expect different, if not also greater therapeutic effects due to the well-known, powerful, ionizing, chemical, and photographic effects of these beta rays.

4. Finally, the best evidence of the therapeutic value of radium is obtainable from clinical experience. Radium constitutes probably the best modern treatment for lupus vulgaris. Contrast, for instance, apparent cicatrization in seven weeks, as in reported Case III, of an extensive lupus, with a probable four to six months' duration of treatment by roentgenization, and of one to two years in the instance of the Finsen light. Finally, it is the writer's belief that the rapid, aggressive, fulminating action of pure radium bromide applied to the treatment of superficial cancer (or by embedding in other selected cases) and to the treatment of lupus vulgaris constitutes a distinct advance in the treatment of these diseases.

Equipment.—My equipment consists of Lieber's aluminum tubes containing respectively ten milligrams each of pure radium bromide as made by Dr. Sthamer of Germany, of an estimated radioactivity of 1,800,000. These tubes may be used singly or may be combined to produce a total effect. The penetrating power of the gamma rays from this equipment is remarkable. An electrode may be discharged while six inches of iron intervenes between it and them. Suspended one foot away from a pistol or rifle containing cartridges, the penetration is sufficient to exhibit in the customary manner of a skiagraph and with good definition, the cartridges within the weapon. Placed upon a block of stone one foot in diameter the rays penetrate the stone and produce an excellent skiagraphic image of objects placed upon the plate and beneath the stone. One of these tubes placed upon the skin during twenty minutes produces a radium burn appearing within from four to fourteen days and usually proceeding to a secondary stage of serous exudation.

In addition to the above, I use numerous tubes of lower and of different radioactivity and also celluloid rods and disks made after the method of Hugo Lieber of New York, from which are certainly obtained the beta rays and undoubtedly also the alpha, since the radium is spread as a thin film upon the surface of the rod and covered with the thinnest layer of specially prepared collodion.

Technique.—The methods of application of radium must, of course, vary to some extent by reason of the varied types and stages of cancer, but in general treatment is carried out, first, by the gradual method of frequent consecutive sittings of short duration and extending over several weeks or months of time; or secondly, by an aggressive and rapid attack in from one to four or six sittings, of from twenty minutes up to one hour or more each, according to clinical experience. In the latter case the operator expects to produce a severe radium burn, but the sound tissue heals with excellent cosmetic results, while the cancerous tissue (rodent ulcer type and superficial face cancer) disappears. Sound or healthy tissue is certainly far less affected by radium than is cancerous tissue. As pointed out by Prof. von Eyden in relation to trypsin, "the most marked feature of a cancerous tumor is that it re-

*Read at the Second International Congress of Physiotherapy, held at Rome, Italy, October 13-16, 1907.

sponds by increased growth to all forms of mechanical or chemical injury, or injury by heat hitherto known, but never has a tumor, after partial dissolution of its cells by trypsin, subsequently reacted by increased growth, either locally or general." The same remark I believe to be absolutely true as regards the influence of radium. It evokes no increased growth as would an irritant. Whatever gain is accomplished remains secured.

My ordinary method of application is to introduce the aluminum tube within a very thin gelatin tube such as is used to shield thermometers and which may be bought in quantity at a trifling expense. Thus every single application has its individual uninfected shield, which is then thrown away. The tube thus arranged is laid directly upon the spot which it is desired to treat and left there a certain number of minutes determined by prior clinical experience.

I have long advocated and practised in selected cases the method of embedding radium tubes within the cancer and have embedded radium contained both in glass tubes and in aluminum tubes secondarily enclosed in celluloid tubes. I puncture the tumor with a knife or with a Keyes' cutaneous punch. This instrument removes a core as for microscopic examination. Into the tubular cavity I insert the tube. Owing to the extreme hardness of certain carcinomatous masses this procedure is superior to simple incision, since the tube occupies a pocket without possible pressure and consequent irritation. Often the aluminum or glass tube is provided with a silver shield covering one side of it, thus protecting the overlying skin and parts not diseased. In this manner very severe radiation treatment may be administered to large tumor masses or even to enlarged lymph glands and recurrent nodules without fear of skin dermatitis. Since the epidermis and derma absorb perhaps one-half of the radiant energy of the radium, many tumors beneath the skin escape its full influence when employed from the outside, but by means of this method of embedding the radium tube the entire energy of the radium is available. The beneficent influence of the method is illustrated by Case I, in which a large spindle-celled sarcoma of the upper arm appears to-day to be cured as a result of two months of internal radiotherapy initiated more than two years ago.

Furthermore, and incidentally, I use radioactive water which is made by a process I have described in the *Journal of Advanced Therapeutics*, October, 1905. The emanation dissolved in the water travels in the blood stream and diffuses the transformation products of radium.

I should add, also, that I invariably administer to my patients an aqueous solution of fluorescin, or of esculin, or of quinine, in order to excite these fluids to fluoresce within the cancerous tissue during the radium treatment. Experiment admits of no doubt that these fluids do fluoresce in tissue in dilutions possible to obtain most safely by oral administrations. These views have been fully published in an article entitled "Fluorescence Artificially Produced in the Human Organism," published in the *Journal of the American Medical Association*, April 1, 1905.

Satisfactory work can, however, be accomplished only by the pure radium salt, and this fact should at once be recognized, for these salts when impure absorb, as by a sort of screen, by reason of impurities within their own mass, much of the radiation desirable for treatment. When pure, the alpha, beta, and gamma rays are obtained in their greatest quantity and at their highest efficiency. An exception to this remark may be made in the case of the embedding tubes where 100 milligrams of 20,000 radioactivity does good work. And by the use of the aforementioned gelatin and celluloid tubes and shields one-quarter of an inch in diameter and from six to ten inches long, the cavities of the mouth, throat, vagina, uterus, rectum, and the interior of ulcers and sinuses may be treated in a manner impossible by the use of the *x*-ray.

A few cases briefly reported will serve to illustrate the foregoing remarks.

Case I.—Large sarcoma of the upper arm treated by an embedded radium tube and fluorescence. Remains apparently cured now at the end of two years. Miss Lilly V., age 22, May 17, 1905. Referred by Dr. Wm. Kemble, Kingston, N. Y., with the following brief report: "In May, 1905, I examined the right arm of Miss Lilly V. and found a mass of diseased bone which I curetted out and of which I had a specimen examined under the microscope. The tissues examined showed the tumor to be sarcoma." The slides for Dr. Kemble were made in the pathological laboratory of the New York Post-Graduate Medical School and submitted to Dr. H. T. Brooks, who reports that "they show histological features of sarcoma of spindle-cell variety."

The tumor was fusiform and occupied the upper third of the humerus. It was four inches in length and two and one-half in width at its greatest diameter. Following two operations a large opening remained from which issued daily a continuous discharge of about a tablespoonful of pus. The patient had emaciated rapidly and lost her appetite. She presented the appearance of extreme cachexia. Her complexion had assumed a sallow and yellowish color. No hope whatever was entertained of saving her life, but as affording her at least a chance it was proposed to her to amputate the arm at the shoulder. This both she and her mother refused. The bone had undergone spontaneous fracture at the central portions of the tumor and required a splint for support. The case certainly seemed hopeless, but from previous experience in embedding radium I concluded to insert a glass tube into the central portion of the disease. This was comparatively easy owing to the fact that a large opening existed into its center allowing the introduction of the index finger freely and requiring packing. I accordingly placed the patient in the New York Post-Graduate Hospital and inserted the tube, allowing it to remain there continuously for ten weeks. The radium employed was the French chloride of 20,000 radioactivity, 100 milligrams. At the same time, by the way of fluorescent treatment, the patient was given six drops three times daily of a 1 to 30 aqueous solution of fluorescin and four grains of bisulphate of quinine daily. Also she took radioactive water prepared by a process I have already fully described. Beyond this she received no medication whatever nor any other treatment, such as the *x*-ray.

After insertion of the tube a skiagraph was taken and indicated beautifully the head of the humerus, the extent of the sarcomatous tumor, the fracture of the humerus in the center of the tumor, the glass tube containing the radium, and even the radium as it appeared in the tube. (See Figs. 1 and 2.) Within ten days after the insertion of the radium there was great diminution in the discharge and at the same time the pain which had been somewhat severe had entirely ceased. Within four weeks the patient was enabled to dispense with the splint which she had worn continuously with bandages and was able to move the arm somewhat freely, and moreover had regained sufficient strength to walk about a little. Within a period of two weeks she had gained seven pounds in weight and her cachectic

appearance began to disappear. She was discharged from the hospital July 21, 1905, and had gained during this time seventeen pounds in weight. The radium tube was removed and the patient allowed to return home. During the treatment there was evidence of a radium dermatitis upon the external skin, due to radiation outward of the radium.

Fig. 1.—Miss L. V. (Case 1). Showing insertion and imbedding of a radium tube within a spindle-celled sarcoma of the arm. Skiagraph taken at the beginning of treatment.

At the end of three months the patient returned for examination. The wound was nearly healed and the arm looked so well that the patient was sent back home again without further treatment. The opening closed in March, 1906. The arm has never given her any trouble since that time. She uses it as freely as ever for all purposes of life. She can use it to sweep and to do heavy work. She has gained more than thirty pounds in weight and looks to be in the perfection of health. By palpation the bone of the arm is excessively hard and presents a knob-like feeling resembling in fact a large callus. A final skiagraph was taken July, 1907, and seems to indicate that the site of the sarcomatous tumor is now composed wholly of osseous reparative material. (See Fig. 3.) It will thus be seen that a patient who was near to death and whose only hope, that was practically a small hope, was amputation at the shoulder, is now, at the end of two years, in perfect health and with a perfect arm except for a callus-like deformity. It is never safe for many years to say the word cure in a case of cancer, but we can at least say that the patient's life has been saved for the present and that the sarcoma appears to be cured to date. It is my opinion that it is permanently cured.*

Case II.—Carcinomatous tumor at knee. Mr. W. D. C., age 51, April 16, 1907. Referred by Dr. Wm. Kemble, Kingston, N. Y. Twenty-five years ago the right knee was accidentally cut with a hatchet just over the knee cap and at the site of the present disease. Two years ago was kicked by a horse on the same spot. Four months ago noticed swelling at the point of injury. After submitting to salve and iodine treatments at the hands of several physicians, visited Dr. Kemble, who removed as much as possible of the growth, which by this time was about the size of a hen's egg and flatly diffused. Microscopical examination by Dr. H. T. Brooks of the Post-Graduate Medical School and Hospital revealed the "structure of endothelioma," etc. Dr. Kemble's idea in referring the case was to cure if possible those portions of the disease which he had been unable to remove by the knife. As a result of the operation three weeks prior there existed upon the knee a cicatrix about six inches long from the lower border of the knee cap upward, and beneath this an opening. Into the opening I inserted a glass tube containing 100 milligrams of Curie radium, 10,000 radioactivity, and administered at the same time fluorescin, aqueous solution 1 part to 30, six drops three times daily. I then took a skiagraph (Fig. 4) of the radium tube *in situ*. The patient made continuous and rapid improvement. He gained eleven pounds in weight, his knee was relieved from pain, and gradually grew more flexible.

On June 1, since the entire wound had healed and all signs of inflammation and disease had subsided, I removed the radium tube embedded within the flesh above the knee by a fresh incision and placed high power radium, 1,800,000 radioactivity, within the wound for fifteen minutes to prevent soiling of the tissue by any posible disease which might remain. Patient discharged apparently well. This case illustrates the method of embedding glass radium tubes within cancerous tissue and also illustrates the effect of low power radium in causing a healing effect upon cancerous tissue.*

Case III.—Lupus vulgaris. P. N. G., age 56. The patient, a prominent physician, came under my care May 25, 1907. He had suffered from lupus for twenty-one years. The entire left side of the nose up to the bone of the bridge of the nose had been destroyed, leaving an unsightly cavity, to conceal which he wore a false nose. The edges of the gaping wound were actively diseased, ulcerated, and

Fig. 2.—Same as Fig. 1. Skiagraph taken one month after treatment was begun.

*October 25, 1907. The patient remains in perfect health, has perfect use of her arm and has recently married.

*October 25, 1907. The patient is perfectly well and attending to his usual avocation.

discharging. The upper lip on the left side was tumefied and diseased. Isolated tubercles of lupus existed on the cheek and near the inner canthus of the eye. I will give the account of his treatment in his own words: "Treatment consisted of the application, on May 25, of ten milligrams of pure radium bromide enclosed in an aluminum tube for one hour on the tip of the nose. On May 27, of twenty milligrams, two tubes on the tip and on ala nasi for four hours. On the 28th, of twenty milligrams on the septum, a part of the upper lip, and where the ala nasi joins the cheek, for four hours. Total, fifty milligrams for nine hours in three applications. The entire open area treated was irregular in shape and would aggregate about one square inch. During the first week there was not much change noticeable except that the open areas were a little more active than usual. There was no pain or discomfort whatever. During the second week there was a more decided increase in the symptoms. The sloughing became more active in the diseased areas and there was a large amount of watery exudation which soon dried and formed heavy crusts over the entire area where the skin had sloughed. These crusts had to be removed several times daily. The open sores or sloughs increased somewhat in size but all were very shallow. During this week very little discomfort was experienced. Early in the third week the symptoms increased in severity, the upper lip was swollen to almost twice its natural size, but there was little or no swelling elsewhere. The entire diseased area where the radium was applied became quite sore and painful. This was especially marked on the tip of the nose and where the septum joins the lip. The physical and nervous exhaustion was intense, with marked mental depression. The sloughing and watery exudation began to diminish in certain places. During the fourth week the swelling of the upper lip

Fig. 3.—Same patient as shown in Fig. 1. Skiagraph taken two years after the treatment.

began to subside, but the area around and beneath the eye and the upper part of the nose, which had not been treated by the radium, began to swell and became quite sore. For a few days the eyelids were swollen until they were almost closed. The discomfort here was equal to that previously experienced in the area upon which the radium tubes directly rested. There were a number of small lumps or elevations in this area, some as large as a pinhead and some larger. They became inflamed and very soon the slough below extended upward to the inner canthus of the eye and cleaned out all the lumps or

Fig. 4.—Mr. W. D. C. (Case 2). Showing radium tube permanently inserted within the cancerous mass of the knee.

swellings just mentioned. During the latter part of this week the swelling and all other symptoms began to subside very rapidly and healing began in all parts and made rapnd progress. The physical and nervous depression rapidly gave way to conditions just the opposite, and instead of the despondency was buoyancy and a sense of extreme happiness. At the latter part of the fifth week all parts were healing rapidly and cicatrization was nearly complete. The swelling in all parts had entirely subsided and no discomfort whatever was experienced. At no time did inflammation extend to tissues which had never been invaded. This would indicate to me that radium has an elective action on the tissues. The cosmetic effect in this case has been remarkably good. At no time was the suffering sufficient to prevent my attending to my professional duties."

The doctor adds in a special note: "I have wondered if there could be any toxic condition or a toxemia produced by the destruction of diseased tissues in this case. In no other way can I account for the depressing conditions mentioned. Please let me know when to come on to let you see this wonderful and rapid result. To me, this is the most wonderful thing I have ever seen. It appears to be almost miraculous. Never before have I had such remarkable results in the twenty-one years I have had the disease. I am sure you will be very proud of your work when you see these results."

July 15. Examined at the end of the seventh week, the condition was as follows: Complete and characteristic parchment-like cicatrization of all the parts previously involved by the disease. Where formerly the tissue from the inner canthus of the left eye to the opening of the nose was occupied by tuberculous lupus, there is now a clean, white cicatricial patch. This is equally true of the parts of the upper lip involved, also of the rim of the exca-

vation which had been cut into the contour of the nose on the left side. As a matter of fact, the disease appears at present completely cured. Patient returns home with this advice, to watch for any point of recurrence, and if such points become established to return for treatment.*

Case IV.—Lupus vulgaris. Mr. M. M. C., age 68, June 14, 1904. Referred by Dr. R. Tusting, Asbury Park, N. J. Began sixteen years ago. Used many remedies. Examination. Left side of the face, small, characteristic cicatrix of lupus one-half inch in diameter, one inch from outer canthus of the eye. On cheek beneath the eye, an ulcerated patch one inch long, half an inch wide, extending to within one-eighth of an inch of the edge of the lower lid. Lid congested and also eyeball, with slight eversion of the lid. On the right side of the cheek below the outer corner of the eye extending downward about an inch and extending across cheek is an irregular line about half an inch wide and for the distance of one and one-half inches was a spot considerably ulcerated but having healed areas. The ulcerating portions were discharging pretty freely. Applied radium, 1,000,000 radioactivity, irregularly, owing to the patient living at a distance, up to September 30, 1904, thirty-six times. Within a few days the discharges ceased and irritation was relieved and the ulcers began to heal. By July 11 cicatrization beneath the left eye was so extensive as to cause great eversion of the lid.

July 28. All ulcerations had healed and patient returned home to await events.

September 30. Returns with slight recurrence on both cheeks, which were immediately treated in the same manner.

December 5, 1905. Patient returns for treatment about every two weeks. There still remain two hard, little, tender spots of active lupus, but all ulcerations are healed.

Up to June 25, 1907, over a period of three years, patient has received about 160 total radium treatments. The improvement in facial appearance is remarkable and the radium has cured an extensive area which had been a distress to him for at least twelve years. The case illustrates the slow method of using radium. I believe the rapid method to be preferable.

Case V.—Lupus vulgaris. Mrs. H. H., age 59, May 18, 1905. Referred by Dr. A. R. Stern. Patient first noticed, about ten years ago, a small pimple on the left side of the nose at the junction of the cheek. This was curetted by a prominent practitioner and healed perfectly, leaving, however, an unsightly scar. Present trouble is a similar spot on the cheek about half an inch in diameter, resembling a digital depression. Palpation shows an evident falling in of the tissue and lack of substance.

Treatment.—Radium, high power, four times, thirty minutes each. Patient then went to Europe.

September 6. Patient returned, but some disease still persisted. Several more treatments of high power radium were applied until a radium burn about one inch in diameter was produced, when the patient returned to her home in Texas. On Christmas she wrote that the disease was entirely well and it has remained well ever since.

Later on, May 28, 1907, the patient returned for similar treatment for another but distant spot on the cheek. A similar radium burn was produced, and without doubt the result will be as favorable as in the first one.

*Oct. 15, 1907. This patient returns as was advised and expected for treatment of several quite small foci of disease, but the generally large area is healed and presents the usual healthy cicatrix.

Case VI.—Epithelioma of lower lip. Mr. M. K., age 66, May 19, 1905. Referred by Dr. M. D. Rushmore. Patient had been operated upon about six weeks previously with partial extirpation of diseased area of the lower lip. Disease too extensive for entire removal. Some of the affected cervical glands also had been removed, leaving others still enlarged. The induration and infiltration of the lower lip at the point of the scar was particularly well marked.

Treatment.—Radium bromide, 1,000,000 radioactivity, in an aluminum tube three times a week, half an hour at a time, two tubes, one inside the lip and the other outside. Disease went on steadily retrogressing. At the end of a month considerable dermatitis was established.

July 21, 1905. Patient discontinued treatment. The glands in the neck had entirely disappeared and also all signs of disease in the lower lip, leaving simply an ordinary cicatrix. Up to July, 1907, there had been no recurrence.

Case VII.—Epithelioma of nose. Mrs. T. R. E., age 60, March 29, 1906. Referred by Dr. Jennie E. Gore. About four years ago noticed a small, red spot on the left side of the nose which would crust over and bleed easily and would not heal. During these four years she had been to seven different physicians, who respectively prescribed zinc ointment, ichthyol ointment, "an ointment," "a wash," painting with iodine, etc., etc. Examination disclosed an open ulcer half an inch in diameter on the side of the nose, with induration at its edges and presenting a characteristic apearance of epithelioma.

Treatment.—Two aluminum tubes containing radium bromide, estimated radioactivity of 1,000,000, were laid upon the ulcer three times a week and for a period of twenty minutes at each sitting. Patient received twenty-nine treatments, extending over a period of about three months, namely, until June 1, when the ulcer was completely healed. Six months later the patient called. The original site of the wound was occupied by an almost imperceptible scar and remained perfectly sound and remains so to date. This case illustrates the gradual method of radium treatment for the ulcer continuously healed during its application.

Case VIII.—Epithelioma of lower eyelid. Mrs. H. G., age 39. Referred by Dr. F. C. Ard, Plainfield, N. J., October 6, 1902. About five years ago injured the lower eyelid by accidentally striking it against a steel towel rack. Four years ago the lid began to itch and a scab formed on it; a growth appeared and the family physician excised it. Some time after this it reappeared and extended below the margin of the lid presenting the appearance of an ulcer whose center was covered with a crust and whose margins were elevated and rounded. Was treated by curettage and applications of nitrate of silver and by a great variety of ointments, but it would not heal. Portions removed demonstrated microscopically the nature of the disease to be epithelioma. In about eighty days, with about thirty-three treatments by *x*-ray and fluorescin, the ulcer appeared to be cured and was reported by me with photographic reproduction, appearing to be a cure, in the Medical Record of May 30, 1903. Patient then went to Europe.

October, 1903. Signs of recurrence appeared in the form of a small, hard tumor at the edge of the lower lid. Low power radium was used persistently upon this and it again apparently disappeared. But again, after an interval of six months, the growth reappeared. I then concluded that the na-

ture of the disease was so obstinate that, in the interest of the patient, it would be well to excise as much as possible of the small tumor, and accordingly referred the case to Dr. Edw. L. Oatman, who at different times performed most brilliantly and successfully various plastic operations both for the removal of the cancerous tumor and the restoration of the symmetry of the lower lid. Now again, Dr. Oatman and I thought that the disease had been extirpated, but on February 14, 1907, the patient returned, exhibiting at the edge of the lid an infiltrated area whose central portion was breaking down and scabbing over and at times bleeding. Dr. Oatman says he could perform an operation, but it would be a very difficult one. In my opinion such an operation would be accompanied with grave danger of extensive recurrence. In the meantime my own experience with radium led me to believe that by using the high power radium vigorously instead of as formerly using low power, I could produce an overwhelming effect upon the tumor and rely upon its healing at the time of healing of the consequent radium burn. I accordingly gave the patient to take internally esculin and fluorescin and applied high power radium four times, twenty minutes' duration. Owing to the excessive treatment of this lid by *x*-ray and to various operations, the area was deeply sensitive to the radium application.

March 6, 1907. Lower eyelid very sore from the radium. A little tumor on the eyelid has disappeared. The hope is that the lower eyelid may now heal *pari passu* and with the healing of the radium burn. Patient again went to Europe with a fairly congested looking eyeball and with considerable redness of the lower lid, wearing a veil to conceal this.

May 27, 1907. Returns to office to report that she is perfectly well. Lower eyelid shows no signs of disease. It was a matter of great rejoicing to the patient as well as to myself to have finally apparently won out in this case. Dr. Oatman, who had performed much hard work over it, also was greatly pleased. I feel now that with high power radium at command, should the disease again occur, I have it entirely in hand.*

Case IX.—Facial cancer. Mrs. G. W. D., age 47. Referred by Dr. Francis Valk, February 13, 1907. First noticed a small scab on the cheek, one inch below the eye, about five years ago. The thickening of the skin increased in size until, at the date of examination above given, it measured three-fourths of an inch in diameter, constituting a thick plaque, raised and infiltrated at the edges and ulcerated in the middle. Treatment. Radium, highest power, ten milligrams, half an hour four times weekly.

March 6. After seven applications of radium we have an area one inch in diameter which is intensely red and in its center discharging and producing a scab, but at the same time every sign of induration and infiltration of the tumor has disappeared. The radium treatment was now arrested; the spot allowed to heal, carrying with it the healing of the cancer. A second small tumor of the lower lip was treated exactly in the same manner and the tumor entirely disappeared in about the same time. Patient at time of writing remains entirely cured.

Case X.—Epithelioma of the lower lip. Mr. F. L. H., age 45, March 1, 1907. First noticed, two years ago, a little crack in the lower lip. Soon a small lump appeared beneath it. This was excised. The wound healed promptly. Two months later it returned and was removed with "plaster." The disease has now returned, extensively involving nearly the entire lower lip. From March 1 to April 1 the patient received high power radium treatment, ten minutes daily, outside and inside the lower lip. A radium burn developed from angle to angle on the lower lip within the mouth and on the outside a similar dermatitis was established, but correspondingly all signs of tumor disappeared with the exception of a small lump, the size of a mustard grain. Radium was continued at this point daily until April 19, when the patient left for home, with no signs of disease remaining. Advised to return for further treatment should any appear.

Case XI.—Facial cancer. Mr. J. J. F., age 23, January 25, 1907. Fourteen years ago noticed a "pimple" on the right side of the nose which grew rapidly. This was lanced. It again grew and was again lanced. A lump about as big as a hazel-nut now appeared at the site of the trouble. This lump was removed by a surgeon. It recurred in three years and was again removed. It continued to recur and was removed surgically four separate times until, at the time of the present examination, a rather extensive cicatricial area existed as well as diminution of available sound skin for further operation.

Present condition. An irregular tumor mass at least an inch in diameter and raised very considerably from the surface. High power radium was applied to the tumor seven times, twenty minutes' duration, over a period of ten days. A radium burn developed two weeks later; no sign of tumor could be found; the radium burn healed kindly. Examination lately revealed no evidence of the radium burn as well as no evidence of the disease. There was left behind simply the normal cicatricial tissue due to previous operations.

Case XII.—Carcinoma of chest. Mrs. S. C. D., age 35, May 17, 1907. First noticed, eighteen months ago, a small lump the size of a hazel-nut on the left side, just above the upper edge of the left breast. This lump has steadily and slowly grown up to the present moment. During menses the tumor gets larger and itches, tingles, and prickles, and is slightly painful. The tumor mass, which measures three inches vertically by one and three-fourths inches horizontally, consists of two portions, a lower, intensely hard, disk-like mass, two and three-fourths inches in diameter, and an extending portion upward, less hard but massive. Over the disk-like mass exists a distinct depression where the skin is involved and drawn inward. For some time she had noticed quite permanently an enlarged gland the size of the end of the thumb in the left axilla. Examination reveals a very extensive network of inflamed lymphatic channels leading off toward the axilla. It was evident that most extensive infiltration of the chest wall had already occurred. It was a grave question as to what advice to give this patient and as to what to do. From my experience in such cases, I felt perfectly convinced that if operated upon the disease would recur in an extensive manner, owing to the widespread diffusion of the disease by the lymphatics. I concluded, therefore, to submit the growth to an overwhelming attack by two aluminum tubes containing ten milligrams each of radium bromide of 1,800,000 radioactivity and to push the application even at the expense of the inevitable radium burn of the skin. This plan was fully explained to the patient and her assent to the production of the burn received.

Beginning May 29, the patient received seventeen days' treatment almost daily at sittings of three hours, each of the radium tubes placed at different

*October 25, 1907. Disease still appears to be absent. For the sake of prophylaxis, one brief treatment was given.

points over the tumor mass, particularly over the disk-like depression of the scirrhus plaque. In about ten days every sign of tumor had disappeared except the plaque. At the end of the seventeenth day this scirrhus mass was reduced to a small lump about the size of the end of the little finger. The corded lymphatics could no longer be found; the axillary gland remained about as before. The skin area of the tumor presented the appearance of an intense radium burn just entering upon the serous effusion stage. The treatment was forced particularly because the patient was obliged to return to a distant State, and the result of the recovery from the radium injury and of the healing of the tumor could be awaited while at home.

The case illustrates the overwhelming attack by means of radium in contradistinction to its gradual influence, and second, the fact that an extensive and recent carcinomatous growth may quickly melt away, so to speak, under the use of radium, while at the same time a scirrhus lump has been reduced to a small mass rather soft and uncertain in feel and now about the size of a bean. Of course, the ultimate outcome of this case remains to be reported.*

Case XIII.—Carcinoma of cervix uteri. Mrs. J. F., age 64, December 5, 1906. Multipara. Referred by Dr. Wm. Kemble, Kingston, N. Y. Present trouble started in December, 1905, with a bloody discharge, which persisted up to two weeks ago, when she was operated upon by Dr. Kemble, who removed by curettage a very considerable portion of the mass of carcinomatous tissue. He then referred her to me for further cure of the disease. The aluminum radium tube, containing 10 milligrams of 1,800,000 radioactivity of pure radium bromide, was first slid into a narrow celluloid tube eight inches in length, and this in turn inserted into the patulous os, and there allowed to remain twenty minutes. Ten treatments, extending over a period of two months, were administered. At this time the os healed perfectly, and no sign of disease could be discovered. Patient returned home. By April 4 she had gained twenty pounds, and at present date, July, 1907, remains well. In this case trypsin, 20 minims up to thirty-five treatments, was also employed. I cannot, therefore, differentiate as to the relative value of these two agencies in this case. This record had no more than been made when the patient returned for further treatment for a slight recurrence.

Case XIV.—Carcinoma of uterus and adnexa. Mrs. E. M., age 59, multipara, May 18, 1907. Referred by Dr. J. N. West. First noticed, July last, quite a severe flow of blood, lasting for two days. Examined by two competent physicians from her native State. They both pronounced the trouble to be due to a very extensive carcinomatous involvement of the uterus and anterior vaginal walls, etc. Patient came to New York and went to Dr. West, who, after careful examination refused to operate because of the extent of the disease. The carcinoma had even involved the bladder. Patient cachectic, debilitated, and suffered much loss in weight. She suffers much from irritation of the bladder and with backache. There is very profuse and offensive discharge of blood and serous fluids. Examination revealed the condition as reported by Dr. West. The entire pelvic contents seemed to be caught and welded together in a solid mass, and so extensive was the carcinomatous ulceration at the cervix that an index finger could be inserted freely within the crater-like and protruding cavity. Radium tube, highest power, ten milligrams, enclosed within a celluloid tube, was inserted within the cervix, and as far upward as possible within the uterus for twenty minutes daily. Patient took 6 drops of an aqueous solution of fluorescin, one part to thirty, three times daily, and also radioactive water.

June 7. Patient examined to-day. Evidence of cicatricial action everywhere is established with retreat of the disease and a smaller area involved. The rigid and immobile carcinomatous pelvic floor has become mobile. Patient is able to dispense with half her opiates and sleeps and eats and feels much better and is in good spirits. The discharge has ceased entirely as well as the odor. The effect of the radium thus far is therefore most excellent, and the treatment will be continued.

Case XV.—Carcinoma of uterus. Mrs. E. F., age 64, multipara, May 15, 1907. Referred by Dr. Geo. W. Marshall, Milford, Del. Disease gradually developed, accompanied with pain in the back and general suffering, obliging her to take to her bed. On examination Dr. Marshall found an extensive carcinoma of the uterus involving its entire mass, and extending toward the right ovary, which was evidently the seat of cystic degeneration, for she had alternate attacks of a severe flow of blood, and then again a full flow of extremely offensive liquid filled with depressed and purulent material. Patient thin, cachectic, and feeble. Sleeps but little on account of distress and pain. The abdomen at times tumefies on the right side, and then the tumefaction disappears accompanied with an excessive discharge of offensive material. This is extremely uncomfortable until the discharge is established. I determined to use the high power radium alone in this case to test its efficacy. As in the previous case, the celluloid tube was inserted within the cervix, and even up to the fundus, and allowed to remain twenty minutes daily for one month, the patient receiving at the same time six grains of bisulphate of quinine daily and six drops of an aqueous solution one part to thirty of fluorescin, and radioactive water.

May 29. Improvement in general health and diminution of discharge and odor.

June 7. Examination. The extensive carcinomatous ulceration of the cervix had completely healed, so that the celluloid and radium tube could no longer be inserted with comfort. The tissue appeared to be perfectly sound and well. The patient reports that she is feeling very much better and that the discharges have almost ceased.

June 19. Infrequent discharge of less than half an ounce of watery fluid, with no odor and no pain, and patient is gaining in weight.

July 12. Patient returns home. No discharge whatever since two weeks. Examination reveals no signs of disease whatever. Has gained much in weight and feels perfectly well.*

The importance of the above case lies in the rapid effect upon the carcinoma of the radium, for what was visible as an extensive carcinomatous ulceration is now entirely healed, and that much progress at least has been made.

In conclusion we would submit that the pure radium salt has a decisively beneficial action in the treatment of some cases of cancer and lupus.

*October 25, 1907. Under date of October 3 the patient writes to me: "I have often thought of writing to you to tell you how very sore the radium made my breast, then I thought I would wait and write to you when it was healed. There is a small scab where the lump was that has not come off yet. I don't feel any lump there now."

*October 25, 1907. This patient returns in fine general health and has gained ten pounds in weight. But there is still evidence of disease, not extensive or troublesome, but sufficient to require treatment.

INTRACRANIAL COMPLICATIONS OF DISEASE OF THE ACCESSORY SINUSES OF THE NOSE.*

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In the time allotted to me this evening I shall not attempt to discuss cerebral conditions *per se,* but shall rather confine myself to the consideration of the various questions which arise from considering such conditions as related to or having their origin in the diseased accessory sinuses of the nose.

As here used, disease of the accessory sinuses of the nose means empyema of these sinuses, acute or chronic. Asked to write a paper on "Meningitis as caused by Empyema of the Accessory Sinuses," I have taken it to mean that I am asked to read a paper on the intracranial complications of sinus disease. These are the diseases of the brain due to infection. They comprise meningitis, abscess, sinus thrombosis, etc., together with the septicemias and pyemias that may arise in connection with these complications.

The existence of cerebral disease of rhinogenous origin has received scant or no attention from writers on general medicine and surgery. The subject, to say the least, has been neglected by rhinologists of this country. To those of us whose work is restricted to diseases of the nose and throat, and especially to those of us who are connected with large metropolitan clinics devoted to nasal work, disease of the accessory sinuses of the nose seems a frequent trouble. On the other hand, a vast majority of the medical profession have never given the nose or the bones entering into the base of the skull further thought than was forced upon them during their courses of study when they learned of the innumerable processes, fissures, cavities, articulations, muscular attachments, etc., connected with these bones, but never learned from any source that to any degree of frequency they might be the seat of serious disease.

Later, as hospital interne, the young medical man saw seldom, if ever, the condition of the nose or sinuses investigated during life, and it was absolutely neglected at autopsy. To the above stated facts is undoubtedly due the further fact that to a very recent date our specialty has suffered from lack of sympathy on the part of the general profession—in fact, the specialty has suffered on account of the lack of knowledge on the part of those who have entered the ranks as workers along its lines; but patient observation, investigation, exchange of ideas, recording of findings, here as elsewhere, is rewarded, and we are conscious that workers in our line have added much to the general store of scientific knowledge, as well as pointed to new ways in which life may be made more enjoyable and frequently prolonged.

One of the most interesting questions with which we have had to deal has been the diseased sinus. On general principles, we have considered its influence on the general health and comfort of our patient, its influence in the production of further nasal disease, its cause, and its eradication or cure, and in the last few years, on account of the work of many men, perhaps the most interesting question is that of the "cerebral complications of sinus disease." This phase of the subject has not received as great attention in this country as in England, France, and Germany. Berger[1], in 1886 and 1892, contributed valuable articles on the subject, and we are indebted to many men for comprehensive writings since that date—notably Dreyfuss[2], Wertheim[3], Kuhnt[4], Hajek[5], Killian[6], St. Clair Thomson[7], Logan Turner[8], and in this country Thomas Hubbard[9] of Toledo.

Since the offensive activity of the influenza bacillus in 1889—or whatever has conduced to produce the grip—disease of the accessory sinuses of the nose has been constantly on the increase and has been generally recognized, but has not been systematically studied by clinicians and pathologists. Until such scientific research has been instituted, statistics must be extremely faulty. As suggested by Turner, we shall make the mistake of overestimating the total number of reported cases if we quote the numbers given by various writers, as each reports the observations of previous authors. Therefore, in giving the authentically reported cases, I shall cite only the numbers given by the later writers who have laboriously gone over the statistics to see that cases are not repeated.

Dreyfuss, in 1896, collected and published something over fifty cases of cerebral complications having nasal origin. His classification, according to Hajek, is as follows: Arising from suppuration in the antrum of Highmore, 5 cases; in the frontal sinus, 25; in the ethmoid cells, 10; in the sphenoidal sinus, 16.

Since that time the literature on this subject has been confined for the most part by each writer to some particular sinus, or the report of cases, except for the articles by Hajek on the subject before us as connected with the sinus complex, in 1903; and later, in 1906, he has contributed a valuable article dealing with the pathology, modes, and paths of infection, etc. Logan Turner (1905), discussing the cerebral complications of frontal sinus diseases, adds 12 cases to the 30 already reported by Killian, making a total of 42. Hubbard of Toledo (1903) reported a case belonging to this class, as shown by the history and autopsy. He reports several others that might be added, but histories are not complete. From personal experience I can add but one case to this class, the history of which is as follows:

On January 13, 1905, I was asked by Dr. Frank Lewis of this city to see, with him, a woman seventy years of age who for about six months previously had noticed more or less swelling between the root of the nose and the eye of the left side. The swelling had gradually increased in size for the past three months, and had markedly increased during the past week. Aside from dull headache, she had had no marked symptoms, and had not been annoyed by nasal discharge. Friends stated that she had not been so bright as usual of late, but this was accounted for by her advancing years.

On the first visit, Dr. Lewis found a red fluctuating tumor just above the inner canthus of the left eye, but could force no pus from the lacrymal sac. The patient was sent to the Manhattan Eye and Ear and Throat Hospital, and on the following day, under ether anesthesia, an incision was made into the swelling, Dr. Lewis feeling that it was an empyema of the tear sac. A large amount of pus was evacuated—so great a quantity as to cause Dr. Lewis to feel that he had to deal with a greater reservoir than a distended tear sac, and to ask me to see the case with him, which I did on the day following

*Read at a joint meting of the Laryngological and otological sections of the N. Y. Academy of Medicine, May 29, 1907.

the operation. I found the patient conscious and rational, though rather stupid and dull. A probe introduced through the incision passed backward unobstructedly about two and a half inches, and bent, passed into the largest bony cyst of the middle turbinate that I have ever seen. I diagnosed extensive empyema of all the accessory sinuses of the left side of the head, and expressed myself as willing to operate. Fortunately, however, the operating room could not be had for several hours. In the meantime a sample of urine examined showed a large percentage of albumin and casts; the patient was reported as rapidly failing, and the idea of operation was abandoned. She died during the following night. The autopsy findings referable to the brain, as reported by Dr. E. G. Zabriskie, pathologist, were as follows:

"Incision communicates with the frontal sinus, from which pus may be seen issuing. Calvarium thickened irregularly, otherwise normal. Dura is intensely congested, distended, and firmly adherent over cribriform plate; left frontal sinus, body and wings of sphenoid bone, otherwise normal in appearance. The brain shows a diffuse purulent lepto-meningitis. Over the left convexity a greenish yellow pus is seen burrowing up between the pia arachnoid and the brain cortex. This covers the hemisphere as far back as the occiptal lobe fissures and covers almost completely the base. The outer surface of the cerebellum is only here and there streaked with purulent matter. The process seems most intense at the beginning of the Sylvian fissure, and seems to have extended upward from this point. The brain shows small patches of encephalitis, more particularly in the left frontal lobe. The ventricles are moderately distended with cloudy cerebrospinal fluid. The inner surface of the dura is everywhere smooth and glistening. On separating the dura from the skull it at once becomes apparent that at the point where it is most firmly adherent the bone is necrotic. The cribriform plate and the inner bony wall of the frontal sinus have been entirely absorbed in the process of necrosis, and instead of bone the dura—enormously thickened and covered with unhealthy exuberant granulation tissue—serves to separate these cavities from the brain. The cerebral surface of the dura at this point is normal in appearance. The ethmoid cells are the seat of intense inflammation, purulent in character, with necrosis and absorption of the bony walls. The body of the sphenoid is dark greenish in color, dry and necrotic. The sinus is filled with mucopus, and the posterior wall is remarkably thin from the necrosis.

Microscopical.—Portions of the thickened dura were cut and stained. The sections showed necrotic granulation tissue shading off into very dense connective tissue hyperplasia, which in turn resembled normal dura as the inner surface was approached. The meningeal vessels at this point seemed more congested, showed perivascular round-celled infiltration, and in many instances extensive arteriofibrosis. Bacteria could not be demonstrated penetrating the tissue. The brain, excepting for capillary congestion and small localized areas of encephalitis in the frontal lobes, with low grade chromatolysis in the outer ganglion cells, was normal."

Scholle reports two cases of meningitis due to disease of the frontal sinus, as shown by autopsy—the first, in a boy ten years of age; the second, in a girl twelve years of age. In the latter case the sinus disease was a complication of scarlet fever.

Reinhard reports a case of brain abscess and extensive leptomeningitis in a patient twenty-six years old, resulting from frontal sinus abscess.

Dr. Richard Mills Pearce reported in the Journal of the Boston Society of Medical Sciences, in 1898, the result of the examination of fifty cases which came to autopsy at the Boston City Hospital on account of diphtheria and scarlet fever. All except three were children. Of the children, all but two (one ten, the other twelve years of age) were between the ages of two and six years. The disease classification was: Diphtheria, thirty-nine cases; diphtheria and scarlet fever, five cases; diphtheria and measles, two cases; scarlet fever, forty-six cases. Sinus disease was found in twenty-five of the thirty-nine cases of diphtheria, in both the cases in which diphtheria was complicated by measles, in two of the five cases of diphtheria and scarlet fever, and in all of the scarlet fever cases.

Dr. Norval Pierce, in a paper entitled "Indications for Radical Operation on the Nasal Accessory Sinuses," states that experience teaches us that "the mortality of the accessory sinus suppurations at the present time has been greatly increased by operative interference." Although I shall return to the discussion of this statement later, I have introduced it at this place to say that I could add many cases of cerebral complications of empyema of the frontal sinus if I were to report all the post operative cases of which I have knowledge. But there is in many post-operative cases an element of doubt as to whether the cerebral complications were induced by the operative interference. This is especially so in that class of cases that die in from two to four or more weeks after operation. None of this class are referred to in this paper. Of course one's patient may die after an operation without the result casting reflection on either method or operator. For instance, suppose one had operated on the case just reported by me, he could have been certain that his operation had in no way caused the death of the patient. Further, the work of some men is among a class of patients who do not seek medical or surgical aid until great destruction of tissue has taken place or serious complications have ensued, and of necessity their mortality statistics must run higher than those of men whose work is among a better class, who seek aid at the first departure from normal conditions. Without doubt this explains to a certain extent the varying mortality results of frontal sinus work.

Sphenoidal Sinus.—The most recent and interesting article on the cerebral complications of sphenoidal sinus disease is by Dr. St. Clair Thomson, in which he has added two cases to the forty he had been able to collect up to that time. Dr. Thomson, under the heading of "remarks" says that evidence demonstrating the possibility of cerebral infection from sphenoidal suppuration is of recent date. Less than twenty years ago the very extensive researches of Berger and Tyrmann only revealed one case. Dr. Thomson, after excluding all those cases showing only ophthalmic complications—in fact, all cases not resulting fatally—as said before, found forty cases which he has arranged chronologically according to cerebral complications, in an appendix to his paper. With the two reported by himself, the classification is as follows: Meningitis, 17 cases; thrombosis of cavernous sinus, 4; thrombosis and meningitis, 13; encysted abscess of dura mater, 1; abscess, intracranial, 1; meningeal septicemia, 2; hemorrhagic encephalitis, 1; phlebitis of cavernous sinus (giving rise to pyemia), 1; intracranial hemorrhage, 1; suppurative encephalitis, 1.

Of the bacteriology, Dr. Thomson says: "In several observations the infecting organism has been demonstrated. Pure cultures of strepococci have

been found in the sphenoidal sinus and in the thrombosis of the cavernous sinus, and in the pus at the base of the brain. Staphylococci have been found in the sphenoidal sinus and in the blood in pure culture in both situations. Micrococci have been found in the blood removed by lumbar puncture, grouped in pairs, and in diplococci or in chains, in the pus of the sphenoidal sinus. The pneumococcus of Friedlander may occur in pure culture; the pneumococcus occurs in the pus of the sphenoidal sinus and in the meninges. In one case the diplococci pneumoniæ were found not only in the sinus and meninges but also in the sphenoidal bone itself, and in another the streptothrix was obtained in the meningeal pus.

On treatment, Dr. Thomson says that our knowledge justifies us in advising any patient with pus in the sphenoidal sinus to have the orifice enlarged and the sinus drained both for a relief and cure of the suppuration, and as a preventitive of ocular complications. He further states that whereas secondary infection may be ascribed to surgical traumatism, it may also be simply coincident.

So excellent and convincing is Dr. Thomson's paper that it calls forth more than a page editorial in the *British Medical Journal*. I quote two paragraphs from that editorial, as follows: "If the nose, however, has lost its prestige as a subsidiary part of the cerebral mechanism, it has in these latter days acquired a new importance as a possible starting point of suppurative processes that may extend into the interior of the skull, setting up most formidable complications. The knowledge of this particular correlation between the nose and the brain is one of the most recent advances in pathology; and as it has clinical applications of great interest and importance it is well worth while to give a brief exposition of what is known of the subject."

"How is it that this promising corner of the field of inquiry has almost escaped the searchlight of the pathologist? Three causes may be suggested: In the first place, the detection of pus in the accessory sinuses of the nose is not an easy matter and is still limited to the practice of experts; secondly, these sinuses are not regularly and methodically examined at all post-mortem examinations; and thirdly, it has not been realized that infection may pass from these air cells of the face to the cranial contents and traverse the bone without leaving any visible track or connection."

At no better place can I relate the post-mortem findings of a case which came into my hands while making a study of the development of the accessory sinuses of the nose. This case interested me so much that I got histories from two hospitals in which the child had lately been a patient, as well as a report from the mother of the child's condition during the three weeks she was at home before being taken to the second hospital.

G. E., aged nine, was admitted to Riverside Hospital, March 5, 1904, with measles. Nothing unusual is noted on the hospital records except that the nose was frequently irrigated. On the tenth of March, five days after admission, she vomited all night. On the 14th, there was bloody sputum and vomiting. 15th, restless during the night, and on the two following days was nauseated, after which she seemed to be better, and was discharged on April 6. Enlarged glands were noted, also pain in ear and lowered hearing, but no aural discharge. She was admitted to Bellevue Hospital May 2. On the admission chart the following notes appear: Well nourished and developed. Moderately anemic; very irritable; mind clear. Eyes: Slight ptosis, left; pupils equally and moderately dilated. Ears: Hearing slightly diminished; same both sides; slight tenderness over mastoids; no discharge. Nose: Normal; no discharge. Pulse: 130, regular; fair size; good force. Heart normal. Lungs normal. Abdomen: Walls held rigid. Reflexes: Patellar, much diminished; superficial, present; poorly marked double Kocnig; no Babinski present.

Spine: Rigid; no episthotonos.

Remarks: The day following her discharge from the Riverside Hospital she vomited, and for one week following was languid and lay about the house, spending most of the time in bed. For the two weeks following, seemed better, until three days ago, when she began to vomit without apparent reason, and the same morning complained of pain in the back and head. The following day the same symptoms continued, and yesterday the child complained of a painful and stiff neck.

May 3. Continues very irritable; vomits frequently after ingestion of food. Temperature remains high. Dullness, increased fremitus, bronchial breathing and voice over right upper lobe. Meningeal symptoms present.

May 5. Yesterday about 3 c.c. of clear serum obtained by lumbar puncture. Examination of same to date shows no organisms. The history shows that ice cap was kept to cervical region until death; also that irritability and nausea continued, and that delirium was intermittent, and that chest conditions developed during the four days she was in the hospital. She died on May 6.

Autopsy shows red and gray hepatization of the right upper lobe of the lung; brain is reported normal except for moderate congestion of the cortical vessels. The following anatomical diagnosis is made: Lobar pneumonia; acute parenchymatous degeneration of the kidneys; cardiac valvular lesions.

The sinuses of the head had not been explored, but on opening the same I found the left frontal sinus and the anterior ethmoidal cells of that side, as well as the antrum of Highmore, filled with pus. The os planum has just necrosed through into the orbit.

This case proves nothing, but it compels one to wish that there had been a microscopical examination and report of the brain and meninges. It shows also that the autopsy should have been carried further.

Of the clinical symptoms, I wish simply to mention that the nose was reported normal, while this child suffered from as large a bunch of adenoids as I have ever seen.

Dr. Thomson, in his classification of cerebral complications of spenoidal disease reports two cases of meningeal septicemia. This title is given by Toubert [10] to cases where the anatomical changes are trifling or even entirely absent, and where cerebral death is due to sphenoidal affection—death coming on rapidly in from two to seven days. Toubert refers to cases reported by Rouge and Weichselbaum. These patients all died suddenly after short illnesses, presenting marked cerebral symptoms. On autopsy, no pathological lesions could be found. Toubert calls it meningeal septicemia, comparing it to the peritoneal and pleural septicemias without lesions. It is not stated in this report whether the negative findings were macroscopical or microscopical. These cases may present a type of cellular meningitis, in which the changes may not be grossly evident.

In this connection I shall report the case of a boy who came to my clinic at the Manhattan Eye, Ear and Throat Hospital in 1903.

W. C., aged 9, came into the Eye Department of the Manhattan Eye, Ea. and Throat Hospital, in the latter part of April, 1903, on account of extreme swelling of the upper lid of the right eye. On the next visit there was decided exophthalmos. The case was referred to me and was diagnosed as empyema of the ethmoid cells, and ordered ready for operation. The tumor ruptured between the eye and the nose while an anteoperative bichloride pad was *in situ*. After ordinary incision and evacuation, the pus was found to be coming through an opening in the os planum. This opening was enlarged downward along the side of the nose, and the entire ethmoid tract, including the sphenoid, was curetted. The eye receded immediately after the operation and the boy was discharged, well, on July 1. In November following, he was again brought to the hospital, with the left eye affected in the same manner as the right had been. In the meantime my statement that I had curetted out the spenoid sinus of this boy had been questioned. It was said that children of nine years had no sphenoidal sinus. So at the second operation I was more cautious than during the first, and contented myself with curetting out the ethmoid, stopping—as was shown by autopsy—at the anterior wall of the sphenoid. The eye did not recede as before, the temperature remained up. Seventy-two hours after this operation, the boy, having shown during this time marked cerebral symptoms—was found unexpectedly dead in bed. On autopsy no apparent cause of death was found. The sphenoidal sinus was well developed and full of pus. No microscopical examination of the meninges or brain was made. I have always felt that this patient died—not because of the operation, but because the operation was not sufficiently radical.

If Toubert's meningeal septicemia will stand, I think I can add this case to those reported by Rougé and Weichselbaum.

Bergengrün[11] reports the death of a patient 28 years old five hours after the opening of the frontal sinus, which was found not to be diseased; but autopsy disclosed disease of the ethmoidal and sphenoidal cells complicated by diffuse meningitis and thrombosis of the cavernous sinus.

Dr. J. H. Bryan has reported a case dying of acute leptomeningitis on the fourth day after operation. Autopsy showed a diseased sphenoidal sinus which had not been opened. Dr. Bryan expressed the feeling that had the operation been carried into the sphenoid the patient might not have died.

McCaw in 1905 reported a meningitis complicating suppuration in the ethmoid cells. Complete autopsy was not done.

Dr. E. Gruening of this city in 1904 reported an interesting case of extensive brain abscess, complicating ethmoiditis, demonstrated at operation. Pneumococci were found in the pus taken from the nose, orbit, ethmoids, and brain. An autopsy was not made, therefore the condition of the sphenoid was not reported.

Stanley Brown, Pathologist to Queen's Hospital, Birmingham, in 1905 reported a case of meningitis complicating a pan sinusitis on which no further operation had been done than an exploration as to the condition of the dura back of the ear and a lumbar puncture. The latter showed the spinal fluid to be turbid and yellow. Patient died on the following day.

Although I believe in the independent existence of ethmoidal disease, I have never seen cerebral complications accompanying such disease. Dreyfuss, however, collected 10 cases.

Such are the clinical evidences of the correlation of empyema of the accessory sinuses of the nose and the various infectious diseases of the brain, more or less supported by pathological and bacteriological study. The whole atmosphere of one who studies the subject is full of interrogation points. My belief is that disease of the accessory sinuses—singly or conjointly—is far more prevalent than is generally thought, even by those whose work is confined to the nose. This belief is supported by the post-mortem findings, as cited by Dr. Thomson, of Harke, E. Fraenkel, Lapelle and Marten, and Kicer, —which showed sinus disease in 30 per cent. of all subjects coming to the dead house; and T. S. Kirkland of Sidney found sinus disease in 11 out of 22 subjects (50 per cent.) who had died of pneumonia. In this series, while disease was found in one or more sinuses of each case, it was always found in the sphenoidal. These figures would seem to be at variance with those of Pitt, quoted by Pierce. Pitt's figures are useless in this connection except as they show that up to 1888 the condition of the accessory sinuses were seldom if ever investigated, either before or after death. He collected records of 9,000 deaths, with especial reference to meningitis and brain abscess. He reports a certain number of cases of meningitis as due to ear disease; a certain number due to disease of the bones of the skull (these, I take it, are sinus cases); and one case of nasal origin; a case of polypus—a case probably so self-evident as to make investigation imperative.

From all later investigations one can see that the importance of the subject before us has been more and more impressed upon investigators; and more and more are the conditions of the accessory sinuses being investigated by both clinicians and pathologists.

Relative frequency.—As to the relative frequency with which disease of the various sinuses is transmitted to the brain, there is not yet enough satisfactory evidence on which to form a positive opinion. It is a peculiar coincidence that Thomson in his article dealing with the cerebral complications of sphenoidal sinus disease was able to report the same number of cases as Turner, who was discussing the same condition from frontal sinus disease—42 in each case. However, I am of the opinion that when the evidence is all in, the sphenoidal sinus will be considerably in the lead.

1. Its anatomical structure and relations are such that it would seem that disease would be transmitted more easily and therefore more frequently from it to the brain than from the frontal sinus.

2. It is present, on the average, in the individual seven years previous to the frontal sinus.

3. Its disease is diagnosed with less ease than is disease of the frontal sinus, and therefore to date probably more cases have been overlooked.

Turner says: "We have not here (in studying cerebral complications of sinus disease) the same data to reason from as in the ear, and that comparison between the relative frequency of the occurrence of endocranial complications following aural and nasal suppurations is hardly feasible . . . . and further: All observers will, I think, agree in saying that suppurative middle ear disease is a much more common affection than suppuration in the nasal accessory sinuses. This will still be admitted, even if we exclude the large number of children amongst whom ear suppuration is so prevalent—a group of patients which cannot fairly be used for comparisan, because in them the nasal sinuses have not yet fully developed." Now I shall

raise no question with Dr. Turner on the relative frequency, but I do not question his reason.

In the class of children to which he refers, the air cavities of neither ear nor nose are fully developed, and to the extent that they lack full development are they more liable to disease. The only sinus lacking in a child one year of age is the frontal. The ethmoids are present at birth, and the sphenoid appears soon after, and I feel certain that more frequently disease of these cavities exists in young children than is generally believed. I see no reason why we should not look here for the explanation of some of our numerous cases of so-called idiopathic meningitis, of which there were reported in this city nearly 200 during 1906—of whom 75 were under one year, and 135 under five years of age. This, perhaps, is too speculative for place in this paper, but disease of the pneumatic cavities of the head in young children, and the possible correlation of this disease with intracranial trouble, has been of great interest to me for several years, and I look to further investigation for light on the subject.

Kirkland reported disease of the sphenoid at three years of age; Dr. Bardes, of this city, has reported disease of the same sinus in two cases aged respectively 5 and 6 years, in which the disease was demonstrated once by autopsy and once by operation—the one coming to autopsy having died from meningitis following operation on the ethmoids, the sphenoid not having been reached. The first patient died, Dr. Bardes believes, because the sphenoid was not operated. Disease of sphenoid was demonstrated by operation in the second case and prompt recovery followed.

Careful investigation by the sympathetic cooperation of the clinician and pathologist is time consuming and expensive. However, the subject is of such scientific interest, both academically and practically, that we may confidently expect more certain and convincing findings in the near future.

I am unable intelligently to discuss the question of modes and paths of the transmission of the infection from the various sinuses to the brain. These are academic questions and belong to the pathologist, from whom we shall welcome the solution. We know, of course, that the transmission must be direct from sinus to brain along blood-vessels, or indirectly through the blood or lymph channels. I see no reason why it should not be in any or all of these ways, and for all practical purposes it makes but little difference.

As to why one person suffering from disease of one or more sinuses should develop cerebral symptoms and lesions, while another should not, is a question of interest. Zarniko[12] in discussing this question says (1) it may be on account of gaps in the bony walls which separate the accessory sinuses from the cranial cavity. (2) It may be due to stagnation of the secretion in the accessory sinuses due to strictures or obstructions of the passage leading into the nose—further remarking that while it would be a mistake to deny the importance of this factor, its overestimation should be borne in mind, as in a number of cases extension of infection from the sinus to the brain was demonstrated, notwithstanding the fact that a perfectly free communication of the diseased sinus with the main cavity of the nose was established. (3) It may be on account of the specific or especially virulent infectious agents.

Again, an interesting question is—What effect has the chronicity of a diseased sinus in producing cerebral lesion?

Evidence seems to point to the fact that the same rule holds in disease of the sinus as holds in the ear—namely, that the greatest danger is in a severe acute infection, or in an acute exacerbation of a chronic disease; and on the proper appreciation of these conditions must depend the treatment instituted. Unfortunately, bacterial findings of secretions taken from the nose or from the sinuses through their natural openings, on account of the almost certain contamination, are of little or no value. One's course must be guided by the subjective and objective symptoms presented in any individual case, together with such evidence as may be obtained from transillumination, skiagraphy, washing of sinus, etc.

So far as cerebral symptoms and disease are concerned, the treatment must be prophylactic; as to the diseased sinus, treatment may be preventive or curative.

However marked, cerebral symptoms may be relieved if no further change has taken place in the brain than congestion or a serous exudate, resulting in a so-called serous-meningitis. The following history is of interest.

F. C., Swede, female, aged 20. Came into my clinic at the Manhattan Eye, Ear and Throat Hospital, January 11, 1905, on account of severe frontal and occipital headaches which had troubled her more or less during the last four years. She complained also of a frequent bloody discharge from the right nostril. Intranasal examination showed a large middle turbinate, and pus could be seen in the middle and superior meatii of the right side. Some ptosis of the right upper lid was evident. Temperature normal. Frontal and ethomidal sinusitis was diagnosed, and a conservative plan of treatment was instituted, consisting of cocaine and adrenalin sprays and steam inhalation. For a day or two the symptoms seemed to be somewhat relieved, but on January 14, three days after admission, all symptoms became worse, and on the evening of that day I was notified by telephone that the temperature was 103°, the disks were choked, and the patient had vomited all ingested food. I ordered the patient ready for operation and at 9 o'clock that evening did a Killian operation for relief of the frontal sinus disease. The recovery was prompt. This is an instance in which marked cerebral symptoms were relieved by operation.

Turner was able to collect about 24 deaths from cerebral complications following operation on the frontal sinus. There are two classes of case following operation for the relief of suppurations of the accessory sinuses—those which are due to well marked cerebral lesions during the first day or two, and those which die in from two to four or more weeks after the operation,—the latter class being due probably to faulty operation, either through undue traumatism or the stirring up to pernicious activity of a latent infective agent in some diseased sinus or part neither recognized nor invaded at the time of operation. On such a case Pearce evidently based his paper in which he states that "the mortality of accessory sinus suppurations at the present time has been greatly increased by operative interference." A more correct statement, I think, would be that the apparent mortality from accessory sinus suppurations is greatly increased since the more frequent diagnosis of disease of these cavities. Many deaths have occurred as the result of operation, but the blame should be placed where it belongs—upon those operators who are willing to undertake so difficult, complex, and serious an operation without being sufficiently educated and prepared for the work.

In order to find some backing for the above state-

ment, I am able to report the mortality statistics from accessory sinus operations of a few men whom I have known as doing good sinus work.

Our distinguished visitor, Dr. Killian, tells me that he has operated radically for the relief of disease of the frontal ethmoidal and sphenoidal sinuses 100 times, with three deaths. Four other men here to-night have operated 240 times with three deaths, one of which I have reported to-night. Of the other two deaths, one occurred on the table from the anesthetic, and the other from pneumonia, two months after operation.

Undoubtedly as good a showing from much larger figures might be obtained from the statistics of many more men, but these I think will show that cerebral complication from operative interference is not a frequent occurrence at the hands of men who are doing the greatest amount of such work; and further, that if Pierce's statement be correct, then when such complications do occur, the operator cannot hold himself blameless.

What seems to the writer an extremely good suggestion is made by Stanley Brown, to wit, that in all cases of sinusitis showing marked cerebral symptoms a lumbar puncture shall be made to the end that those cases showing a thick and definitely yellow spinal fluid shall not be operated on, as we may safely assume under such circumstances the presence of a septic meningitis, and an operation which may be in many cases the only means of saving life will not needlessly be brought into discredit. A cloudy fluid does not contraindicate operation. The unaided eye may be depended on, and therefore the operation need not be delayed.

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PHOTOTHERAPY IN NEURITIS.

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In admitting the altogether unsatisfactory results following the ordinary and accepted methods of treatment for neuritis, a distinguished neurologist once asked me as to my experience in the treatment of this condition by physical methods in general, and electricity in particular. I, too, was compelled to admit that with this latter agent my own experience had not only been far from satisfactory in a curative way, but that not infrequently in both acute and subacute cases of neuritis there would result a distinct aggravation of symptoms. The use of the static spark in the treatment of acute neuritis on the theory that it overcomes blood stasis, and thus relieves pressure, is most fallacious. It may, indeed, overcome blood stasis, but it overcomes it at the expense of infinite damage to the sensitive nerve. The faradic current is equally useless, although not equally harmful, while vibrating methods, so valuable in many conditions, are also futile as well as harmful.

High frequency currents I have thoroughly tested, and have also found wanting here.

The galvanic current has proved more satisfactory in my own hands than any other modality, but the benefits following its use are not usually great, and, unless much care is exercised in its administration, it, too, may aggravate the symptoms.

I am well aware that different views are held by many enthusiasts in electrotherapeutics, but a somewhat varied experience in both hospital and private practice, and with every kind of electricity in neuritis, is my justification for these opinions. Pain, indeed, in many forms is often relievable, and even curable, by electricity, as has been abundantly demonstrated, but not the pain of acute neuritis.

In phototherapy we have a method of treatment, which, theoretically, is well adapted for the relief of pain dependent on congested and inflammatory conditions, even though deep-seated, and practically I have found the light treatment to be far more efficacious in neuritis than any other therapeutic measure. By phototherapy is meant light treatment, and yet not light alone—for an incandescent light of 500-candlepower yields not only an intense light, but powerful heat and efficient chemical rays as well.

The ten cases of neuritis that follow I believe to be of real clinical value from the fact that they are not selected cases, but include all that came under my observation during the past winter, with the exception of two that received but one and three exposures, respectively, before abandoning treatment.*

Case I.—Mrs. T., age 45; referred to me by Dr. Byron V. Tompkins of this city, December 3, 1866. Neuritis of the left arm since February, 1905, which she attributed to sitting for hours every day with the arm next to the window, while decorating china. She had been subjected to much treatment, including vigorous counterirritation, but with no avail. The applications of light and heat were administered three times a week, and from the first resulted in immediate relief. This relief would continue for several hours, when the pain would return, and she would suffer quite as much as before. The relief, however, soon became more prolonged, and the recurrent pain less severe, so that after a few weeks of the treatment the applications were reduced to two, and finally to one, a week. She was enabled to use her arm with much of the old freedom, and after three months of treatment she ceased her visits, feeling that she was approximately well. Subsequently she wrote me that in packing to go away for the summer she wrenched her arm several times, exciting considerable pain, showing that the cure was not even yet complete, and might require further treatment on her return.

Case II.—Mr. J. S., age 47; referred to me by Dr. Z. L. Leonard of New York, December 31, 1906. Dating from a violent strain nine years previously, this patient had complained of an almost continuous sensory disturbance in the right thigh, extending in less degree to the calf of the leg. When quiescent he was but little annoyed, but on exercise much pain was excited, and in the language of the patient "the parts became hot, as if a hot iron was pressed upon the skin," and disturbed him to such an extent as to interfere with his ability to take much if any exercise. The constant pain had so impaired the nutrition of the thigh that it had decreased in circumference one and a half inches. High frequency currents were first attempted in this case, but after a few applications, as no benefit followed, the treatment by phototherapy was substituted. The first application seemed to give a certain measure of relief, and the relief became very positively evident after a few additional treatments. When urgent business took him abroad, after having been under observation about two months, he was not altogether free from his chronic disturbing symptoms, but so very much better that they annoyed him but little, and he was enabled to exercise with comparative freedom.

Case III.—Mr. P., age 28; referred by Dr. Frederick Knowles of New York, January 12, 1907. This patient was a good deal of an athlete, and in one of his sports a year previously had violently strained his right leg. The symptoms following were of gradual development, and consisted of pain in the lower part of the back, the hip, along the course of the sciatic nerve, and extending to the calf of the leg and ankle. Associated with the sharp and shooting pain, he soon began to experience a sensation of heat and burning throughout the whole limb, which gradually increased in severity, and finally quite overshadowed all other symptoms. The right thigh measured one inch less than its fellow, and the calf of the leg half an inch, showing a considerable impairment of nutrition.

The lower portion of the back and hip, and the entire length of the leg, were submitted to the light rays, each seance lasting some twenty minutes, and repeated from three to five times a week. There was manifest improvement from the beginning, and, when the patient found it necessary to go abroad after less than two months of treatment, all the burning symptoms and the pain had disappeared, and he considered himself entirely well.

Case IV.—In a case of sciatica, referred by Dr. A. R. Carman, February 8, 1907, the results were unsatisfactory, but it is possible that the failure was due, not so much to the inefficiency of the remedy as to the methods of the patient himself. He was a man of 60, and had suffered since the previous summer from severe pains, most pronounced in the calf and hips. From February 8 to 22 fourteen exposures were given to the point of extreme redness and slight perspiration of the limb, and at first with decided temporary relief. Subsequently the patient failed to get relief, saying that sometimes he felt rather worse after reaching home. He would attend regularly to business, traveled miles to the office, rain or shine, using the street cars, and refusing to take an automobile, which he could well afford to do. Undoubtedly the exercise and strain of coming and going had much to do with the unsuccessful result in this case.

Case V.—Miss G., age 39, came to me March 2, 1907, with this history. Some six months before, while lying in a hammock, the rope broke and she fell upon her back. Fortunately she was but a few inches from the ground, but the blow was sufficient to cause excessive pain and a slight temporary paralysis of the limbs. Since that time she had suffered constantly from radiating pains near the juncture of the dorsal and lumbar vertebræ, which those whom she had consulted had variously termed rachialgia and spinal irritation. My own judgment was that her persistent pains were due to some traumatism, or chronic congestion at least, of the posterior nerve roots. Electricity had been used, and she had been blistered and subjected to the actual cautery. The latter alone had afforded her relief, and this was but temporary and slight. She was subjected to the effects of the light and radiant heat rays, with the result of exciting almost immediate perspiration and a complete relief from all pain. The pain returned in a few hours in about the same degree as before, but every exposure resulted in the same relief, with increasingly longer intervals, until she entirely recovered, having been under treatment two months with twenty-nine exposures.

Case VI.—Mr. F., age 38, was referred to me March 25, 1907, by Dr. José F. de Fernandez of this city. Five months before he had an attack of grip. From this he quite recovered, but there remained a painful right arm and shoulder, which gradually grew worse. Early in February a second attack of grip prostrated him, confining him to his bed for two weeks. The pain in the arm now grew worse and became continuous, whereas before the second attack it was intermittent. The whole arm suffered, but the pain at times was most intense in the index and middle fingers, indicating that the musculo spiral was implicated. The pain was so severe that on several occasions hypodermics were resorted to for relief. He had before this used the static spark and breeze, the faradic and galvanic currents; and perhaps the most interesting and instructive portion of Dr. Fernandez's report of the case was in regard to his previous experience in the use of the different electric modalities. The static spark, the static

*For the principles on which is based the use of phototherapy in diseases, the reader is referred to my article on Phototherapy in Nervous Diseases, Medical Record, March 27, 1897.

breeze and the faradic current seemed to accentuate rather than relieve the pain. The galvanic current relieved temporarily only. The treatment by phototherapy resulted in immediate relief. After each of the first five treatments the hand and fingers, which naturally showed temporary congestion, remained in a swollen condition for hours, but after the fifth exposure the swelling subsided in a comparatively short time. Treatment was administered three times a week, each seance lasting from 15 to 20 minutes. During the six weeks that the patient was under treatment there was steady progress up to final and complete recovery.

Case VII.—Mr. G., age 33, referred by Dr. M. R. Alvarez, April 27, 1907, had been suffering almost constantly from pain in the left arm from the shoulder to the wrist since the middle of February of the present year. There had been no initial constitutional disturbance of any kind, and the attack following loss of sleep and exposure, seemed to be of the chronic type from the beginning. There was but slight tenderness on pressure along the course of the main nerve, but pronounced hyperesthesia of all the finger tips of the affected hand and distinct fibrillar twitchings in the muscles. The static spark had been attempted on two or three occasions, but with disastrous results. The first application of light and heat to the affected arm was continued to the point of deep redness and profuse perspiration. This was repeated daily for a week, when the patient reported much less pain, very little tenderness on pressure, and less sensitiveness of the finger tips. At the end of six weeks, after fifteen exposures, there was hardly a trace of the old trouble.

Case VIII.—Mrs. D., aged 60; referred by Dr. W. M. Stone of Flushing, L. I., May 6, 1907. Eighteen months before she was prostrated by grip, followed by an attack of neuritis in the left arm. This persisted for many months without abatement, but finally the symptoms became less severe, although even yet there were some traces remaining. Her present condition was one of severe and quite constant pain of the face and head, which extended deep into the ear. The scalp and face were tender to pressure, and the symptoms had persistently resisted the various efforts made for their relief. In this case the results of treatment were unusually rapid and satisfactory. The five exposures that were given completely and permanently dissipated all pain and tenderness.

Case IX.—Dr. McC., aged 60 of this city consulted me June 30, 1907. Two months previously, on awakening, he found that motion caused much pain in the left shoulder and arm. Soon the pain became constant, even when the arm was at rest. He knew of no cause for it, but thinks he must have strained it during sleep, as on awakening he found his arm under his body and somewhat twisted. Static electricity had been tried, as well as vibration, but with no result, and fourteen light treatments proved equally unavailing.

A druggist told him how much a capsicum plaster had accomplished in a certain "similar" case, and it was decided to drop the treatment and try the simple cure. Some weeks later he wrote: "The capsicum plaster failed miserably. From what my friends in the profession tell me of their experience with this trouble, and I have heard a lot, I believe the thing just comes and goes without any specific time limit, and without being affected by treatment. Recently my friend, Dr. ——, dropped in to see me, and described my symptoms exactly in telling of his own experience some years ago. He had 'tried' everything. It lasted from August to late November and then went away. The last things he remembers trying were stimulating liniments and gentle motion to toleration. I have adopted these measures, and shall continue them and trust to luck."

Case X.—Dr. M., aged 55, a practitioner of this city. Five years previously I had treated this patient successfully with massive doses of the galvanic current for acute paroxysmal pains due to traumatic causes that for more than a year had resisted every effort for their relief. It had been a most extraordinary case and was subsequently published in detail.*

He now consulted me a second time (May 20, 1907) for a constant pain in the neighborhood of the second dorsal vertebra, associated with a sense of constriction on bending forward. If excited either mentally or physically, this sensation developed into a terrific pain, accompanied by increased heart action, and as the pain extended to the solar plexus it would seem to indicate sympathetic involvement.

As the galvanic current had before relieved symptoms even more severe than those from which the patient now suffered, it would in all probability have relieved him again. The patient concurring, however, phototherapy was substituted, and with results both immediate and permanent that were most gratifying. At the end of six weeks, having received fifteen treatments, he left town for the summer with but slight symptoms remaining, and on his return reports that his condition still remains good.

Thus it is seen that out of ten consecutive cases of neuritis, eight experienced more or less immediate relief with ultimate recovery.

In Case IV. there was temporary relief in the beginning only, but the failure in this case is partly accounted for by the impossibility of getting the patient to exercise due caution in the matter of exercise. The ninth case was an unmistakable failure, for which an explanation is wanting. It was not necessarily because the cause was possibly traumatic, for other traumatic cases had promptly recovered. The inefficiency of the remedy in this case was more likely due to some constantly operating defect of metabolism, unresponsive to physical methods of treatment.

In conclusion, it may be said that phototherapy is by no means confined to neuritis or nervous diseases. In addition to its power to relieve blood pressure and pain, its bactericidal properties, its influence as a promoter of tissue metabolism, and its power to increase the hemoglobin-carrying power of the red corpuscles, render it of value in a variety of constitutional conditions.

*"Current differentiation illustrated by a case of peripheral neuritis due to parenchymatous degeneration of the cord."—*New York Medical Journal*, October 4, 1902.

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Blackening of the Tongue from Peroxide of Hydrogen.—Bizard recently called the attention of the Paris Society of Medicine to the causes of blackened tongue and reported that he had recently seen this effect produced in two syphilitic patients under his care who were treated with injections of gray oil and mouth washes of a solution of peroxide of hydrogen. It might have been supposed that the peroxide of hydrogen on coming into contact with the saliva of the mercurialized patients gave rise to a reaction which produced a brown coloration of the extremities of the lingual papillæ, but the fact was that peroxide of hydrogen might by itself cause blackening of the tongue. In a man habitually enjoying good health, not syphilitic, and free from constitutional defects, but a smoker and the subject of hypertrophy of the lingual papillæ, the daily use of a gargle of peroxide of hydrogen in half a tumblerful of warm water produced in eight days a very pronounced blackening of the dorsal aspect of the tongue. This disappeared in a few days when the peroxide of hydrogen was stopped and the surface of the tongue soon afterwards desquamated in large flakes.—*The Lancet.*

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ELECTRIC NARCOSIS.

A well-known electrotherapist to whom the remark was made a short time ago that electricity was still in its infancy, made reply that he did not agree with the statement, as he thought that electricity was now a remarkably well-grown and lusty child; in fact, quite past the infantile stage. There is no doubt that in the region of electrotherapy immense strides have been made, and although there must be room for great advance in this direction, it can but be said that this branch of medical science is in a very healthy condition.

On February 27 of this year, Dr. M. Stephane Leduc of Nantes announced in *La Presse Médicale* the results of experiments he had been pursuing in regard to the production of electric narcosis. Considering the high standing of Dr. Leduc and the great importance of the statements made by him, it is somewhat extraordinary to notice with what slight attention his paper has been regarded in medical journals, both in this country and in Great Britain. In view of the supreme interest of the matter from a medical standpoint, it may not be out of place to note briefly the main features of Dr. Leduc's article.

In the first place, he explains that he means by the term electric narcosis a state analogous to chloroform narcosis, a state in which the subject is without power of voluntary movement, makes no reply to stimulation, and exhibits only some reflex movements, such as the beating of the heart and respiration; he further declares that this state, produced by the action on the brain of a definite electric current, can be maintained for several consecutive hours, and ceases immediately with stoppage of the current. According to the author, in order to induce electric narcosis, the circuit is formed by the supply, the rheostat, the interrupter, the current reverser, the milliampèremeter, and the subject. The hair is shaved from the head of the animal to be experimented on, dog or rabbit. The hair should be shaved off close and the skin must not be cut. The shaven surface must extend in front to the eyes, so that all the anterior part of the brain is traversed by the current and under its influence. On the shaven surface is placed a thick piece of absorbent cotton, soaked with a hot 1 per cent. solution of sodium chloride. On this is placed a pliable tin electrode, to which is soldered the conducting wire. The second electrode must be much larger, and must be placed on any point of the body, so long as it is symmetrically placed in the axis. All the accessory apparatuses are placed between the supply and the large electrode on the back, which is connected with the positive pole. The head electrode must be connected directly with the negative pole. By this means the potential of the head remains always that of the negative pole of the supply. When the experiment is properly carried out, the animal passes quietly and gradually, without a cry, without a defensive movement, and without a sign of pain, into a state of cerebral inhibition analogous to chloroform narcosis. The experiment can be stopped instantly by cutting off the current. The awakening is instantaneous; usually the animal gets on its feet, looks quietly round, shows no sign of suffering, fright, or fatigue, and when released from the electrodes jumps about gaily and eats with appetite food offered to it. There are no after-effects, no vomiting, rarely a little stupor. The experiment seems to cause no pain, for the animals not only do not show it, but evince no resentment, no aversion toward the experimenters, no fear, and no revolt during preparations for another application. As Dr. Leduc truly says, this is all the more remarkable in the dog, which can so well recognize friend and foe. Experiments with animals were in a high degree successful, the narcosis having been kept up for long periods without injury to the animals. Dr. Louise Robinovitch of New York, who assisted Dr. Leduc in some of his experiments, kept a rabbit in electric narcosis for eight hours and twenty minutes without interruption. The animal came to without displaying discomfort. Dr. Robinovitch studied the temperature of animals during electric narcosis and concluded that it was more often than not under normal.

Up to the present time only one experiment on cerebral inhibition has been done on man, and that was on Dr. Leduc himself, in the presence of Malherbe and Rouxeau of the School of Medicine of Nantes. In this instance the current was not raised sufficiently high to cause total unconsciousness, but the experiment was carried far enough to convince the operators that if necessary this could have been done. The current was raised to 35 volts and 4 milliampères in the interrupted current. Altogether Dr. Leduc was under the influence of the current for five minutes; he felt no after-effects, unless we count as such a sense of well-being and physical vigor, and immediately after he went and lectured before the Société de Retraite Ouvrière.

The result of these experiments would seem to teach that electric narcosis is well within the province of practical medicine, and to demonstrate the value of the interrupted current. Dr. Leduc is said to be convinced that the production of electric narcosis in man is but a question of time. It remains to find out what is the limit of safety, that is to say, to what height the current may be raised to produce general anesthesia without danger to life. Judging from the experiments on animals, there should be no great danger to man in experimenting with the interrupted current in the hands of experts. The advantages of electric narcosis over anesthesia produced by the usual agents appear to be obvious. The lack of unpleasant after-effects and the length of time during which animals can be kept in a state of unconsciousness are sufficient to recommend the method. Of course, the reports may, and

probably are, somewhat unduly eulogistic as to the merits of electric narcosis, but at any rate this mode of producing anesthesia is worthy of consideration and discussion. That the value of the interrupted current has been overlooked seems also to be more or less apparent.

THE ROLE OF RATS AND FLEAS IN THE DISSEMINATION OF PLAGUE.

For a long time little was known concerning the way in which the plague spread through a city or was carried from country to country, but finally its diffusion was connected with rats, the latter now being generally conceded to be the essential factor in the diffusion of the disease. Naturally, with a disease of such high mortality, a study of its mode of spread and of its prevention is of the greatest importance.

In a report to the Fourteenth International Congress of Hygiene and Demography, Dr. J. A. Thompson, Chief of the Department of Public Health of New South Wales, set forth his views on this subject, basing them on a careful study of the plague epidemic in Sydney, among civilized people and under circumstances in which particulars concerning the infection of the individuals attacked could be learned with accuracy. He found that the fundamental question as to the share taken by the sick in diffusing the infection remained unsolved. In the first epidemic of 303 cases, he had a complete history of 289 patients, 276 of whom occupied dwellings widely separated from each other; in 266 of the latter only a single case occurred, although the greater majority had lain at home three days before being reported. Ten houses harbored multiple cases, which he divided into several groups; in the first, the time of onset of the successive cases was almost simultaneous; in the second, twenty-two or more days elapsed after cleansing before a second patient was taken ill; in the third group, the time relations of the successive cases were such that communication from primary patients was possible. In the first two groups, exposure of both of the infected members of each household to the same conditions appears to have been the determining factor; the cases in the third group really also admit this explanation when we consider that in 266 households no secondary cases occurred. Two other observations which bear on the question of communication from the sick were made. Total want of connection between successive cases in the same house was most often established with certainty, and the interval between them was often much longer than the incubation period. All this evidence, according to Thompson, warrants the formulation of the general rule that the epidemic spread of plague occurs independently of communication of the infection from the sick and it spreads by means which are external to man. Plague pneumonia furnishes a conspicuous exception to the general rule, but this is now relatively uncommon.

The author found that associated cases and those in dwellings far distant from each other had a sole distinguishable bond, which consisted in their resort during the day to the same workplace, to which they did not return after the onset of illness. Consequently it then fell to be inquired in what the infectiousness of locality consisted. He noticed that a very short line of wharves at which the produce trade (grain, hay, chaff, potatoes, etc.) was carried on had always been the immediate source of the local infection, and all the subepidemics began either at produce stores or at stables to which the produce had been carried from the neighborhood. The infection would manifest itself in new areas which were separated by wide tracts of plague-free houses. By such observations attention was forcibly directed to some animal which was free to wander among the dwellings of man, but which had access to the interior of only some of them. From antiquity it had been observed that rats sometimes died in numbers in places where man died of plague. In 1894, the disease in the rat was found to be the same as in man, and the rat was found to be the only animal in which epizoötic plague existed and which was close to man. Thompson therefore tried to establish some closer association between plague rats and cases. During an epidemic of twelve cases in nine buildings, seven of which were in a central district and two far away, plague rats were found in each; in other houses plague rats were also found, but no cases. These three widely-separated districts were, however, connected in the following way: Materials which experience had shown to be specially dangerous in connection with the introduction of plague into clean places, namely, hay, chaff, grain, etc., were conveyed from one of the first-mentioned seven houses to the two at a distance. All this goes to prove that epidemic dissemination of the infection is effected by the rat, but it does not explain the communication from rat to man.

The facts that the handling of dead plague rats by man was rarely followed by infection, that it was often possible to exclude contact or even close neighborhood between rat and man infected with plague, that plague rats were found in forty dwellings, in only four of which plague in man was found, go to show that the disease is probably not directly communicated from rat to man. The most generally received opinion is that the infection is conveyed to man by inoculation, the uninjured skin being an efficient defence against infection. Infection by inhalation or by feeding is rare. In the majority of cases Thompson found buboes in the groin, and just as frequently in people wearing shoes as in unshod people, so that the infection could not be attributed to wounds of undefended feet. He found that people who were fully clothed, having only their arms, face, and hands uncovered, were infected in the protected parts, as buboes in the groin were most frequent. Inoculation must have been effected by some agent which could penetrate both clothing and skin. The flea alone answered these requirements; moreover, within buildings fleas live in the dust between flooring boards, outside in the soil, and notoriously reach the legs first. He therefore concludes that the flea is the ordinary agent of infection, and it, as well as the rat, is indispensable to produce epidemics.

Thus the measures which must be followed to prevent or check plague should be directed against the rat and the flea. Even though his experiences furnish no evidence which points to the transfer-

ence of the infection from the sick to man, he advises isolation of the patient. Prevention of epidemic plague lies mainly in habitually maintaining a distance between rat and man, for measures directed against the flea can have scope only in special circumstances. The requisite separation between man and rat will be better secured by improving the construction of buildings than by attempts to exterminate the rat. Complete rat destruction is difficult, and as only a few rats are affected in a rat epidemic, the plague rats may not be caught at all, as a sick animal usually remains in its nest. The danger to man from plague is directly proportionate to the accessibility of the interior of buildings to rats, and as experience has shown the difficulty with which all rats are killed in a building, the rational method of defence lies in so improving the construction of buildings as greatly to impede the entrance of rats to them, and in so taking care of food that it shall not attract them. When plague rats have been found in a dwelling, the first thing to be done, according to Thompson, is to spray the floors freely with a 5 per cent. solution of carbolic acid. This is a very effectual method of driving away and killing fleas, and thus of avoiding the only risk connected with the cleansing of plague-infected houses.

Although nothing absolutely new regarding plague and its mode of dissemination is offered in this address, the contribution is nevertheless one of great value. It affords most positive evidence of the fact of a double epidemic, one of rats and the other of man, running parallel one to the other, the inter- and intracommunication being maintained through the agency of the flea, although this does not necessarily preclude direct infection from rat to rat, and from man to man. The author implies that an epidemic of plague is entirely controllable, and this is doubtless the case in places such as Sydney or San Francisco, where the authority of the health officer can be exercised without fear of revolt; but the conditions in Calcutta and Bombay are very different, for the passive resistance or open hostility of the native population is something that must be reckoned with and that often ties the hands of the most efficient of sanitarians.

The Causation of Appendicitis.

Among the many etiological factors that have been suggested as underlying the inflammatory affections of the appendix, none has as yet seemed to be consistently applicable, and not a few—such as bicycle riding, strap hanging, chronic antimony poisoning from rubber stoppers of bottles, the ingestion of particles of steel from the rollers of flour mills, etc. —may be criticised in much less measured terms. Constipation is often alleged as being at least a predisposing factor, but the explanations of the manner in which it is supposed to act have not been altogether acceptable. For example, the natives of Turkey, Asia Minor, and the adjoining countries are very subject to constipation, and yet appendicitis is almost unknown among them. Naab (*Münchener medizinische Wochenschrift*, October 15, 1907), in describing his experiences during a number of years' residence in these Eastern countries, emphasizes the freedom of the Orientals from appendicitis. Out of 6,800 patients coming under his observation in Mesopotamia, only two suffered from the disease, and a colleague, practising in a neighboring district, during five years, also encountered only two cases. In Constantinople the conditions are somewhat different, owing to the more mixed character of the population. In the two large native hospitals the morbidity from appendicitis is .18 per cent. and .3 per cent., respectively, while in the German hospital of that city, in which the patients are almost exclusively white persons, the proportion jumps to 2.6 per cent. From the standpoint of operation the conditions are somewhat similar, and of 1,000 operations, including numerous laparotomies, performed annually by three white surgeons in three regions of Turkey in Asia, only one was for appendicitis. In the Turkish hospital in Constantinople the operations for appendicitis are only .3 per cent. of the major operations, whereas this proportion is increased more than ten times in the German hospital of the same city. In spite of the rarity of inflammatory conditions of the caput coli among his Oriental patients, Naab found that they were very prone to constipation, so that he regards this factor alone as inadequate to cause appendicitis. On the other hand, he calls attention to the almost exclusively vegetable diet used by these people, and offers the suggestion—which has been made before—that it is the excessive meat consumption of the white races that causes them to lead in the statistics of appendical disease. The constipation due to excessive meat eating leads to the stagnation of small, hard scybala, which are caught by the rugosities of the colon and large intestine, and give rise to local irritation of the mucous membrane, while, with a preponderatingly vegetable diet the fecal masses are much larger and there is less tendency to stagnation through intestinal inactivity. Naab, furthermore, points out that the increased consumption of meat in Germany has been attended by a considerable increase in morbidity from appendicitis, and considers that the relationship between meat eating and the disease is unmistakable. His contribution will no doubt be read with pleasure and referred to with enthusiasm by the vegetarians, but the last word on the etiology of appendicitis has not been spoken yet.

Tuberculosis of the Testicle.

Tuberculosis of the testicle is rarely or never a primary affection, being usually incidental to tuberculosis in other organs. It is observed most commonly between the twentieth and thirty-fifth years of life, and, as a rule, both organs are affected, simultaneously or successively. Sometimes extension takes place from the kidney, while less commonly the testicle is involved first, and the kidney secondarily. In the way of diagnosis simple epididymitis, syphilis, and new growths must be taken into consideration. Death seldom or never occurs as the result of the disease of the testicle. The treatment is hygienic and surgical. The latter includes evacuation of hydrocele, at times with injection of an irritant chemical, such as carbolic acid; incision, drainage, and curetting of abscess and fistula; erosion; orchidectomy; epididymectomy. An interesting study of the subject has been made by Dr. E. L. Keyes, Jr., in the *Annals of Surgery* for June, 1907, based on observations on 100 patients, of whom 53 presented involvement of both testicles. From this it appears that testicular tuberculosis is clinically never an isolated lesion. It is only one feature of a general genital tuberculosis. Sterility is frequently, if not constantly present at the time the first testicle is invaded. At this time evidence of inflammation of the internal genital organs can be

found if looked for. Development of disease in the opposite testicle occurs within a few years, in eight or nine cases out of ten, and such occurrence is in no wise deferred by early removal of the diseased testicle. Suppuration seems often to result in a permanent cure of the local process, and a chronic focus several years old is likely never to suppurate, but in no case can a cure be expected to take place unless the tuberculous epididymis is removed. Castration exercises a demoralizing influence on the individual, while epididymectomy does not, and the latter is almost invariably followed by spontaneous cure of the lesion of the testicle. It is therefore the operation to be preferred, unless there is hyperacute generalized epididymoorchitis, or unless the testicle is destroyed by suppuration. It has been found that this operation also exercises a beneficial influence upon the general health and upon coincident tuberculosis of the internal genital organs. When possible, therefore, it should be performed early in the course of the disease, even though the involvement of the testicle be but an insignificant part of a generalized progressive tuberculosis, or has for many years been the only active lesion of the disease. If the patient is sterile it is probably better to remove both epididymides, even though only one is diseased.

The Benzidin Test.

The value of Schumm's benzidin reaction for the presence of blood in the stomach contents, urine, feces, etc., has been attested by numerous observers, and several modifications of the test have already been suggested, notably Einhorn's benzidin paper. One of the difficulties originally experienced in applying the reaction to the feces, namely the hypersensitiveness of the reagent, may, according to Schlesinger and Holst, be overcome by using only a few drops of a watery extract of the stool, instead of the larger quantities that were at first employed. In order to avoid error through the action of organic oxidizing ferments, the watery extract should be brought to the boiling point before the test is made. Carried out in this way, the test is suitable for clinical application with the understanding that its value is greater on the negative than on the positive side, and that in doubtful cases the resort to one of the older tests, such as Weber's, is advisable for corroboration. In a recent communication, Schumm himself, however (*Deutsche medizinische Wochenschrift*, October 17, 1907), calls attention to a feature that, for the present at least, somewhat invalidates the reaction for general application. This is the fact that he has discovered in the course of his work with the reagent that different samples from different chemical manufacturers, and even specimens obtained at different times from the same maker, exhibit unaccountable and extreme variations in sensibility to blood. In some instances the variations were so great as to render the results misleading, while in others the reagent was found wholly useless. While it is likely that improved methods of manufacture with this end in view will make it possible to secure uniformity in the quality of the chemical, for the present it must be made use of with some reserve, and new supplies must be subjected to careful control tests before being employed in routine work.

In making rectal examinations, if no finger cot is at hand, the finger may be protected by enveloping it in a piece of tissue paper, which is then plentifully smeared with

The Action of Iodine and Phosphorus upon the Thyroid Gland.

As the thyroid extract acts favorably in some cases of rachitis, in hemophilia, in hematuria, and in delayed callus formation, it is safe to suppose that it has a regulating influence in the assimilation of calcium salts. In order to prove that it has, Silvestri and Tosati (*Gazzetta degli ospedale*, No. 102, 1907) gave small doses of thyroid extract to healthy persons, all of whom were kept on the same diet before and during the ingestion of the extract. In ten cases examined the amount of calcium in the urine and feces diminished after the ingestion of the extract, the latter thus acting in cases of hemophilia, etc., by causing a retention and assimilation of the lime salts. The authors mentioned believe the amount of phosphorus and iodides in the thyroid extract is too small to attribute to these substances the action regarding calcium salts; and the known beneficial action of iodides on metabolism and blood pressure, and of phosphorus in osteomalacia and rachitis they explain by their stimulating action on the thyroid gland and not by a direct action of the drugs themselves.

A Tuberculosis Problem.

The Paris correspondent of the *Lancet* relates in the issue of September 23 the case of a man who had been for seventeen years in the service of a railway company, but had been discharged on the ground that he had tuberculosis and was not, therefore, fit to continue his work. He thereupon sued the company, and on the basis of the testimony of an expert employed by the court to ascertain the facts, he was awarded damages of 5,000 francs. It was held that his unfitness for active and regular work had not been proven because the progress of the disease from which he suffered was slow, and he was strong enough to follow his employment.

News of the Week.

International Congress on Tuberculosis.—At a meeting of the Committee of Arrangements for this Congress, held in this city on October 28, Dr. Lawrence F. Flick presided and reported on his visits to the International Conference on Tuberculosis in Vienna and to the International Congress on Hygiene and Demography in Berlin. More than a thousand delegates were registered at each of these and it is expected that about four hundred members of the foreign organization will attend the Congress to be held in Washington next year. Dr. John S. Fulton, the Secretary-General, reported that the following distinguished foreigners had consented to participate in the series of special addresses that are to form a part of the program: Dr. R. W. Philip, Edinburgh; Dr. C. Theodore Williams, London; Dr. Arthur Newsholme, Health Officer, Brighton, England; Dr. C. H. Spronck, Utrecht, Holland; Dr. Karl Turban, Davos-Platz, Switzerland; Dr. Gotthold Pannwitz, Charlottenburg; Dr. Emil von Behring, Marburg; Dr. A. Calmette, Pasteur Institute, Lille, France; Dr. Maurice Letulle, Paris; and Dr. S. Kitasato, Tokyo, Japan. Dr. Fulton also reported that up to the date of the meeting the Governors of twenty-three States had given official recognition to the Congress.

The Koch Memorial Fund.—The project of recognizing Robert Koch's scientific work by the foundation of an institute to bear his name is meet-

ing with approval and Dr. Carl Beck of this city is the American member of the committee of organization. Prince of Donnersmarck has contributed 50,000 marks and the Emperor has promised financial support.

Russell Sage Institute of Pathology.—Articles of incorporation were filed with the Secretary of State on November 1 by the Russell Sage Institute of Pathology of New York, which is to be endowed by Mrs. Sage for purposes of scientific research and the investigation of the diseases and infirmities of advanced years. Dr. Edward G. Janeway, Dr. Theodore C. Janeway, Dr. D. Bryson Delavan, Dr. Simon Flexner, and Dr. Graham Lusk are the directors.

Quarantine Against San Francisco.—The State Department has been informed through the American Minister at Christiania that the Government of Norway has declared quarantine regulations to be in force against ships arriving at Norwegian ports from San Francisco, the California port being considered as infected with Oriental plague.

Conditions at Panama.—Major J. L. Phillips, Superintendent of the United States Hospital at Ancon, who arrived here last week, gave a very favorable report of conditions in the Canal Zone. There have been no cases of yellow fever for five months and, though malaria is still rife, great progress is being made in exterminating mosquitos. The quarantine regulations are being enforced with great strictness to prevent the introduction of disease from without.

A Society for the Extermination of Rats.—As a result of the propaganda of a society in Copenhagen with the title "L'Association Internationale pour la Destruction Rationelle des Rats," the Danish legislature has passed a law providing for a systematic effort at the extermination of the rat, which is now in active operation. Under the act the State undertakes to spend $8,000 annually for three years, and compels the county and borough councils to spend 80 cents a year for each 100 inhabitants. The society has agreed to spend at least $2,500 each year for the purpose, and in return for this expenditure it is intrusted with the entire working of the act. Statistics gathered by a civil engineer named Zuschlag, who founded the society, showed that the depredations of the rodents in Denmark alone were responsible for $2,000,000 of preventable damage, without considering the possible transmission of disease by their intervention.

To Exterminate Crocodiles.—Professor Robert Koch, who is now on his way back to Berlin after a prolonged stay in East Africa for the purpose of studying the sleeping sickness, is quoted as saying that the disease is a menace to the whole of East Africa. It is transmitted by the insect *Glossina palpalis*, which derives its chief nourishment from the blood of the crocodile, and Koch accordingly recommends that efforts be made to exterminate the saurians.

To Treat Defective School Children.—Twelve physicians and a number of nurses of Pittsburg have volunteered their services to the Pittsburg Bureau of Health for the purpose of examining the pupils of the public schools, with a view to discovering any existing physical defects among them. If operative treatment is advisable, the parents of the child are to be notified and referred to their family physician. It is the intention to urge the authorities to make an appropriation for the establishment of a permanent bureau of inspection.

Public Lectures on Diet and Endurance.—Mr. Horace Fletcher and Dr. W. G. Anderson will deliver addresses open to the public at the Academy of Medicine on Thursday, November 14, 1907, at 8:30 P.M. Mr. Fletcher will speak on "Possible Progressive Growth in Muscular Efficiency After Fifty Years of Life Without Systematic Physical Exercise," and Dr. Anderson's subject will be "Observations on the Results of Tests for Physical Endurance at the Yale University Gymnasium."

Bequests to Hospitals.—Bequests to the following institutions are made by the will of the late George C. Taylor, a son of the late Moses Taylor, who died in Riverhead, R. I., last month at the age of seventy-two years: Moses Taylor Hospital, Scranton, Pa., $750,000; St. Luke's Hospital, Manhattan, $25,000; Society of the New York Hospital, $25,000; American Society for the Prevention of Cruelty to Animals, Manhattan, $50,000; New York Society for the Prevention of Cruelty to Children, $50,000; Sheltering Arms, Manhattan, $25,000; St. Mary's Free Hospital for Children, Manhattan, $25,000; Orphans' Home and Asylum for the Protestant Episcopal Church, Manhattan, $25,000; Children's Aid Society, Manhattan, $25,000; New York Association for Improving the Condition of the Poor, $25,000; Five Points House of Industry, Manhattan, $15,000; Society for the Relief of Destitute Children of Seamen, West New Brighton, $15,000; Society for the Relief of Destitute Blind, Manhattan, $25,000; Home for the Incurables, Fordham, $15,000; St. John's Guild for its Seaside Hospital, $25,000; Presbyterian Hospital, Manhattan, $25,000; Trinity Association for its Seaside Home, $25,000.

Thrall Hospital Fire.—For the second time in two months the Thrall Hospital of Middletown, N. Y., has been endangered by fire. The fire started in the sterilizing room and one nurse was badly burned about the hands and arms. The damage to the building was slight.

Fire in the Montefiore Home.—A fire in the laundry of the Montefiore Home for the Aged last week made it necessary to carry downstairs some of the feebler patients and caused considerable excitement among the inmates of the institution, but was extinguished before the main building was involved. The two-story laundry building was destroyed.

International Association of Urology.—An organization with this title was formed in Paris at an organizing meeting held on October 8. The membership of the society is to be very small and meetings will be held every three years for the purpose of discussing set themes. The presidents elected are Guyon, Israel, and Harrison. The first congress is to be held in Paris in October, 1908, under the presidency of Albarran, Posner, and Watson.

Medical Society of Virginia.—The thirty-eighth annual session of this organization will be held in Chase City, November 12 to 15, 1907, under the presidency of Dr. Paul B. Barringer of Blacksburg. The corresponding secretary is Dr. John F. Winn of Richmond.

New York and New England Association of Railway Surgeons.—This society will hold its seventeenth annual meeting at the Academy of Medicine in this city on Thursday and Friday, November 14 and 15, 1907. The president of the association is Dr. H. T. Dana of Cortland, N. Y., and the secretary Dr. Geo. Chaffee of Brooklyn.

Chicago Surgical Society.—At the annual meeting of this society, recently held, the following officers were elected for the ensuing year: *President*,

Dr. A. J. Ochsner; *Vice-President*, Dr. A. E. Halstead; *Secretary*, Dr. F. A. Besley; *Treasurer*, Dr. J. C. Hollister; *Councilor*, Dr. D. W. Graham; *Council or to Chicago Medical Society*, Dr. M. L. Harris; *Alternate Councilor*, Dr. A. D. Bevan.

Chicago Gynecological Society.—The following officers were elected for the ensuing year at a meeting of this society, held October 18: *President*, Dr. Joseph B. De Lee; *Vice-Presidents*, Dr. Chas. E. Paddock and Dr. Rudolph W. Holmes; *Secretary*, Dr. Henry F. Lewis; *Treasurer*, Dr. Chas. B. Reed; *Editor*, Dr. Frank W. Lynch; *Pathologist*, Dr. Geo. Schmauch; *Councilor*, Dr. Emil Ries.

Tuscola County (Mich.) Medical Society.—At the last meeting of this society officers were elected as follows: *President*, Dr. King of Caro; *Vice-President*, Dr. Olin of Caro; *Secretary*, Dr. Wickware of Cass City; *Treasurer*, Dr. Garvin of Millington.

Society of Railway Surgeons of the Pacific Coast.—The following were elected as officers at the fifth annual meeting of this organization, held in Los Angeles on October 21: *President*, Dr. John R. Colburn of Los Angeles; *Vice-Presidents*, Dr. G. A. White of Sacramento and Dr. F. L. Adams of Oakland; *Secretary*, Dr. J. P. Dunn of Oakland.

Hospital Conference.—At a meeting of the Hospital Conference held at the Academy of Medicine last week a resolution was passed recommending that the members of the association call the attention of their respective boards of managers to the question of the ward rate for pay patients and suggest the desirableness and fairness of increasing the rate from $1 to $1.50 a day. This would not be sufficient to cover the expense of maintaining the patients, but would tend to bring the hospital charges in accordance with the general scale of wages, which has risen considerably of late years. The rate would be merely the maximum and would be imposed only on patients able to pay it. After the meeting Dr. W. Gilman Thompson gave an illustrated lecture on modern European hospital construction.

Dr. H. W. Lincoln has been appointed Gastrologist to the Swedish Hospital of Brooklyn, N. Y.

Obituary Notes.—Dr. William Moss died on October 30 at his home in Chestnut Hill, a suburb of Philadelphia, at the age of seventy-four years. He was graduated from Jefferson Medical College in the class of 1855 and served as surgeon in the civil war.

Dr. Seth. D. Close of this city died suddenly on October 30 at the age of fifty-six years. Dr. Close was born in Geneva, N. Y., and was graduated from the College of Physicians and Surgeons in the class of 1876.

Dr. Frank Heuel of this city died on October 28 at the age of fifty-two years. He was the son of the late Dr. Frank Heuel and was born in this city. He received his medical degree from the University Medical School with the class of 1875. He had held many hospital and dispensary positions and was a member of the faculty of the university.

Dr. Charles Mohr of Philadelphia died suddenly on October 30 at the age of sixty-three years. He was born in Philadelphia and had been, until recently, Professor of Materia Medica and Therapeutics at the Hahnemann Medical College of Philadelphia. He was also general director of the Hahnemann Hospital.

Dr. H. B. Palmer of Farmington, Me., died suddenly on October 24 at the age of forty-six years. He had been ill for some days with a trifling ailment and is believed to have taken hyoscine hydrobromate, thinking it to be a preparation of aconite which he had been using.

Dr. E. S. Kimpton of Charlestown, Mass., died on October 25 at the age of fifty years. He was a native of Stanstead, P. Q., and was a graduate of the Harvard Medical School.

Dr. R. H. McMullen of Rockport, Tex., died on October 24 at the age of seventy-eight years. He was born in Fayetteville, Tenn., and began practice in Huntsville, Ala., in 1865. In 1903 he retired from active work and went to live in Rockport with his son, Dr. W. F. McMullen.

Dr. William M. Lawlor of San Francisco died on October 23 at the age of sixty-two years. Dr. Lawlor was born in Albany, N. Y., but had practised in San Francisco for many years.

Dr. George B. Hammond of Royal Oak, Mich., died on October 24 at the age of forty years. He was once Health Officer of the township and a member of the City Council.

Dr. M. B. Moon of Iowa City died on October 26 of apoplexy at the age of fifty-six years.

Dr. Linnaeus Fussell died at Media, Pa., on October 28 at the age of sixty-five years. He was graduated from the Medical Department of the University of Pennsylvania in the class of 1867.

Dr. Alexander Caldwell of Philadelphia died on November 3 at the age of sixty-three years, after a brief illness. Dr. Caldwell was a surgeon in the Tenth Missouri Regiment during the civil war and was afterward on General Grant's staff.

Dr. Edmund H. Martin of this city died on November 3, aged eighty-two years, at the home of his son-in-law, Dr. James H. Dew. Dr. Martin was born in Georgia and practised medicine in Savannah until after the war. Then he went to New Orleans, where he practised up to a few years ago, when he retired and came to New York.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

TUBERCULOSIS IN IRELAND; EXHIBITION OPENED IN DUBLIN—SESSION OF THE SOCIETIES—THE ROYAL SOCIETY OF MEDICINE AND ITS SECTIONS—CLINICAL CASES—CHANGE OF PROCEEDING IN PATHOLOGICAL SECTION—MEDICAL SOCIETY OF LONDON, PRESIDENT'S ADDRESS—MEDICAL OFFICERS' REPORT TO GOVERNMENT BOARD—OBITUARY.

London, October 18, 1907.

"I am commanded by the King to express his good wishes for the success of the Tuberculosis Exhibition, the first of the kind ever held in Great Britain and Ireland. . . . His Majesty is greatly interested in the problem of checking the progress of this disease, and trusts that the exhibition may be the means of directing the attention of the public to the terrible ravages caused by this scourge and to the efforts that are now being made to avert its progress."

The above message was received by the Lord Lieutenant of Ireland on the occasion of his opening on Saturday of the exhibition in Dublin under the auspices of the Women's National Health Association. The Countess of Aberdeen explained that the exhibition was not intended to remain in Dublin, but to go around the country, and wherever it went it would have friends ready to instruct visitors and teachers to show the exhibits representing different stages of the disease. There would also be diagrams showing that though checked in England and Scotland the disease was increasing in Ireland. Lord Aberdeen then declared the exhibition open and insisted on the importance of improving the condition of the homes of the people. Remarking on the interest of the King in the subject, he said that not long since, when in attendance on His Majesty, he had to introduce an American physician who had done splendid work on tuberculosis. The first thing the King said to that physician was, "Have you seen the sanatorium at Banchory?"

The Chief Secretary followed with a speech in which he expressed confidence in the good which would result

from the exhibition, especially if it perambulated the country, as wherever it went it would excite interest and appeal to the eye, through which all learned more than through any other channel of intelligence. He remembered fifty years ago in Liverpool that typhoid fever was looked upon as a divine institution and submitted to as a plague. Now it played no considerable part in the death rate of Liverpool; it had been got rid of by medical skill and public attention to hygiene. This scourge of consumption could be treated in the same way. The doctors had found out how it was generated, whence it came, how it was spread, and they had also hit upon expedients for curing it. They asked the people of Ireland—every one of them—to do their very best to put it down. The exhibition would be a traveling professor, instructing the people not only to realize the existence of the scourge, but to take active measures against it.

Professor Osler said this was no government battle—the work must be done by the people themselves. The Irish climate he pronounced to be a first-rate one for consumptives. It was no more moist in any part of Ireland than it was at the tail end of England, in Cornwall. You could not have a moister spot than Cornwall, and yet Cornwall had a climate in which there was no place for consumption. People said Ireland was a bad place for consumptives, but that opinion did not come from the medical profession. It was one of those fads that possibly women might have encouraged. Sunshine was not really necessary for the cure of the disease; the things that were essential were fresh air, good food, good houses, and hope.

In connection with this subject I may cite the report of the Local Government Board for Ireland, which states that in 1905 nearly 12,000 deaths were due to tuberculosis—a death rate of 2.7 per 1,000 of the population, of which 2.1 was due to pulmonary tuberculosis. The rate in Ireland is far in excess of that of either England or Scotland. In the exhibition there are four sections. The first contains diagrams, maps, and tables of statistics of tuberculosis in different countries. They show how much Ireland is behind in the fight and holding the fourth place in British possessions. While the mortality has decreased for a succession of years in England and Scotland, it has increased in Ireland. The deaths in Ireland last year from tuberculosis were much in excess of all other diseases. The second section is devoted to pathology, and models are shown of the bacilli and sections of the tuberculous organs. In other parts spitting cups, handkerchiefs, models of bungalows, screens, etc., are displayed, and there is a section devoted to the literature, which shows what has been done by municipal authorities and what medical officers of health are advocating.

After the opening of the schools comes that of the societies. Both are now at work. You will remember that a number of the societies disappear as independent organizations, being absorbed in the amalgamation with the old Medical and Chirurgical, familiarly called the "Medico-Chi." The result is that we now have the "Royal Society of Medicine" as our chief society, with a series of sections representing the several absorbed bodies. Some of these have already met. Thus on Friday the Clinical Section assembled under the presidency of Sir Thomas Barlow, who delivered an introductory address in which he outlined the history of the "Clinical Society" during the forty years of its independent existence. Naturally it is impossible to adequately review the work during such a period of a society carried on with remarkable energy and success and ever in the van of medical progress from its own standpoint.

The new section set to work in the old style by exhibiting some interesting cases. A case of congenital absence of the fibula was shown by Mr. Openshaw in a boy of ten. The outer half of the foot and the two outer toes were also absent. With an apparatus he could walk and play games. In contrast with this, Mr. Openshaw also showed a child of six months, both tibiæ being practically absent. He was against amputation in such cases. He thought the scar often seen in them was caused by intrauterine fracture of the bone. Mr. D. Drew showed a girl with a movable knee joint after two arthrectomies; also a case of congenital dislocation of patella operated on successfully. Mr. Hutchinson had just had a case of fusiform aneurysm of the right carotid. Dr. Batten showed a man of sixty-two with slight nystagmus and marked kinetic ataxia, which began six years ago and became worse three years ago. Mr. Rowntree showed a man with a myxosarcomatous growth on the thigh, and Dr. Leviand another with diffuse sarcoma. The diagnosis of this was questioned by Sir D. Duckworth, who recommended sarsaparilla. Perhaps the most interesting case was that of a woman of twenty-five with multiple nodules, shown by Dr. Garrod as of rheumatic origin. She had acute rheumatism two years previously to their development. No cardiac lesion. They had been present eighteen months—over the metacarpo-phalangeal joints, elbows, and knees of both sides, and one shoulder. Dr. S. West remarked that he had seen several cases and in some of the worst there had been no heart lesion. Sir D. Duckworth said he was familiar with such cases in adults and struck with their long duration. Dr. B. Abrahams had had four cases in adults and was skeptical as to their rheumatic nature. He had followed them for years without any sign of rheumatism appearing. Dr. Poynton had seen children with nodules of long duration. The president, Sir T. Barlow, accepted the diagnosis and had found the association of endocarditis and nodules less close in adults, in whom, too, they often lasted over a year. Mr. Steward showed a child on whom he had opened an empyema at the left base and then opened the pericardium and drained through the same wound. The pus from both was pneumococcal. Dr. West had seen recovery from an interior opening and advocated simple incision without thoracotomy. Mr. Godlee related a case successfully drained by Mr. Raymond Johnson, in which the pyopericardium followed osteomyelitis.

The Pathological Section also met on Tuesday, when the president announced an important change he was instituting in the conduct of the proceedings. Instead of a series of set speeches following a paper, he will introduce a conversational method, which he thought would prove specially adapted for their work. By this means, which may be called the Socratic method, members will ask the readers of papers questions which arise out of them and which will elucidate the subject through the explanations offered in reply. The plan is not new even in medical societies. The old "Medico-Chi" was intended to interchange knowledge by "way of easy conversation," as well as by lengthy papers, but it degenerated into a rather cold and to many formidable debate with set speeches. Perhaps other sections will follow the example of the Pathological.

The Medical Society of London is the oldest of our societies and it preserves its independence having declined to join in the amalgamation scheme. Some say there was a difficulty about its endowments, but others think the sentiment of independence and pride of seniority were the prevailing motives of its remaining separate. At any rate the vote has decided the question and we must not confuse the old Medical Society—still vigorous if not young—with the new section.

The session of this society was opened on Monday, when Dr. J. K. Fowler delivered his presidential address. This he directed to the defence of medicine against the slight which some would put upon it as less progressive than surgery. He held that medicine had kept pace during the last thirty years. Considering the advances made in that period, he claimed that, having regard to the wide field covered, medicine had made greater progress than surgery, and he believed that in the future it would far exceed the results of the past.

The report of the Medical Officer of the Local Government Board has been issued, and illustrates in various directions the value of medical inspections. Among other things, the report deals with international and imperial services rendered by the Medical Department—vaccinations, plague, cholera, cerebrospinal fever, and auxiliary investigations. Dr. Buchanan investigated the subject of the meat of pigs affected by tuberculosis. He says the present system of control in London is uncertain and unequal in operation. Moreover, it is weak in that it is primarily dependent on examination of the dressed carcass instead of the animal at the place where the internal organs can be inspected at the same time. The epidemics of typhoid fever at Basingstoke and Lincoln, accounts of which by Drs. Farrar and Reece are given, reinforce the lessons of previous occurrences, and should be carefully considered by local sanitary authorities, in relation to any development of or changes in water supply.

Dr. Harold Budgett Meakin, Surgeon to the Calcutta Hospital and Professor of Pathology at the College, died on the 21st ult. at Nordrach, where he had gone on account of tuberculosis. He was a London graduate, M.B. 1894, M.D. 1895. In 1898 he entered the Indian Medical Service, won medals and prizes at Nelley, and was appointed to the Ninth Gurkhas, with which he saw active service on the frontier. He was at the capture of Pekin and later chief of the Wei-hai-wei hospital. A man of great force of character, intellectual gifts, and artistic taste, he made friends wherever he went, who will much regret his early death. He was only thirty-seven.

Dr. P. J. O'Connor, surgeon to the liner *Fluminense*, when joining his vessel at Liverpool on the 11th inst., fell over the quay and was drowned, aged fifty-two.

Typhoid Fever.—In attempting to check the spread of a typhoid epidemic the authorities of Prague have forbidden the wearing of trailing skirts.

OUR LETTER FROM COPENHAGEN.

(From Our Special Correspondent.)

STERILIZATION OF MILK—JENSEN MOUSE TUMORS—SPREAD OF TUBERCULOSIS BY BOOKS—SUICIDES AND ACCIDENTAL DEATHS IN DENMARK.

COPENHAGEN, October 6, 1907.

In the Blegdams Hospital of Copenhagen Dr. Valdemar Bie has worked out a method for the sterilization of milk, the properties of which are stated not to be altered by the procedure. In order to avoid the destruction of the enzymes of the milk and the alteration of its proteids, brought about by the ordinary pasteurization, some years ago another Dane, Mr. Budde, adopted a method, the chief feature of which was heating the milk to a temperature of 50-55° C. only, after addition of about 0.4 per mille of hydrogen peroxide. The milk being able to decompose at the mentioned temperature, the employed quantity of H_2O_2, no detrimental effect on the human organism could ensue from the addition of the disinfectant, and after heating for eight to ten hours the milk was claimed to be sterile, while a heating of two to three hours' duration enabled the milk to keep sweet for eight to fourteen days. Unfortunately the sterility of the "buddeized" milk would seem to be not always reliable, and it is, to say the least, probable that the enzymes and proteids of the milk undergo some change by the prolonged heating to 55° C. Therefore Dr. Bie heats the milk only to 35° C., a temperature absolutely harmless with regard to the mentioned substances. As, however, the milk is not in itself able to decompose at this temperature a quantity of hydrogen peroxide sufficient to insure the sterilization, he uses an extract of malt as a catalysator to decompose the surplus of peroxide. This method is as follows: After heating the milk to 35° C. he adds 1 c.c. hydrogen peroxide to 200 c.c. milk, which is subsequently placed for six hours in the incubator at 35°. After cooling down to 10° C. he adds 50 c.c. of an aqueous extract of malt to 200 c.c. milk and places the mixture in the icesafe for eighteen to twenty-four hours, when the hydrogen peroxide has entirely disappeared. The results attained are good. Ten samples of the purest raw milk obtainable in Copenhagen contained on an average 62,668 bacteria to the cubic centimeter before sterilization; after which one c.c. contained only an average of eight bacteria.

The cancer committee of the General Danish Medical Association has sent out its report, the most important item of which is a communication of Prof. C. O. Jensen, the discoverer of the mouse cancer on two typical inoculable sarcomas in the rat. He emphasizes the importance of obtaining a larger stock of inoculable tumors than has hitherto been available. Of the best known tumors, the mouse cancers, at this time hardly more than eight different samples are living in the laboratories. Spontaneously growing inoculable sarcomas have as yet not been found in mice. In rats only one instance of carcinoma allowing of transplantation is known. Sarcomas appear to be met with more frequently in rats, and two or three different ones may be found in American laboratories. As far as known European laboratories have till now not possessed inoculable rat sarcomas, which fact bears out clearly the importance of the recent discovery of two of these tumors in Copenhagen. It is to be regretted, for the sake of the further study, that the mentioned tumors only exceptionally can be made to proliferate in rats of other breeds than the one reared in the Copenhagen laboratory.

Dr. O. V. Petersson of Upsala has carried out some researches on the possibility of infection arising from books used by patients affected with pulmonary tuberculosis. He examined case record forms which had been kept either hanging behind and above the bed's head, or lying on a little table near the patient, or, finally, on a table in the middle of the ward. The surface of the forms was washed with water, after the centrifugation of which tubercle bacilli were found in forty per cent. of the aggregate number of cases examined, while he failed to discover bacilli in those cases in which the record forms had been kept in the middle of the ward. In the opinion of the investigator this fact goes to show that Flügge's drop infection was to be held responsible for the contamination of the forms, also because the bacilli were often seen to be in groups round clusters of leucocytes. His surmise was corroborated by the following experiments: He made consumptive patients when coughing hold up a sheet of paper in a distance of thirty cm. from their mouth and was always able to demonstrate the presence of tubercle bacilli in the dust which he could scrape off the paper. The natural deduction of these researches is that books handled by consumptives ought to be regarded as a possible source of infection and to be treated accordingly. The fact that Dr. Petersson found bacilli on forms, which had been kept for several years shows that books may remain dangerous for a long time.

The Statistical Bureau of the State of Denmark has published a report on suicides and accidental deaths in the years 1896-1905. The number of suicides was 22.1 per 100,000, the incidence for men being four times greater than that for women. Suicide caused by addiction to drink is twice as frequent in Copenhagen as in the country. Of the male suicides between 25 and 65 years of age every second was a drunkard. More than 600 deaths by accident are registered yearly, 150 of which happen during work while only 60 are covered by the workmen's liability act. Of the aggregate number of males above 15 years of age having perished by accident, one-fifth were addicted to drink. The statistics for men between 45 and 65 years present a still darker aspect, one-third of the perished being drunkards.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 24, 1907.

Treatment of Stricture of the Urethra.—Twenty-five years of experience in the treatment of urethral stricture have led F. R. Watson to the following conclusions: (1) Electrolysis and divulsion are methods of treatment which should both be abandoned. (2) Internal urethrotomy is the only method of treatment by which an important number of cures can be obtained. It is an operation involving but little danger. Its application should be restricted to strictures within the first five inches of the canal unless external perineal urethrotomy is done in combination with it. (3) For strictures of the deeper part of the canal gradual dilatation is the best form of treatment if constitutional disturbance does not rise in connection with its employment, and if the urethra for a reasonable length of time maintains the caliber to which it has been expanded by the instruments. (4) For the cases in which the strictures of the deep urethra recontract rapidly after dilatation, or those in which constitutional disturbances arise in the course of its employment, also for the resistant or impassable strictures of the deep urethra, in all of which conditions gradual dilatation is useless, external perineal urethrotomy, or internal urethrotomy combined with the external incision in the perineum is the safest and most efficient method of treatment. (5) External perineal urethrotomy is the only operation that should be applied in cases of stricture accompanied by urinary extravasation. (6) Resection of the strictured part of the canal should be selected in cases of intractable, very dense strictures of the perineal part of the canal. Internal urethrotomy done under the conditions and in accordance with the rules the author has stated above will yield from 50 per cent. to 60 per cent. of radical cures, and at an operative risk of death of about 1.5 per cent.

New York Medical Journal, October 26, 1907.

Late Secondary Hemorrhages Following the Removal of Adenoids.—F. L. Wachenheim saw two cases in consultation, one a girl of nine years with bleeding on the fifth day, and another, a girl of the same age, with bleeding after five days. The local application of strong vinegar seemed to act as the best hemostatic. In neither case was the operation done under general anesthesia. Forceps were used in one case and the curette in the other. Neither child was a bleeder. Such cases of bleeding are probably due to incomplete removal of the lymphoid tissue or to septic infection and sequestration of a clot. The author thinks that hemorrhage more often follows the forceps than it does the curette. The latter is more likely to leave a clean section. Adrenalin seems to be ineffective in these cases. At best its results are but temporary. Vinegar applied through the anterior nares answers well. Plugging should be avoided as long as possible. The author's three suggestions are: First, operation with the curette under general anesthesia; second, caution to the parents as to the possibility of hemorrhage, together with full directions as to diet and management of the child for a week after operation.

Diseases of the Eye, Ear, and Throat Among Persons Affected with Leprosy.—In the material coming under the observation of H. T. Hollman in the Sandwich Islands were 60 eye cases, 25 ear cases, 100 nose, and 100 throat cases. Of eye diseases he found ptosis (4), ectropin or entropion of the lids (55), edema of the lids, tubercles, symblepharon, leprous ophthalmia, ophthalmia neonatorum, a leprous pterygium like pannus, corneal ulcerative iritis, leprous tubercles in the choroid, and retinitis. Ear diseases among lepers present nothing peculiar except the tuberculous formations involving the meatus, and in the leper most diseases can be traced to causes originated by the leprosy bacillus. In the nose there is a septal perfo-

ration in 75 per cent. of the cases and sometimes the septum is entirely gone. Hypertrophic cases bleed more freely than ordinarily. In two cases the turbinal tissue prolapsed on the floor of the meatus. Abscesses were found in the middle of the mass and were cured by injection of caustics. Atrophic rhinitis presents the usual appearance of the disease. Leprous tubercles are frequently found in the nasal cavity. A few cases of antral disease were found, probably from decayed teeth. A peculiar deposit of white leper tubercles often affects the tonsils. These swell and later become fibrous. They decrease in size under silver nitrate solutions. The pharynx is generally hyperesthetic and may present the usual tubercles. The larynx is frequently invaded by extension and may become so occluded as to call for trachotomy.

Hematuria of Renal Origin.—A general description of this malady is given by Hm. Christian, who believes that the hemorrhage of essential hematuria and of a certain proportion of cases of chronic interstitial nephritis are so intimately associated that it is a difficult problem to separate one from the other. The diagnosis as to the source of blood, whether it comes from the bladder or kidney where the bolod is passed intimately mingled with the urine, is often a most difficult proposition. In most cases, however, a careful study of the clinical symptoms present, together with the information gained from an examination of the urine and from the use of the cystoscope or some form of urine separator, will enable one to arrive at a fairly accurate idea as to the source of the hematuria. As regards the clinical features, those having the most bearing upon determining the source of the blood, are pain and frequent urination. All things being equal, hematuria associated with pain over the lumbar region with or without frequent urination, is of renal origin. On the other hand, where there is marked pain over the bladder, together with decided increased frequency of urination, one is justified in regarding the bladder as the probable source of the hemorrhage. The character of the bleeding and the macroscopic appearance of the urine are important factors in determining whether the bladder or kidney is involved. Hemorrhage from the bladder is apt to be intermittent in character, suddenly appearing and as suddenly disappearing. The urine is blood red in color, and is apt to be alkaline in reaction; on the other hand, hemorrhage from the kidney imparts to the urine the well known "smoke color" appearance, the urine is generally acid and contains from time to time small wormlike clots of blood which are known to be casts from the ureters. If, as Ayres has noted on bladder irrigation, the blood rapidly disappears and quickly reappears, it probably comes from the kidney; if it disappears slowly and returns slowly, probably from the bladder. The cystoscope is an aid to diagnosis, but the ureteral catheter and the urine separators are not of much value. The author thinks that there is no question as to the propriety of a nephrotomy in those cases in which the bleeding is profuse, continuous, and threatens life.

Journal of the American Medical Association, November 2, 1907.

Lymphosarcoma in Dogs.—The results of recent observations on a particular type of tumor occurring naturally in dogs and known under the name of "infectious lymphosarcoma" are reported by S. P. Beebe. It has been considered by some pathologists, notably Bashford, to be an infectious granuloma, comparable in many respects to syphilis. Beebe's observations, however, are directly opposed to this; he finds no evidence of its transfer except through transplantation of a living tumor cell, and hence cannot consider it infectious in the sense of having a microorganism as its cause. Microscopic studies have revealed no germs, except in one case in which the organisms were those occasionally found in ulcerating areas, and were in no way similar to those found in mouse carcinoma. As observed at the Buffalo Laboratory in the studies on mouse carcinoma, so here a certain percentage of the tumor animals recover spontaneously and acquire an immunity, though not an absolute one. A tumor already growing does not, however, confer immunity to secondary implantations. Beebe is inclined to believe, from transfusion experiments made with the cooperation of Dr. Crile, that the blood contains immune factors that confer a passive immunity to susceptible animals. The detailed report of these experiments is promised later. So far as the facts of Beebe's observations can be applied to the human subject, they indicate that there is no reason to consider human tumors infectious to any greater extent than those here studied in the dog. It is possible that they can be transplanted, but we cannot argue from this that certain houses or water courses are sources of infection. His efforts to find a cure have been limited to his study of the mixed toxins advocated by Dr. Coley for the treatment of sarcoma. The results have been interesting and demonstrate the value of the method. It also shows the instability of the tumor cells as compared with normal cells, since a great variety of toxins affect them unfavorably. Their growth function seems excessively developed, but their defense is weak.

Experimental Epithelial Proliferation.—Incited by Fischer's results with Scharlach R. and olive oil in producing epithelial proliferation in the rabbit's ear, G. McConnell undertook further experiments along the same line on Belgian hares, guinea pigs, and white rats, using a mixture of Sudan III with olive oil. Practically similar findings with those of Fischer were obtained—proliferation of epithelial cells with prolongations downward, increase of connective tissue, etc. He considers the results suggestive as regards the origination of malignant growths, though they do not reach a point where definite conclusions can be drawn. If we can bring about such an atypical proliferation of the epithelium it would seem theoretically possible to continue the stimulus to the point of having a destructive growth. Hints of this appeared in the form of a slight ulceration that was observed in one experiment, but, with the exception of Fischer's case in which there was apparently an infiltration of the ear cartilage, no such result has been obtained.

Osteoplastic Operations.—Prof. D. Küster gives a résumé of the history and present status of osteoplastic surgery, pointing out the variations of which it is capable and calling attention to certain facts in his own experience. He briefly describes his method of "osteoplastic exarticulation in the foot-joint," his method of performing cranial osteoplasty and his use of the osteoplastic method to avoid deformity after mastoid, antral, and sinus operations. He also gives briefly his experience with other osteoplastic operations, and points out that osteoplastic methods in general, and the transplantation of pedunculated flaps in particular, have given very satisfactory results. These, as enumerated by him, are: A better survey and accessibility of the field of operation, avoidance of grave and persistent interference with health, and, finally, avoidance or diminution of deformities.

Prolapse of the Ovary.—G. G. Ward, Jr., considers that the prolapse of the ovary is of greater clinical importance than some authorities at present seem to allow. While it may exist without symptoms in some cases in which the organ is probably free from inflammation or adhesions and has ample room for movement, in many others it gives rise to characteristic painful symptoms which can only be relieved by operative interference. Failure to recognize the ovarian prolapse accompanying retrodisplacement of the uterus is often the cause of lack of success in the operation for the relief of the latter condition. He rejects any operations by shortening or folding the ligaments to elevate the ovary, and holds that the Mauclaire-Barrows operation of transplanting the ovary to the anterior surface of the broad ligament through an incision or buttonhole offers complete relief and makes recurrence impossible, is very simple and easy of execution and does not interfere with the functions of menstruation or fecundation. He reports eleven cases thus treated successfully by him. The operation can be combined with suspension of the uterus, Gilliam's operation, shortening the round ligaments, or the infundibulopelvic ligaments for an accompanying retroversion or uterine prolapse, and can be performed by the vaginal route much more easily than the other operation. The operation is described and illustrated.

Erysipelas.—L. N. Boston and A. E. Blackburn find the incidence and mortality of erysipelas are both decidedly affected by seasonal influences, being highest in the colder months. Age also is an important factor in the mortality, the latter being excessive in early infancy, least in childhood, and gradually increasing from adolescence to old age, when it again becomes excessive. Among their cases both incidence and fatality were very markedly greater in the male than in the female. Their statistics also show that renal complications are to be expected with erysipelas, since of the 483 patients examined in this regard, 327 (67.7 per cent.) were voiding pathological urine. The mortality, however, did not apparently indicate that it was a very serious complication. In 66 of the cases the disease was limited in extent, in 486 it was extensive. The scalp was primarily involved in 12 cases, but of the 485 cases beginning in the face, in only 7 did the disease extend beyond the hair margin, the scalp remaining unaffected. The occurrence of glycosuria in a certain percentage of the cases is mentioned.

The Lancet, October 19, 1907.

Acute Intestinal Obstruction.—The patient of H. J. Clarke was a boy of 11 years with symptoms of three days duration, viz., violent abdominal pain, constipation, vomiting, pinched and drawn face, furred tongue, dark colored

but not distinctly fecal vomiting. Pain and tenderness were most marked over the left iliac region. Under light ether anesthesia on the third day a median incision was made from just below the navel to the pubes. The peritoneal cavity contained considerable clear fluid. Small intestine was congested and distended here and there. Cecum was flaccid. The tip of the appendix was found imbedded in the mesentery, forming a band under which the ileum was constricted. In the top of the appendix was a hard concretion. The appendix was ligatured and cut through, thus releasing the ileum. The patient's bad condition forbade a more elaborate procedure. The bowel was black in several places, but the intestinal wall retained its luster The abdomen was filled with saline solution and closed. A drain was left in for 24 hours and then removed. Recovery was uneventful.

Intraparietal Hernia with Very Small Peritoneal Opening, Giving Rise to Severe Abdominal Pain.—J. A. Macewan reports the case of a woman of 57 years who had had for 27 years abdominal pain about midway between the navel and symphysis, about two inches to the right of the median line. A small umbilical hernia was found and later a mass the size of the closed fist with a narrow pedicle, extending toward the abdomen. On lying down, this mass disappeared with a sudden slip and a slight gurgle. The umbilical hernia was first treated and then the inner surface of the abdominal wall was inspected. At the point above named as painful, inspection revealed a small raised area with a minute central depression. So small was this depression that it was doubtful if it would admit a probe. Slight pressure with the point of the probe, however, served to gain access to what appeared to be a small sac in the abdominal wall. Dressing forceps were next tried and it was found that the minute mouth of the sac was extremely distensible, easily opening sufficiently to admit the finger, which penetrated a distance of one and a half inches when a little pressure was applied. An incision was now made round the mouth of the sac in the normal peritoneum and the sac, which then lay loosely in the abdominal wall, was dissected out. While very small when relaxed, and, as already stated, possessing a very narrow mouth, it was capable of great distention, extending easily to the size of a tangerine orange. A further point of interest was that the omentum, instead of lying in front of the coils of bowel, had become turned up, its free border being attached to the stomach and the whole being laden with fat. An attempt was made to remedy this and a redundant portion was removed. The wounds were now sutured, particular care being taken to secure accurate apposition of the cut peritoneal surfaces, and the patient was returned to bed. She made an uninterrupted recovery and has had no further trouble, the pain having quite disappeared.

Frontal Band Alopecia As a Possible Sign of Exophthalmic Goiter and Associated Conditions.—D. Walsh says that hairlessness in the band just above the forehead, if persistent into later life, constitutes the congenital frontal band alopecia. It is far more frequent in girls than in boys, and in later years is apt to be more or less hidden in both sexes by the hair being brought over the forehead, but more especially in women. The band may be quite bald; more commonly it has a few short hairs as it nears the hairy scalp. It is almost invariably associated with bays that run backwards in a line with the frontal eminences; the bays are usually covered with a thin growth of hair; the whole band may be thinly covered with hair, or one side only may be thus covered and the other bare, or there may be a thin pencil of hair on one or both sides, indicating where in normal circumstances the hairy scalp would have commenced. The band itself may be about half to one inch in width; it is situated at the anterior margin of the frontal portion of the scalp and stretches across from one frontal eminence to the other. It is not easy to lay down any exact line of normal limitation of scalp margin, but it may be regarded, as a rule, as extending to the upper half of the convexity of the frontal eminences. When the band is marked, or when it is indicated by a partial anterior rim of hair, there can be no doubt as to its presence. The congenital frontal band alopecia often runs in families and is hereditary. In one case an acquired frontal band was added to a pre-existing congenital band. In both children and adults the author has found it constantly associated with enlargement of the thyroid and tachycardia, nervousness, pigmentation, chilblains, epistaxis, patchy baldness, and sometimes tremors, a condition that suggests potential Graves' disease. In 18 cases of exophthalmic goiter the congenital frontal band alopecia has been found present, and no negative instance has so far occurred. Out of six cases of myxedema the frontal band alopecia was found in five, of whom two showed unequivocal and the other three less marked signs and symptoms of exophthalmic goiter. The sixth had no frontal band alopecia and nothing to suggest past or present Graves' disease. So far some 96 cases of frontal band alopecia have been investigated. The band may possibly indicate some evolutionary change or may be degenerative or trophoneurotic, or be a part of the obscure group of signs and symptoms associated with exophthalmic goiter.

Blood Pressure in Fevers.—A study of this subject has been made by J. Davidson. In scarlatina he found that the blood pressure curve very similar to those of the pulse and temperature. In general it continued to fall until the seventh or eighth day of the disease, at which time it usually passed below the normal line. In about 5 per cent. of the cases it remained normal throughout the entire disease. In the severe cases of scarlatina of the anginose type, the pressure fell as the toxemia increased, in spite of cardiac stimulation. In scarlatinal nephritis the blood pressure is raised during the period of albuminuria. The rise often occurs before the albumin appears. In diphtheria a reduction in pressure was found in every case depending largely if not entirely on the degree of toxemia. Mild cases showed normal or slightly subnormal readings. In antitoxin injections a rise appeared in temperature four or five hours after injection, but the vascular pressure was found in almost every case to be either reduced or the same. In general this reduction appeared in a few minutes and passed off within an hour. In typhoid the blood pressure is always considerably lowered, the diminution progressing steadily the longer the continuation of the case, and it rises again only on the establishment of convalescence or the occurrence of some acute inflammatory complication. In all such operations it is evident that we must carefully distinguish the changes attributable to the fever itself from those which are merely secondary to the pyrexia.

British Medical Journal, October 19, 1907.

The Calmette Serum Reaction in Ophthalmology.—S. Stephenson gives a brief review of the Calmette test and has applied it in some thirty or more cases, all of whom were suffering from some eye affection. His results may be summarized as follows: (1) Phlyctenular (eczematous conjunctivitis and keratitis), 6 cases, with corneal ulceration reaction in all positive; 1 case of recent phlyctenular keratitis; reaction negative. (2) Choroiditis, 3 cases, reaction positive in all. (3) Interstitial keratitis, 8 cases; 5 with stigmata of inherited syphilis, all negative, in the remaining 3, all positive. (4) Episcleritis, 3 cases, 1 positive and 2 negative. (5) Tubercle of the iris, 1 case, positive. (6) Tubercle of cornea, 1 case, positive. (7) Chronic iridocyclitis, 1 case positive. Stephenson adds that according to Calmette, neither ordinary tuberculin nor Koch's older tuberculin (*Alttuberculin*) must be employed in the test, since their contained glycerine is apt to irritate the conjunctiva and thus to mask any proner reaction. Calmette advises 1 part of dried tuberculin, precipitated by alcohol, dissolved in 100 parts of sterilized water, and of this liquid he places one or two drops in the eye to be tested. The Pasteur Institute, Lille, France, prepares suitable tuberculin in two forms: (1) as dry tuberculin in small glass phials, to which the surgeon adds ten drops of water; and (2) as a solution in hermetically sealed glass tubes, each of which contains several drops of the product ready for immediate use. The price of neither preparation is prohibitive.

Two Cases of Pernicious Anemia with Unusual Features.—These case histories are given by J. Fortune. Case 1 was that of an epileptic man of 30 years, who died after six months of symptoms. Autopsy showed an empty gall-bladder, contrary to the rule. The anemia served to lessen the number of epileptic seizures, though in what manner it is difficult to determine. Case 2 was that of an imbecile woman of 25 years who had a long illness of nearly two years, beginning with the deposit of patches of brown skin over the front of the chest and abdomen. Some two years later she presented a very peculiar appearance. Her hair and face were very white and the mucous membranes pale. The anterior aspect of the trunk was of a bronze color, with the exception of several small patches with well-defined outlines, which were of the same aspect as the face. It was difficult at first to decide which areas represented pigmentary anomalies. Towards the axillæ and genitals the color was deeper, and over the thighs small spots the size of a lentil were distributed, gradually becoming rarer as the knees were reached. The back of the trunk and thighs, the arms, and the legs below the knees, were pale and not pigmented; nowhere could a lemon tint be discovered. A blood count gave the red corpuscles as 1,100,000 per c.mm. There was marked poikilocytosis, and alteration in size, and many nucleated red corpuscles. Hemic murmurs were present, and some tenderness over the long bones. There was never any edema or hemorrhages and the temperature varied between 99° and 100° F. The patient had complained mostly of feeling cold.

Autopsies were made in both instances, and the ferrocyanide test applied and bone marrow examined. No extravasations could be determined in either with the naked eye. In both the fat was of bright yellow color, and the internal organs pallid. Gigantoblasts were found in the bone marrow. Further pathological changes in the various organs were those characteristic of the disease in general.

Berliner klinische Wochenschrift, October 7 and 14, 1907.

Paratyphoid Fever and Food Infections.—Kutscher discusses the relationship between paratyphoid epidemics and the use of infected meat. Clinically, etiologically, and pathologically there is entire correspondence between the ordinary paratyphoid fever and certain instances of meat poisoning, and therefore these must be regarded as paratyphoid fever with a special mode of infection. From a study of a number of epidemics of this sort it appears that in almost all the cases meat was used from animals slaughtered because they were sick. Prophylaxis, therefore, demands that no meat from animals suspected of disease shall be used for human consumption until its harmlessness has been demonstrated. This means that bacteriological investigation is necessary in each case, for the meat from animals suffering from septic or pyemic disorders is often free from all visible signs of disease shortly after slaughtering. The use of raw meat is to be discouraged, and Uhlenhuth's suggestion that the temperature of all animals be taken before slaughtering and those having fever be regarded as suspicious is a good one.

Infected Hydronephrosis with Anomalous Ureter.—Manasse describes a case of hydronephrosis occurring in a man of twenty-six years, which was recognized as such owing to the fact that after a diagnostic inflation of the stomach and rectum the urine, which previously had been clear, suddenly became purulent and the tumor decreased in size. At the operation it was found that the renal parenchyma was almost entirely destroyed, while the larger part of the cyst was formed by the greatly dilated renal pelvis. The ureter was patent, and instead of passing over the posterior surface of the organ ran downward over its anterior surface. The vessels entered the hilus behind the ureter. The kidney had been very little displaced, but the spleen lay in the midline of the body in front of the vertebral column close to the stomach. The cyst contained 3,500 c.c. of purulent fluid. The patient made a good recovery.

Opening Peritonsillar Abscesses.—Meyer advises opening such abscesses through the supratonsillar fossa. It is at this point, he says, that the infection usually begins and from this direction the abscess cavity is most easily to be reached. The method has the advantage that a blunt instrument may be used while it is easily possible to discover collections of pus so small as to be reached only with difficulty by means of the ordinary incision. He uses for the purpose a blunt hook whose bent part is a little over a centimeter in length. The patient's tongue is depressed and the point of the hook is introduced into the fossa. It follows the line of least resistance, usually upward and outward, and then the opening is widened by a sharp pull. If the abscess is very deep or behind the posterior pillar it may be necessary to penetrate through the posterior pillar itself, or between this and the tonsil, or through the latter. Incision through the anterior pillar is practised only in very advanced cases that are almost ready to burst. The author greatly prefers the use of the hook in this way to incision, especially as it often enables very early evacuation of the abscess and therefore tends to shorten the duration of the illness.

The Preservation of Complements.—Friedberger, in experimenting with complements, found that the addition of 4 per cent. of sodium chloride was very effective in preventing the deterioration of the activity of the serum at room temperature. The addition of the salt did not render the serum more resistant to the action of high temperatures, however. The author does not believe that the effect of the salt is due to a bactericidal action and considers that the salt either causes the complement to assume a more stable form, or destructive substances present in ordinary serum are restricted in their activity. Preservation of the complement is also effected by drying the serum at room temperature. Such complement also is rendered much more refractory to high temperatures. Whereas the complement is destroyed by heating to 56° for half an hour in fluid serum, after drying it stands heating for an hour and a half at 64° with a loss of only about one-half of its former value.

Münchener medizinische Wochenschrift, October 8 and 15, 1907.

The Morphology of Urine and Bile.—Veit and Wederhake say that Virchow first described small bodies giving a reaction similar to starch with certain reagents and therefore called corpora amylacea. These are found in the substance of the spinal cord in the ependyma of the cerebral ventricles, in the prostate gland and its secretion, in the lung, in the sputum in pulmonary tuberculosis and bronchial asthma, in carcinoma, in the colostrum, in the urine, and bile. Several methods for staining these have already been described, but the authors prefer the following procedure: The fluid in question is centrifuged and the supernatant fluid is poured off. To the sediment a drop of tincture of iodine is added and the tube is well shaken. Then 1 c.c. of concentrated solution of croceinscharlach 7 b in 70 per cent. alcohol is added and the whole is well shaken. The sediment is then washed by recentrifuging with water and may then be examined or preserved in Farrant's medium. The typical amyloid bodies are stained bluish black or a lighter blue, but in addition to these other similar bodies are also found which are stained red and exhibit slight morphological differences. The authors believe that the discovery of these true amyloid bodies in the urine has diagnostic value in distinguishing between bladder and renal affections. The absence of amyloid bodies from a pathological urine indicates that no catarrhal bladder affection exists, whereas there their presence shows that this organ is also involved. The authors do not offer any suggestions as to the origin of these bodies, but as they occur in scrapings of the interiors of gallstones they consider it possible that they have something to do with the formation of vesical calculi as well as of gallstones.

Treatment of Iritis and Ophthalmia Neonatorum.—Fukala says that in treating iritis and iridocyclitis two conditions must be fulfilled: first, the pupil must be dilated to the maximum, and second, a specific remedy must be used for the cure of the inflamed iris and ciliary body. In order to carry out the first condition it is necessary to use stronger solutions of atropine than is usually done, and two, three, and even four per cent. solutions must at times be resorted to. The author has never seen any disadvantages attending this practice, but as soon as the pupil reaches the stage of full dilatation he omits the atropine until contraction begins again. In addition, as a specific remedy, a 1-4,000 solution of corrosive sublimate is applied by means of a pledget of cotton held in a forceps. The application must be preceded by cocainization with five, ten, or fifteen per cent. solutions of the anesthetic, and the bichloride is brought into contact with the whole of the scleral conjunctiva. It is advisable to warm the solution to 36° C. In grave cases a compress soaked in 1-4,000 bichloride solution is applied over the entire eye and if the pain is severe leeches are used. For ophthalmia neonatorum Fukala recommends the use of stronger solutions of silver nitrate than are ordinarily employed, and he states that although the two per cent. solution may serve in mild cases, for the more serious ones a strength of four and even five per cent. is necessary. This solution also is applied with a pledget of cotton, and in adults preliminary cocainization is advisable in order to render the application less painful. In the specific ophthalmia of adults the remedy is abortive if applied sufficiently early, but later on in the disease its effect is less satisfactory.

Pain and Blood Pressure.—Curschmann investigated the question of the behavior of the blood pressure in the presence of painful stimuli. For this purpose he subjected various groups of individuals to painful electrical stimuli, recording the blood pressure before and after. One set comprised persons with normal sensibility; these reacted with an elevation of 8 to 10 mm. of Hg., though in two out of twenty a drop of 10 to 15 mm. was caused. In persons with neurotic or organic hypertension the elevation produced was still greater, and the author considers that it may be accepted that both in well and sick persons with normal skin sensitiveness the application of painful stimuli causes a rise in blood pressure, more rarely a fall. In disturbances of sensibility either through organic disease or hysteria, this result did not follow. In gastric and intestinal crises in tabes the blood pressure was found to be very high as well as in lead colic, whereas in instances of abdominal pain due to other causes, such as carcinoma of the stomach, gallstones, etc., this was not the case, and he suggests that this sign may have diagnostic value.

Fatal Reflex Anuria Following Urethral Examination.—Bennecke describes this case in which death occurred under circumstances that in private practice might have been very embarrassing. The patient was a man of sixty-five years who first came under hospital treatment for

chronic nephritis and cystitis. For a time he was in a condition of chronic uremia, but gradually recovered from this and after some weeks of convalescence was subjected to the exploration of the urethra with sounds, as the presence of strictures was suspected. None were found but some difficulty was encountered owing to spasm at the vesical sphincter and the patient complained of severe pain. This increased, he became delirious and then comatose, dying thirty hours after the examination. During this time not a drop of urine was voided and at the autopsy none was found in the bladder. The author says that the condition is difficult to explain, but that it apparently was due to reflex inhibition originating in the spasmodically contracted sphincter of the bladder. The autopsy showed that there had been no injury to the urethra by the instrumentation.

Deutsche medizinische Wochenschrift, October 17, 1907.

Experiences with the Quartz Lamp.—Heymann reports on the results obtained in the treatment of various skin diseases by means of the quartz lamp as opposed to the Finsen lamp and various modifications of this. He comes to the conclusion that the quartz lamp possesses the decided advantages of being more convenient to manipulate, less expensive, and requiring smaller amounts of current, but that it has the advantage of easily causing deep necroses that are slow to heal. By exposing the forearm under a rabbit's ear to the rays of both lamps it was found that the quartz lamp possessed much greater penetrating power than the Finsen lamp. The author regards it as a useful adjunct to the treatment of lupus, of value in eczema through its sedative and siccative effect, and of service in superficial nevi without tissue hypertrophy. It also gives good results in the treatment of all forms of acne.

The Occurrence of Mydriatic Substances in the Urine.—Pal says that the observation of Schur and Wiesel that the serum of nephritics contains mydriatic substances induced him to carry out similar experiments with the urine of patients suffering from various affections. The test was carried out on the enucleated eye of the frog. Eighty-one cases were tested in all; the reaction was not present in any of the seven normal cases; it was present in 78 per cent. of twenty-eight cases of nephritis, in 7 per cent. of twenty-eight cases of various other diseases, and in 33 per cent. of eighteen cases of pregnancy. The question is to be investigated further and the author suggests that the mydriatic action may be due to the excretion of adrenalin.

French and Italian Journals.

Retroperitoneal Tumors.—Mangiagalli presents the histories of five retroperitoneal tumors of large size removed with excellent results. These tumors have their origin in aberrant embryonic remains of the genitourinary organs. In operation the incision should begin at the superior pole of the tumor and extend down into the peritoneal sac, thus facilitating the removal of the tumor. The cervix uteri is little increased in size and is no obstacle to the ligation of the utero-ovarian artery. The cavity left by the removal of the tumor may be treated in various ways. It seems best to tampon the cavity with sterile gauze after having separated the retroperitoneal from the peritoneal cavity. The cavity generally contracts rapidly.—*La Riforma Medica*, September 15, 1907.

Intramuscular Injections of Drugs.—Bartolomeo Rossi reports cases treated by intramuscular injections of various drugs. Biniodide of mercury is less painful when used as injection material than the bichloride, because the solutions are perfect and the injections are easily made in the retrotrochanteric and gluteal regions. They should be made slowly and followed by massage. The use of iodomercurial preparations for injections is absolutely painless, of rapid action, efficacious even when the injection of other preparations is not tolerated, avoids the toxic action of the iodide upon the stomach, and is most effectual in late syphilis and in cases complicated with tuberculosis. *Giornale Internazionale delle Scienze Mediche*, September 15, 1907.

Therapeutics of Dystocia from Pelvic Deformities.—A. Pinard gives the statistics of one hundred cases in which he interrupted pregnancy for pelvic contractions, the results being recovery in ninety-nine cases and death in one. There were eighty-three living infants, seventeen that died during labor, sixteen dead before they left the hospital, and sixty-seven that remained well and strong. In pregnancy we have a chance of premature birth, while in labor we have the danger of wounding the mother. The less operations we practise the better. The author has abandoned premature labor whenever symphyseotomy will allow of delivery. Forceps should never be used where there is bony resistance. In such cases enlargement of the pelvis is indicated. In cases of absolute contraction utero-ovarian amputation is in order. Embryotomy in the living infant should be discarded. During labor two dangers are to be avoided; length of labor and infection. The conservative cesarean section may be indicated, accompanied or not, by partial or total hysterectomy. Embryotomy should be made use of only in case the fetus is known to be dead.—*Annals de Gynécologie et d'Obstetrique*, September, 1907.

Otic Sclerosis and Its Relation to Arteriosclerosis.—Souleyère distinguishes two forms of otosclerosis, one frequent in young persons and of the adhesive type, resulting from suppurations and catarrhs of the ear; the other a true sclerosis, occurring only in later life, especially after thirty years of age. This he calls pure otosclerosis. Heredity has importance as a factor in its production. So have chronic diseases such as syphilis. Its early symptoms are negative, deafness that is progressive, tinnitus, and dizziness on the principal ones. It is relieved by removal of cerebrospinal fluid. There is present hypertension in the arterial circulation, and treatment for its relief is of value in helping this form of otosclerosis.—*La Presse Médicale*, July 27, 1907.

Trephining Early in Fractures of the Skull.—L. Latour advocates early trephining in fractures of the skull that are or are not accompanied by cerebral symptoms. In some cases at first there are no bad symptoms, and after a short period of improvement suddenly severe symptoms manifest themselves that are due to abscess in the brain, and surgical interference is now too late. Besides these considerations we must consider the cases of Jacksonian epilepsy that occur as a result of fracture of the skull. Early trephining would enable the removal of pressing portions of bone that cause epilepsy later on. Hernia of the brain through the opening left by the trephine is generally inflammatory, being sometimes the result of superficial, sometimes of deep suppuration. The author operates with much caution in an exploratory manner to prevent infection of the brain substance.—*La Presse Médicale*, August 14, 1907.

Wine and Typhoid Fever.—P. Carles discusses the question whether the use of wines to modify water that is suspected of impurity will be any safeguard against typhoid fever. He has made experiments with various forms of French wines as to their effect on the typhoid fever germs, and finds that some of them have an appreciable bactericidal quality which is not dependent on the amount of alcohol that they contain, since it is not diminished by heating the wine and thus driving off the alcohol. White wines are more active than red ones, and especially champagne is valuable. The degree of acidity of the wine appears to be an important quality, since the use of an alkali destroys its bactericidal power. The amount of fluid with which the wine is mixed, as well as the time it is allowed to stand, both affect the bactericidal qualities of wine. Making the mixture some time beforehand and allowing it to stand before giving it to the patient has been found to be favorable to this power.—*Journal de Médecine de Bordeaux*, June 16, 1907.

Frequency of Tuberculosis in Infancy.—A. Lomini believes that tuberculosis in infancy is much more frequent than has been recognized. Autopsy shows this to be the case. These forms of tuberculosis may remain latent for years and only be revealed by autopsy. He collects and tabulates the cases on which autopsies were made at the Pediatric Hospital in Florence, from 1902 to the present time. From 437 autopsies on babies, 186 showed tuberculosis. The respiratory organs were found to be very frequently involved, while the intestines and abdominal organs were much less frequently affected.—*La Pediatria*, April, 1907.

Hematomyelia from Myelitis.—E. Medea describes an interesting case which showed the characteristic symptoms of acute myelitis while none of them suggested hematomyelia. The autopsy showed a softening of a portion of the medulla commencing at the last dorsal segment. At and above this point was a hemorrhagic focus occupying the left lateral portion of the medulla over several segments of the spinal cord. There were many lymphocytes, and an accumulation of pigment cells and true macrophagi in phagocytic function. There was severe infiltration of the meninges at another distant point. There were also circumscribed necrotic foci characteristic of myelitis. The onset was sudden, with fever and no symptoms of hematomyelia. It is thus seen that a focus of hemorrhage in the spinal cord may remain undiagnosticated during life if accompanied by dominant symptoms of myelitis.—*La Riforma Medica*, July 27, 1907.

Book Reviews.

Handbuch der Pathologie des Stoffwechsels. Unter Mitwirkung von Adalbert Czerny, Carl Dapper, Fr. Kraus, Otto Loewi, Adolf Magnus-Levy, M. Matthes, Leo Mohr, Carl Neuberg, Hugo Salomon, Ad. Schmidt, Franz Steinitz, H. Strauss, W. Weintraud, herausgegeben von Carl von Noorden, Wien. Zweite Auflage. Zweiter Band. Berlin: August Hirschwald, 1907.

The second volume of von Noorden's monumental work on metabolism opens with three essays by v. Noorden on diabetes mellitus, gout, and obesity, respectively. Then follow others in the rarer anomalies of carbohydrate and proteid metabolism, skin diseases, ductless glands, cancer, metabolism in childhood, oxaluria, and phosphaturia, mineral waters, and baths, phototherapy, drugs and poisons, nervous and mental diseases, diseases of bones and joints, and diabetes insipidus. These are by the various collaborators though the name of the editor appears as coauthor of several. The completed work as it now stands is more than double the size of the first edition and is an excellent example of the admirable type of reference works produced in such numbers in Germany and so rarely elsewhere. It will, no doubt, stand as an authority for many years to come.

Diseases of Infancy and Childhood. Their Dietetic, Hygienic, and Medical Treatment. A Text-Book designed for Practitioners and Students in Medicine. By Louis Fischer, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals of New York City; former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital, etc., etc.: Fellow of the New York Academy of Medicine. With 303 text illustrations, several in colors, and twenty-seven full-page half-tone and color plates. Philadelphia: F. A. Davis Company, 1907.

The current year has been rather prolific in new treatises on various branches of medicine—surgery, dermatology, practice, etc.—and now comes a new work on pediatrics. The work is divided into twelve parts: I., The Newborn Infant; II., Anomalies and Diseases of the Newborn; III., Feeding in Health and Disease; IV., Disorders Associated with Improper Nutrition, and Diseases of the Mouth, Esophagus, Stomach, Intestines, and Rectum; V., Diseases of the Heart, Liver, Spleen, Pancreas, Peritoneum, and Genitourinary Tract; VI., Diseases of the Respiratory System: VII., The Infectious Diseases; VIII., Diseases of the Blood, Lymph Glands or Nodes, and Ductless Glands; IX., Diseases of the Nervous System; X., Diseases of the Ear, Eye, Skin, and Abnormal Growths; XI., Diseases of the Spine and Joints; XII., Miscellaneous. The author has had not only an extensive clinical experience, but also a wide teaching experience, which has admirably fitted him for the difficult task of writing a new text-book on an old subject. Pathology and bacteriology are considered at all-sufficient length, but special attention is paid to the more practical subjects of symptoms and treatment. The work is freely but judiciously illustrated with a number of colored and half-tone plates and over three hundred pictures in the text. If the outside of the book were as good as the inside it could be warmly commended. Unfortunately the publishers have emblazoned on the back an offensive legend asserting that this is "the best"—they ought to say "the limit;" whatever best it is, it certainly is the worst taste.

Practical Physiological Chemistry. A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and Science. By Philip B. Hawk, M.S., Ph.D., Demonstrator of Physiological Chemistry in the Department of Medicine of the University of Pennsylvania. With Two Full Page Plates of Absorption Spectra in Colors, Four Additional Full Page Color Plates, and One Hundred and Twenty-six Figures, of which Twelve are in Colors. Philadelphia: P. Blakiston's Son & Co., 1907.

While written more from the laboratory than the clinical standpoint, the present volume is in every way to be commended for the use of students and practitioners By the adoption of a concise mode of presentation and excellent typographical arrangement the author has kept the size of the work within reasonable limits and has greatly facilitated its perusal. The order in which the various topics are taken up is good and the plan of leaving the discussion of the urine, perhaps the most important section from the medical student's point of view, to the last scene appropriate. In several respects the text is more complete than in most of the smaller works on the subject. This is particularly the case in regard to decomposition of proteids and the chemistry of the solid tissues such as muscle and bone. An original and valuable feature is the presentation of schematic tables for use in analytical work. The illustrations are numerous and for the most part of good execution, a few, for example the one purporting to portray normal erothrocytes and leucocytes, being susceptible of improvement, however.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Writers. Edited by Henry Morris, M.A. and M.B. (Lond.), F.R.C.S. (Eng.), President of the Royal College of Surgeons of England, Consulting Surgeon to Middlesex Hospital, London; Honorary Member of the Medical Society of the County of New York; Formerly Chairman of the Court of Examiners of the Royal College of Surgeons; Examiner in Anatomy in the University of Durham, and Examiner in Surgery in the University of London, and J. Playfair McMurrich, A.M., Ph.D., Professor of Anatomy, University of Michigan; Member Association of American Anatomists; Member of Advisory Board, Wistar Institute of Anatomy, etc. Frank Edition, Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co., 1907.

In the new edition of this well-known treatise on anatomy a number of American writers have taken part in the revision of several sections, some of which indeed have been entirely rewritten by them. These writers are J. Playfair McMurrich of the University of Michigan, on Morphogenesis and on the Urinary and Generative Organs; Charles R. Barden of the University of Wisconsin, on Muscles; Florence R. Sabin of the Johns Hopkins University, on Heart, Blood-vessels, and Lymphatics; Irving Hardesty of the University of California, on the Nervous System; Abram T. Kerr of Cornell University, on the Ear, Nose, and Tongue, and on the Skin and Mammary Gland; C. Carl Huber of Washington University, St. Louis, on the Organs of Voice and Respiration, including the Mediastinum, and on the Ductless Glands. The American writers, indeed, now outnumber the British, although originally the treatise was entirely the work of British authors. There are over one thousand illustrations, a third of them printed in colors; most of these are fine examples of the illustrator's art. The volume is provided with a thumb index, facilitating ready reference to the various sections.

Manual of the Diseases of the Eye for Students and General Practitioners. By Charles H. May, M.D.; Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department Columbia University, New York, 1890-1903; Ophthalmic Surgeon to the City Hospitals, Randall's Island, New York; Consulting Ophthalmologist to the French Hospital, to the Gouverneur Hospital, and to the Red Cross Hospital, New York; Adjunct Ophthalmic Surgeon to Mt. Sinai Hospital, New York, etc. Fifth Edition, Revised. With 362 original illustrations, including twenty-two plates, with sixty-two colored figures. New York: William Wood & Company, 1907.

The author of this work is to be congratulated upon the appearance of a fifth edition within seven years from its first publication. In addition to this there have been several reprints, and the book has been translated into five European languages, as well as being published in a British edition. The reasons for this popularity are not far to seek. The author started out with a concise, practical, and systematic manual intended for the student and general practitioner. The size of the book is small; rare conditions are merely mentioned; uncommon affections, of interest only to the specialist, are dismissed with a few lines; while the common diseases are described with comparative fulness. The book is unimpeachable in its accuracy; and has the further advantage of being well arranged, and simply and clearly written. The author has had the rare good sense to keep the succeeding editions on the lines originally laid out, with the satisfactory result that both students and general practitioners recognize this work as the one best adapted to their needs.

Practical Observations upon the Chemistry of Food and Dietetics. Second revised and enlarged edition. By J. B. S. King, M.D., Prof. Chemistry Hering Medical College, former Prof. Chemistry, Hahnemann Medical College, etc. Philadelphia: Boericke and Tafel, 1907.

As an introductory primer on dietetics for the use of the laity this book may possibly have some slight value. For the physician or even for the medical student it is entirely too brief and too elementary to serve any useful purpose. Furthermore, on the very first page we find it stated that carbon is a gaseous element: and also that none of the elements exist in the body in a free state. Fletcher's "discovery" is duly (or unduly) emphasized; and while Warren Hastings' views on the relation of food to bodily stature may possibly be of interest to admirers of that great man, they can hardly be said to possess any scientific value.

Society Reports.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-third Annual Meeting, Held at Columbus, O., October 8, 9, and 10, 1907.

THE PRESIDENT, DR. HORACE H. GRANT OF LOUISVILLE, IN THE CHAIR.

THE scientific work was divided into medical and surgical sections.

SURGICAL SECTION.

Local Versus General Anesthesia in Rectal Surgery.—Dr. G. B. EVANS of Dayton, O., believed that by using a local anesthetic previous to general anesthesia the amount of the general anesthetic was appreciably lessened; the dread and fear were diminished, also shock and danger. Therefore, the combined method of narcosis, less anesthetic, suspending shock incident to conscious dread, as well as anesthetic shock, rendered more complete the operative area and consequently more satisfactory work. It was easy to operate on prolapsing piles, but not so simple to operate on piles above the sphincters, yet they demanded operative interference. Operation for hemorrhoids was serious, often attended by some shock, and the greatest caution should be observed to secure asepsis. He did not think it was best for patients that general practitioners should be taught that aseptic precautions at the time of operation and rest at home for a few days were unnecessary.

Dr. BERNARD ASMAN of Louisville gave a few reasons for some unsatisfactory results in the treatment of anorectal diseases. A correct diagnosis was always a first essential, for without it all treatment was largely guesswork. Of all rectal ailments, anal fissure was ordinarily thought to be one of the simplest and easiest to cure, yet experience frequently proved it to be most unyielding. Ninety-nine out of every one hundred of the laity assumed that all anorectal troubles were hemorrhoidal in character, and it was not uncommon for them to approach the physician with a diagnosis ready made, and to preface a description of the case in question with, "Doctor, I have piles." The doctor was then apt to accept the diagnosis with but a superficial examination, or perhaps no examination at all, and hence failure to afford relief followed. There were comparatively few cases of hemorrhoids pure and simple; they were usually complicated by other local disease, perhaps requiring attention at the same time if a perfect result was to be expected. Cases were cited in point.

Dr. B. MERRILL RICKETTS of Cincinnati said that surgical anesthesia should be eliminated as far as possible in all work, especially now as capital operations could be done under local anesthesia. Local anesthesia for the treatment of hemorrhoids should not be denounced, nor should local anesthesia be recommended for all kinds of hemorrhoids. There were certain hemorrhoids that could be removed radically without anesthesia. He cited such cases. The trend of the times was not to put patients to bed for days and weeks for the removal of hemorrhoids, when they could be removed at the office of the surgeon or at the homes of patients with impunity. Hemorrhoids should be properly classified, and each class should receive a separate and distinct treatment, some with and some without anesthesia; some with and some without ligature; some with crushing and some with simple incision.

Dr. J. RAWSON PENNINGTON of Chicago emphasized the importance of making a correct diagnosis. If a patient had a small contracted anus, with a few painful hemorrhoids, he or she should be given a general anesthetic and operated on. If the patient had a patulous anus, and the hemorrhoids were easily prolapsed, especially internal hemorrhoids, there was no need for a general anesthetic. He described his method of removing hemorrhoids. When the rectum was everted and the hemorrhoids were on the outside, with a pair of scissors they could be removed very readily, the rectum then dressed in extension, and putting into the bowel a rubber-covered tampon. When this was done there was no tissue under stress. Tissue under stress was not in the best possible condition to defend itself against infection.

Dr. H. O. WALKER of Detroit had operated on a large number of cases of hemorrhoids, and had not yet had serious bleeding from the rectum. Hemorrhoids should be operated on under the same surgical principles as were carried out in operating upon other parts of the body. If there should be hemorrhage, it could be controlled by ligature or hemostatic forceps.

Dr. E. B. SMITH of Detroit referred to the importance of making a complete and thorough examination. This could not be done under local anesthesia. He had never been able to do it, nor had he seen anyone else do it with satisfaction. He had had the privilege of operating secondarily on patients who had been operated on under local anesthesia. He operated on these cases under general anesthesia.

The Frequent Interdependence of Dislocated Kidney, Gall-Bladder Trouble, and Appendicitis.—Dr. EARL HARLAN of Cincinnati summarized the salient features of his paper as follows: (1) That dependent pathology, accompanying the primary lesion of dislocated kidney, gall-bladder trouble, and appendical irritation of a severe nature is of frequent concomitant occurrence. (2) Many patients have undergone operation for appendical trouble or gall-bladder trouble wherein the causal factor was a dislocated kidney, the latter producing pressure interference to the bile outflow or bowel current. (3) All patients presented for abdominal treatment, complaining of indefinite and recurrent distress, discomfort, and pain, the attacks being accompanied with the presence of an excess of stagnant gas at certain points in the bowel, and in which the involvement of the stomach, gall-bladder, and appendix are more or less equal, should receive the careful consideration of the physician, in order that an accurate differential diagnosis may be made. (4) In the vast majority of cases a freely movable kidney presents no pathology on the part of the organ itself, and this immunity may cover a considerable space of time, after which there may appear symptoms of functional and mechanical disturbance on the part of the stomach, cholecyst, and bowel. (5) On account of the wide and uncircumscribed range of pathological symptoms produced by a dislocated kidney, it is more often liable to go undiagnosed than are other symptoms producing abdominal lesions. (6) Permanent and complete relief results only from a correction of the primary lesion with its dependent pathology.

The Disposition of the Appendical Stump.—Dr. B. MERRILL RICKETTS of Cincinnati concluded that the stump should be as short as possible. Any one of the purse-string methods was dangerous. Ligation for the firm appendix and extirpation for the soft one were the better methods. Hemorrhage from the appendical vessels was a common accident and one that could be avoided. The escape of feces into the peritoneal cavity was also frequent. Infection from the stump occurred rarely. Adhesions resulting from a denuded stump, or mesocolon resulting from ligature, were of little consequence. Ligature around the stump without mucosa between it and a stenosed Gerlach valve would not cause pain, otherwise it might do so. A more definite classification of the pathological appendix and its results should be more generally accepted. The mortality in cases with vomiting, ileus, obstruction, peritonitis, and distention was much higher than reports would indicate. It was probably as great as 90 per cent., if not more. It was difficult to understand why so few such cases had been reported, and still more difficult to understand why there were absent in the work of one and numerous in that of others. The average per cent.

of mortality for acute cases (7.50) and the average per cent. for chronic cases (1.75) was probably a fair estimate for the work during the last five years. Linen and silk ligatures had more advantages than catgut, without the disadvantages, and should therefore be given preference. Ligatures of any material or character should be transfixed in any tissue, especially within the peritoneal cavity. Stumps of living tissue should be sutured or ligated with transfixion, especially if there were canals of any character within the stump.

Dr. H. O. WALKER believed in ligating the stump of the appendix. After tying off the appendix close to the cecum, he disinfected it with carbolic acid and alcohol, and then by means of a purse-string suture covered it up. As long as the suture material was aseptic, it did not make much difference what was used. He had never had a death from hemorrhage in appendicitis except where it occurred some ten days or two weeks after the operation, due to the sloughing of the omentum, rupture, and obstruction from a gangrenous condition of the arteries of the appendix from which the patient died.

Dr. A. M. HAYDEN of Evansville said that if one used silk or linen in uncomplicated cases there were liable to be suppurating sinuses as a result. In these cases he would use catgut, which, in infected cases, becomes disintegrated in seven or eight days, and there were no suppurating sinuses following. He used linen in all of his clean cases, but in the infected ones he preferred catgut.

Dr. CHARLES STOLTZ of South Bend, Ind., spoke of the use of the thermocautery, and believed if it was used it would afford hemostasis without the unsurgical method of tying off a mass and letting it stick up in the cavity, without knowing what would become of it.

Dr. CHARLES A. BONIFIELD of Cincinnati had excised the appendix, closed the wound with chromicized catgut, and then covered the surface by bringing the mesoappendix up over it. He had done this for several years, and to his knowledge had never had a patient die from the bowel opening.

Dr. RICKETTS, in closing the discussion, said the so-called absorbable ligatures failed in many of these cases, and that there was nothing better than catgut or linen. They could be boiled and thoroughly sterilized. He had done four hundred appendectomies, without a serious hemorrhage or infection, and had never had to take a ligature out. He never used catgut in his abdominal operations, but employed Pagenstecher linen for almost everything.

When Should Gastric Ulcer Be Treated Surgically?—Dr. MILTON R. BARKER of Chicago said that all cases of gastric ulcer, regardless of any class in which they might be placed, excepting the neglected class, should primarily be treated medically, but that in the light of surgical achievements in this malady the internist had a double responsibility to his patients: First, to do all his methods could do, and, second, to discontinue those methods before his patient had reached such a condition that surgical methods could not be instituted without undue hazard. When medical and surgical science could thus work together the treatment of gastric ulcer would have attained the acme of perfection.

The Removal of Adenoids.—Dr. JOHN F. BARNHILL of Indianapolis described a safe and rapid method of removing adenoids. The selection of a proper curette having been made, an assistant took the child upon his lap and placed the patient's knees between his own knees, and thus clamped them as in a vise. The child's head was placed upon the left shoulder of the assistant, where it was firmly held between the two hands of a second assistant. Neither a tongue depressor nor mouth-gag was necessary. The operator sat on a chair facing the patient, who was requested to open the mouth. The curette was quickly inserted behind the palate, the posterior surface of which it should closely hug until the crest of the instrument pressed firmly against the vomer at its point of junction with the body of the sphenoid. In this position the patient's mouth must be opened to its fullest limit, and the curette would occupy a position in a plane about 45° to the horizontal, when the ample width of the fenestra surrounded the entire growth. Keeping the curette exactly in the center line of the patient's nasopharynx, the crest of the instrument was pressed firmly against the vault, in which situation it was quickly pushed backward and downward, the cutting blade closely hugging the entire base line of attachment of the adenoid, which was thus completely severed *en masse* and fell from the patient's mouth when the head was held forward for that purpose. In the majority of cases only twenty or thirty seconds were required to do the entire work after all was in readiness.

The Surgical Treatment of Some Inflamed Glands.—Dr. E. B. SMITH of Detroit urged the enucleation of inflamed suppurating glands. Where there was a hernia and the protruding tissue irritated a set of glands, then the hernia and not the glands must be cared for. Where the inflammation had progressed to the stage where resolution could not be brought about by poulticing, or where a simple incision would not effect a cure, and the tissue was broken down, or there was an accumulation of germs, then the only logical procedure was a radical operation. Glands found beyond hope of repair were excised, thus getting rid of a large number of germs, the remaining tissues being treated antiseptically and repaired. Repeated attacks of inflammation rendered the glands weak and susceptible to disease and suppuration. When glands were incised the inflammation and suppuration either subsided or became quiescent for a time, and then from a slight trauma became inflamed and suppurated.

Goiter.—Dr. GEORGE W. CRILE of Cleveland recently made a study of his cases of operations upon the thyroid gland, numbering 152, and he briefly summarized them from the standpoint of the practical management of the surgical thyroid. The development of the surgery of the thyroid is best appreciated by the statement that the mortality from thyroidectomy in simple goiters, in non-malignant, and benign tumors had fallen from 40 per cent. to a fraction of 1 per cent. In his own series, the last 101 such operations had been done without a fatality. The surgery of benign tumors and hypertrophies of the thyroid gland was now placed upon a basis comparable with that of appendicitis in the quiescent period, of gall-stones, and of ovarian tumors. The mortality from unexpected complications was perhaps one in one hundred or two hundred cases in the hands of a surgeon experienced in this line. Graves' disease was demanding much further investigation. Excision of the thyroid in Graves' disease broke a pathological chain and the cure was permanent. In a goiter under observation, if the gland began to grow, it should be promptly excised, because of the great possibility of its becoming a malignant growth. Many more thyroid glands should be removed, just as benign tumors elsewhere were removed, to prevent the appearance of a malignant growth.

Neuroses of the Bladder.—Dr. ROBERT C. M. LEWIS of Marion, O., considered a few of the neurotic conditions which were traceable to the genitourinary organs, especially those involving the vesical neck and the deep or prostatic urethra. In neurotic bladder troubles he gave first place to hyperesthesia because he believed it was met with more frequently than any other of its order. Mental worry or overtension of the nerves for a long period might produce a vesical hyperesthesia with a train of symptoms simulating a true cystitis; but, as a rule, if there were no inflammation, the absence of mucus or mucopus in hyperesthesia would give a line of distinction, so that cystitis might be excluded as a complication or as a sequel to other diseases of the bladder. There was found no other condition which gave so much mental and physical discomfort as hyperesthesia. Men were quite sensitive when it came to genitourinary troubles, but if a physician once

gained the confidence of such patients and afforded them relief they would not run away.

Intramural Transplantation of the Round Ligaments Versus the Alexander Operation or Ventro-Suspensio-Fixation.—Dr. CHANNING W. BARRETT of Chicago gave a résumé of the work done with intramural transplantation of the round ligaments, and, after comparing it with the Alexander operation and ventrosuspension, presented the following conclusions: (1) The Alexander operation fails because most cases of retrodisplacement are complicated. (2) An operation to be widely useful must open the abdomen for inspection and correction of complications. (3) It should be capable of being combined with the best incision for doing work. (4) It must not create false ligaments which will not evolute during pregnancy and involute thereafter. (5) There must be no abnormal arrangement of natural ligaments which allow them to run transperitoneally. (6) When the round ligaments are ample, the inner, stronger portion of the ligament should be chosen. (7) Operation for retrodisplacement must often be performed after much more operating, and so should not offer any tedious technicalities, such as are found in the external search for the ligament. (8) His internal inguinal shortening and transplantation of the ligaments through the abdominal wall was submitted for comparison with external shortening of the ligaments, or ventrosuspension operations, as one seeming to meet the essential requirements of an operation for retrodisplacements.

What We Cannot Do With Purgatives.—Dr. EDWIN WALKER of Evansville, Ind., said the action of purgatives was not well understood. Authorities varied widely as to how they affected the human organism. Practically all agreed that they were irritants. Purgatives and infections of the alimentary canal presented the same symptoms, namely, liquefaction of feces, increased albuminous exudate, the formation of gas and pain. The physician used purgatives in chronic constipation, when very few patients were in the least benefited, and nearly all were made worse. In obstruction of the bowels, both acute and chronic, they did harm, besides the time lost often decided the fate of the patient. The routine practice of preceding every surgical operation with a purge was absurd. If the operation was not on the alimentary canal, there was little reason for giving it. If it was on the stomach or bowel, they did not render the condition more favorable since they increased bacterial activity. The author had operated on nearly one thousand cases in which the preliminary purge was omitted. The results were as good or better than when they were given. The patients were more comfortable, and suffered much less with tympany. Laxatives were rarely required after operation, as the bowels would move as soon as it was necessary. Patients did better without them. Purgatives were useful, but should not be given in a routine manner. They should only be given when there were clear indications.

Perineal Section for Obstruction of the Prostatic Urethra.—Dr. CHARLES E. BARNETT of Fort Wayne, Ind., summed up the cause and effect of acute retention of urine. He considered catheterization more dangerous than operation. He believed that bladder drainage through a median perineal section was the operation of choice. Patients who were practically moribund recovered following improved operative technique with a minimum quantity of anesthetic, postoperative oxygen inhalation, Fowler's position, aspiration irrigation with large drainage tubes, and out-of-bed posture second day. Simplicity, but thoroughness, in the post-operative treatment was the desideratum. He reported several cases.

Early Diagnosis and Removal of Uterine Fibroids.—Dr. A. D. WILLMOTH of Louisville made a plea for the early removal of these growths. He expressed the opinion based on the statistics at hand and his personal experience that it was the duty of the surgeon to remove uterine fibroids as soon as they were diagnosed, unless some constitutional disease or diseases existed that made operative procedures inadvisable because of the risk involved, or where the surgeon had to deal with a young and childless woman who desired a child, or in those in whom the tumor was subperitoneal, small, and giving no trouble.

Treatment of Pus Tubes.—Dr. JOHN E. CANNADAY of Hansford, W. Va., said that operative and non-operative treatment had their separate and distinct fields. The trend was toward that form of conservatism which really conserved. Extreme and overconservative measures were as much to be deprecated as early radical extirpation, late and often. Surgical sense, judgment, ability, skill, and experience were needed, so that practically pus tubes should never be removed during an acute attack. Many cases would resolve and be restored to normal conditions by waiting. The author made a clinical classification of cases as follows: Those that resolved early, those that were followed by obliterating and crippling adhesions, and, finally, those in which large collections of pus were encapsulated and became sterile. In the latter class the best operative results were given. If the operative field was soiled with pus that was known not to be sterile a vaginal drain should be inserted, but not an abdominal drain, as the danger of wound hernia was too great. The author reported 100 cases in which laparotomy was resorted to for chronic pus tubes, with a mortality of one per cent.

Treatment of Inguinal Hernia in Children.—Dr. FRANK B. WALKER of Detroit said it was estimated that one-third of all herniæ occurred in children under fourteen years of age. In a series of 700 observations reported recently by Corner, it was noted that multiple herniæ were far more frequent in children than in adults. Premature children were very liable to hernia at birth, and inguinal hernia was presenet on both sides more often than at full term. From observations it would appear that the causes of hernia formation were more operative in earlier years than in adult life. He believed that it was good surgery to use conservative methods for hernia in children up to five years of age, and thought the majority could be cured thereby; but for the following class of cases, radical measures should be adopted: Strangulated hernia, irreducible hernia, hernia associated with hydrocele or undescended testis, hernia threatening strangulation, those which are uncontrolled or painful under truss treatment, and hernia in children over five years of age.

Postperitoneal Fibroid Tumors of the Uterus.—Dr. RUFUS B. HALL of Cincinnati reported cases and exhibited specimens. He had had a large number of postperitoneal tumors to remove. Some of the operations had been very complicated, while others had been comparatively simple. Some of these tumors were easily enucleated, even when large. By following the line of cleavage the surgeon was able to enucleate them without much difficulty. In others it often required great courage and skill to successfully remove them. Some were so firmly attached to the blood-vessels and ureters that to successfully remove them was practically impossible. Such a case occurred in the practice of Dr. I. S. Stone, in which he had the misfortune to lose his patient from hemorrhage before he was able to enucleate the tumor. In many of these cases the surgeon began the operation under the impression that he was going to remove a fibromyoma of the uterus. The tumor might be the size of an adult head, filling the pelvis full, and extending somewhat into the abdomen, or it might be very much larger. Even after the abdomen was opened and the tumor examined, it was not possible from the condition present to differentiate between postperitoneal fibromyoma and sarcoma. The author had made the mistake in beginning to enucleate a tumor, believing he had a fibromyoma of the uterus when in reality it proved to be a sarcoma.

Open Method of Treating Fractures.—Dr. DUNCAN EVE of Nashville said that in all cases in which marked comminution of the fragments was present, and when re-

duction was impossible, in oblique and spiral fractures of the bones of the extremities, operation was justified. Many of the deformities, pseudarthrosis, and loss of function which follow fractures would thus in many cases be obviated. The unsightly deformities which so seriously destroyed the usefulness of the part and predisposed to refracture would be prevented. Fractures complicated by severe injury to adjacent structures urgently demanded operation. Under this heading he included fractures in which pressure was brought to bear on neighboring viscera, nerves, and blood-vessels, fractures associated with dislocations, and fractures involving joints. By exposing the seat of fracture the accumulated excess of blood or effused serum could escape, and at the same time permitted the removal of any soft tissues that might be between the ends of the bone. In a case of comminuted fracture the surgeon could remove loose fragments of bone which had become entirely separated from their periosteal covering. The technique, after obtaining thorough cleanliness, was to make an incision sufficiently large to enable the surgeon to deal effectually with the fragments. The author reported two interesting cases. Operation should be deferred, if feasible, until after the acute symptoms of the primary injury had subsided, namely, from four or five days to a week. Operative treatment should be adopted in compound fractures: also in cases of a crippled fellow limb, of physical or business demands, of deteriorating personal discomfort, and of prospective activity of a perplexing nature, the wisdom of operation could well be considered. Prospective impairment of function and embarrassing delay in recovery invited the consideration of active interference. He was opposed, however, to the policy and the practice of those surgeons who operated only because a bone was broken and irrespective of present dangers or the future benefits to the patient.

The Opsonin Treatment in Gonorrheal Arthritis.—Dr. A. Ravogli of Cincinnati reported two interesting cases in which excellent results were obtained by the injection of gonococcic vaccine.

The following papers were also read: "The Differential Diagnosis of Duodenal Ulcer and Gallstones," by Dr. W. D. Haines of Cincinnati; "Operations on the Gall-Bladder," by Dr. Alex. C. Wiener of Chicago; "Internal Rotation and Lacerations of the Perineum," by Dr. George B. Twitchell of Cincinnati; "Plastic Tuberculous Peritonitis; Report of an Unusual Case," by Dr. Chas. H. Parkes of Chicago; "Plastic Work on the Urethra; A New Operation," by Dr. G. Frank Lydston of Chicago; "Sterilized Hands by Total Absolute Abstinence the Only Factor in Perfect Success," by Dr. J. Henry Carstens of Detroit; "Retroversion and Retroflexion of the Uterus, Causes, Consequences, and Treatment," by Dr. Hannah M. Graham of Indianapolis; "Gonorrhea and Marriage," by Dr. T. M. Reade of Springfield, O.; "Fracture of the Patella, with Report of Six Cases," by Dr. Robert Carothers of Cincinnati; "Delayed Union in Fractures," by Dr. Chas. Stoltz of South Bend, Ind.; "Torticollis, Some of Its Various Phases," by Dr. Reginald H. Sayre of New York City; "The Preparation and Post-Operative Care of Surgical Cases," by Dr. L. G. Bowers of Dayton, O.; "The Surgical Treatment of Acute Intestinal Obstruction and Report of Cases," by Dr. W. A. Melick of Zanesville, O.; "Volvulus of the Entire Mesentery of the Small Intestine, with Report of a Case," by Dr. C. E. Briggs of Cleveland; "The Sigmoidal Factor in Pelvic Diseases," by Dr. J. Rawson Pennington of Chicago; "Internal Strangulated Hernia," by Dr. E. M. Brown of Chicago.

(To be continued.)

Fumes of Burnt Sugar as an Antiseptic.—According to the *American Druggist*, M. Trillat of the Pasteur Institute has found that formic aldehyde is given off by burning sugar and that the fumes produced are therefore antiseptic and deodorizing.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 17, 1907.

The President, Dr. John A. Wyeth, in the Chair.

The Mosquito as a Sanitary Problem.—Dr. Edward A. Ayers delivered this, the Wesley M. Carpenter lecture. He said that mosquitos were a necessary factor in the production of malaria, yellow fever, and filariasis in man; so far as was known they were the only factor involved. Recent investigations had brought dengue and beriberi into the list. Several hundred thousand human beings were annually killed through mosquito infection, and many millions injured in health. The prevention of mosquito infection of man was one of the simplest problems in the list of infectious diseases. The extermination of mosquitos was wholly feasible, the methods sufficiently understood, the accomplishment well within the financial capacity of every nation; yet but an infinitesimal portion of the work had been undertaken. Therefore, the mosquito as a sanitary problem was one of the most attractive and urgent medicopolitical issues of the day. It was the best known, the least applied, and the most promising field now open to organized medicine.

The Life History of Mosquitos.—The mosquito, by reason of its ubiquity and skin-piercing capacity, was the king of the insect world; and while other insects annually destroyed some $800,000,000 of lumber, grain, and fruit in the United States, the mosquito destroyed human health, lives, and property values combined. In her immemorial time she had destroyed more human beings than existed to-day. She approached this result nearly every five hundred years. One healthy favored pair of early June mosquitos could start a progeny that would rival the human population of the globe in numbers ere the harvest moon; yet one man with a spade could destroy more prospective mosquitos in an hour than mankind numbered at any one time. A pregnant mosquito, caught in the sudden congelation of a drop of dew, could peacefully sleep through the wintry months, and when the spring sun set her free could lay four hundred hatchable eggs. Over five hundred mosquito families had been classified, and still the work was incomplete. The mother mosquito deposited from fifty to four hundred eggs at a single accouchement. The wriggler would starve in distilled water, yet could stomach more antiseptics than we could safely swallow. It hated kerosene more than carbolic acid only because the former films the water's surface and gets into its caudal throat when seeking air. Ungilled, like the whale, it must inhale the air at intervals. Extending from one side of its caudal end was a hollow tube which it pushed up to the air, and once there it had sufficient air-grip to hold it effortless. Through this ventilating shaft the larvæ could respire at their ease. They spent most of their time hitched to the air, swinging head downward, securing such food as might move within their limited radius. With their ciliary whiskers they could bring débris to their mouths. At the end of a week the larva should measure about three-fifths of an inch from mouth to siphon tip. The larvopupal transformation was one of the most startling "quick-change" performances ever witnessed. As a pupa it could see, breathe, and swim, but no food could pass its lips, for it had none, nor would have for forty-eight hours, during which time it must fast. The male had long palpæ and bushy antennæ; the female short palpæ and thinly-haired feelers, an exception occurring in the female anopheles, which had long palpæ. The life obligation of the male was defloration, and its penalty death. The male made use of his whiskered antennæ in finding a mate. Within a couple of days the widowed mother mosquito would deposit her eggs. The culex and stegomyia were much alike, the former when standing being more hunched, with lower head, wings, and body The axis of the anopheles ran upward from head to fundament. The wing song of the culicidæ and stegomyia was

of higher pitch than that produced by the anopheles. Contralto in culicidal tone production meant malaria.

The Mosquito as a Carrier of Disease.—Through two thousand years suspicion was held that mosquitos were responsible for malaria in man. In 1863, Demarquay reported the existence of a minute smooth worm, afterward called *Filaria sanguinis hominis*, in a case of chylocele in a resident of Havana. This nematode proved to be an embryo filaria, its adult form being discovered by the elder Bancroft in 1876. After giving a description of the filariæ, he told of the mosquito's part in filarial development. Sir Patrick Manson, having allowed mosquitos to bite filarial subjects, observed the presence of the ensheathed filariæ in the viscous blood sucked into the insect's stomach; saw them drive their bodies head-first against their sheaths, rupture them, and escape. He saw these filariæ bore through the stomach wall and wander through the muscles of the chest, and other parts. Bancroft further demonstrated their migration into the proboscis of the mosquito. . As to malaria, its cure was discovered two hundred and forty years before we knew what was cured. The speaker then described the life cycle of the malarial parasite. Nott, of Mobile, in 1848, charged the cause of yellow fever to mosquitos. The deplorable death of Jesse Lazear from accidental inoculation; the premature death of Walter Reed from gangrenous appendicitis originating in profound bodily exhaustion; the physical and other trials of James Carroll, but recently advanced in rank by Congress, only to die within the year; these were familiar features of the final death-grapple with yellow fever. After telling what the Reed Commission proved, he said that in the forty-seven years preceding 1900, 35,952 residents of Havana died from yellow fever, a constant mortality of one in every ten of her inhabitants. Under the vigorous control and activity of Colonel Gorgas, yellow fever was completely exterminated in ninety days. Havana's yellow fever chart from 1881 to 1901 showed an average annual mortality of 449. In achieving its notable victory through its agents, our Government had incurred a demonstrated obligation to complete what must constitute the fourth act of our sanitary drama—prevention of all diseases of this sort by extermination of the insect.

The Extent of Mosquito-spread Diseases.—According to Jackson, the filarial worms were in the blood of from 10 to 50 per cent. of the people of the tropical and subtropical portions of the globe. Wherever mosquitos existed, malaria occurred. In the United States census it was stated that 18,594 deaths were charged against malaria in the year following May 31, 1889. During the next ten years the death rate fell from 19.2 per 100,000 to 8.8 in the registration area, which was about one-third the whole. In Italy the mortality during the last few years had fallen from over 15,000 to 4,700. During the past one hundred years, 100,000 people died from yellow fever, and some 500,000 were infected.

Extermination of Mosquitos.—That extermination was feasible, economical, and less difficult than was generally supposed, was unquestionable. Mosquitos could breed successfully in swamps, small streams, shallow-shored lakes, ponds, puddles, water tanks, cesspools, stable pits, rain barrels, and all water-filled receptacles which remained unchanged a fortnight. Their destruction was chiefly accomplished by drainage of all standing-water areas, or by leading the "small fry" fish to the larvæ and pupæ in parts which cannot be kept dry. The New York Legislature of 1905-6 passed a special act, the de Groot Bill, which gave Boards of Health power over private mosquito factories. The great swamps of Elizabethport and Hackensack, in New Jersey, were being dried mostly by 10x30-inch ditches. The ditching machine now used in New Jersey cost $25 per day, and cut 10x30 or 20x30-inch ditches from 2,000 to 3,000 feet per day. One man could keep 75,000 feet of ditches in proper condition from year to year. Extensive plans for the construction of an inland water route for vessels of considerable draught along our entire Atlantic coast from Buzzard's Bay to Florida were under way, and when completed would help drain many hundred thousand acres of swamp land. The drainage of swamps for mosquito extermination should be incidental to permanent agricultural reclamation. A slap at the mosquito for the moment, kerosene for the week, ditching for a season, but reclamation for all time! New Jersey was well under way in the drainage of her 200,000 acres of swamp land, and had dug over a million feet of ditches and largely drained the Elizabethport, Hackensack, and Newark meadows. Long Island had some 50,000 mosquito acres weighing down the efforts of her land boomers. Staten Island had received radical treatment. Even New York, crowded Manhattan, was ridiculously infested with mosquitos. The Government hospitals in the Philippines were largely unscreened, and much needless mosquito infection went on. The mosquito as a sanitary problem should no longer exist. The mosquito was a political problem; its widespread existence had become an anachronism; its extermination was a problem for the civil engineer, a calculation of cost, in the case of dollars *vs.* ditches. This was the issue that twenty-seven years of unparalleled scientific achievement presented to statesmanship. The yellow fever epidemic of 1878 cost not less than $100,000,000. The loss to New Orleans was over $10,000,000, while nearly $5,000,000 relief money was poured into the stricken cities of the South. The epidemic of 1897 cost the Southern Pacific $1,000,000. With the money loss equivalent every State on the Gulf of Mexico could have been rendered mosquito-proof, with enough left over to have rivaled the treasury balance of to-day. Onslaught against political sanitary inertia was to-day the most promising field open to organized medicine.

SECTION ON MEDICINE.

Stated Meeting, Held October 15, 1907.

DR. WARREN COLEMAN IN THE CHAIR.

Report of a Case of High Arterial Tension Relieved by Treatment.—Dr. L. F. BISHOP reported this case. Several years ago he said he was impressed with the importance of hygienic measures in the control of high arterial tension. He had also been impressed with the proper use of drugs and the influence of the brain over peripheral circulation. He referred to high arterial tension and *not* to high blood-pressure. The patient was a man, sixty years old, who had been suffering from various symptoms for ten years and who had been told by several physicians that he was suffering from high arterial tension. Nine years previous he had had a slight attack of paralysis, accompanied by aphasia, from which he gradually recovered. When Dr. Bishop first saw him he was suffering from severe headaches, and became tired on exertion. His bowels were constipated and he was over weight. The blood-pressure readings were high. He was said to be suffering from neurasthenia of chronic form, complicating high blood-pressure, which was supposed to be the result of kidney disease. He had been treated by rest in bed, nerve tonics, and nitroglycerin. As a cause of his trouble excess of application to his affairs, with a marked tendency to worry, was evident. There was a feeble and dilated heart, with a soft systolic murmur, with irregularity in force and rhythm. The pulse was hard and incompressible. There was shortness of breath on exertion, and inability to walk without a feeling of increased tension in the head. The red cells numbered nearly six millions and the hemoglobin was 100 per cent. The urine showed albumin and casts, but the specific gravity was not much lowered. The neurological examination showed the usual signs of a slight, old, right hemiplegia. Dr. Bishop cut off all tonics and reduced the diet, prohibiting sugar absolutely, also wine, and meat except once a day. He ordered the patient to exercise

up to the point of soreness of the muscles. He used suggestive therapy by long conversations with the patient, attempting to instil the idea of the possibility of recovery and the necessity of eliminating worry. He combined 1/200th of a grain of nitroglycerine with digitalis. During the first two months the progress of the case was slow and most discouraging, the patient being relieved only at times. About the third month the patient's blood was found to contain 4,872,000 red cells, 8,440 white cells, and 95 per cent. hemoglobin. The weight had been reduced about six pounds, and all sense of fatigue had disappeared. Three months later the patient had still improved. Nine months after treatment was begun there was very little tension and the patient felt well, was able to enjoy life as he had not enjoyed it in ten years. He then ceased to regard himself as an invalid. The plan of treatment pursued in this case was best described by the term adopted by Dr. Barker, "Reeducation." The high arterial tension was due not so much to any pathological condition as to errors in physiology, and when these errors were corrected by training the hypertensity disappeared.

Case of Paranephritic Abscess.—Dr. Robert H. Halsey reported the case of a driver, twenty-two years old, single, who came to the dispensary complaining of pain in the left side of the abdomen extending across the back, and a general weakness. The previous history was without value, excepting for a gonorrheal history ten years ago, and a second attack eight weeks before appearing at the dispensary. He had syphilis in 1905 and he was still on iodide of potassium. The pain commenced four weeks before in the left lumbar region and remained practically the same until about four days before coming to the dispensary, when it passed to the right side. It was less severe in the morning. The appetite was poor, the bowels constipated, and during these four weeks of pain he lost eleven pounds. His heart and lungs were negative, pulse was good, and glands enlarged. There was no muscular rigidity of the abdominal muscles. Deep pressure in the left hypochondrium elicited a reflex spasm of the muscles, so that no mass could be made out. The temperature was 103°, pulse 88, respirations 26. When he entered the hospital his temperature was 104°, pulse 116, respirations 34. The temperature remained high for the first week. During the second week there was a distinct morning remission to about 100°, with an afternoon rise to 102°. The pulse remained about 80, respirations 20. The erythrocytes were about 4,800,000; hemoglobin about 75 per cent.; leucocytes about 14,000; polynuclears about 78 per cent.; lymphocytes about 14 per cent., and eosinophiles about 4 per cent. The blood picture remained the same with the leucocytes varying between 15,000 and 22,000 until after the operation, when they dropped to about 7,000. There were no casts, albumin, or indican in the urine. The specific gravity was about 1,018 and the quantity in twenty-four hours about 900 c.c. The seven twenty-four-hour specimens before operation showed a trace of albumin, indican, and few hyaline casts. The sixteenth day after admission it was thought wise to perform a cystoscopy, which was done by Dr. James Pederson. Ten days after admission the man developed spasm of the left psoas muscle, which prevented complete extension of the left thigh. The pain persisted in the left side. Until the seventeenth day nothing abnormal was noticed or felt; but on that day a slight bulging appeared in the left lumbar region just below the ribs. Dr. E. W. Peterson was called in consultation and agreed that a retroperitoneal abscess was probably present. Operation by incision was performed and a large amount of pus evacuated. The location of the abscess was evidently external to the psoas and behind the peritoneum. The lower border of the left kidney could be felt above the abscess cavity. The day after the operation there was a rise in the temperature to 102°, but it soon fell to 98° and remained there. The recovery was uneventful, and while on the day of operation his weight was 133 pounds, on the day of his discharge it was 152, a gain of 19 pounds. An interesting feature was the probable path of the infection. While the ureter and bladder were free from any infection, the lymph nodes undoubtedly were the path by which the infection traveled to the deep lumbar glands, those lying upon the psoas muscle being evidently the most vulnerable, and enlarged because of his syphilitic infection, and superadded gonorrheal infection was too great, and an abscess formed. In reality it might be called a bubo beneath the left kidney. The complete absence of any irritation of the kidneys at any time during the severe infection was worthy of note, especially since complications from gonorrheal infections most frequently travel by means of the bladder and ureter.

Demonstration of Kuhn's Lung-Suction Mask for the Hyperemic Treatment (Bier) of Pulmonary Tuberculosis.—Dr. Willy Meyer read this paper. (See page 757.)

Dr. Charles E. Quimby said it interested him to see an audience in New York listen to a paper on the physical treatment of tuberculosis of the lungs. This was not Bier's treatment and had no relation to it. The suction method could not be claimed by Bier; he had no claims whatever. Bier used passive, obstructive hyperemia. For twenty-two years there had not been a day hardly that Dr. Quimby had not had a patient under his treatment by atmospheric means for producing changes in the pulmonary circulation. Fifteen years ago, after eight years' experience, he stated before an association that there was no method at one's disposal so valuable in the treatment of pulmonary tuberculosis as the modification of the circulation by atmospheric pressure. He said he had been laughed at during these years, and he had had men say that he knew absolutely nothing about it, that the treatment was no good. Bier's method by the use of the mask and Dr. Quimby's method had no relation; they were entirely different. He wished to repeat what he said fifteen years ago and after thirty years' experience and close knowledge of what had been done in this country, and particularly in the treatment of tuberculosis, that there was no method at our disposal to-day which was equal to the pneumatic cabinet, a method of differential atmospheric pressure, in the treatment of lung disease. There was no one treatment for tuberculosis. Bier's treatment was a mechanical hyperemia, an obstructive hyperemia. It produced increased flow of blood to a part. He showed that tuberculosis of the joints improved under this treatment. Why did it improve? The conditions produced were an increased amount of blood to the part, an increased pressure, and a slowing of the circulation. But no man, he said, could convince him that slowing the circulation was good for anything in any reparative process. He would not say that increase of blood to a part would not help, but he was in doubt whether an increased amount of blood plus the slowed circulation was of value. This slowing of the circulation and increasing the pressure injured the tissues. In other words, this plan was exactly the same, only in another form, as the use of tuberculin, it was a localized irritant. Dr. Quimby said that the essential element of the injurious action of the tubercle bacillus was that it did not make a disturbance, did not irritate the tissues. When one took a tuberculous joint, and filled it with blood and injured it, then there was produced a condition demanding a reparative process. The value of Bier's treatment was in producing this injury of the tissues. When the bandage was removed, the circulation set in and repair was attempted. If one pulled and injured fibrous tissue and then let it alone, nature would remove a little bit of the injured tissue; repeating the injury would cause an absorption of this fibrous tissue. If one continued to irritate the fibrous tissue, nature would build it up and get the better of one in spite of everything. With regard to the suction hyperemia, he said that Bier had no claim to it. When Dr. Quimby was a boy he remem-

bered seeing an apparatus for treating the eye by suction. He had followed the development and application of the so-called Bier's treatment. No man had any right whatsoever to compare it with the obstructive treatment. It could not have the same effect upon the lungs as it had upon other parts. As to hyperemia he believed that there was no one thing that did so much good. Hyperemia under suction must be hyperemia with increased pressure in the lungs, and he asked if that was desirable? He did not know. The process by which one got the blood to the lungs was important. He had used this treatment for pulmonary tuberculosis for twenty-five years. An increased pulmonary circulation, with an active and persistent hyperemia, a hyperemia accompanied with an increased circulation, was a method which in his experience had no competitor to-day in the treatment of pulmonary tuberculosis.

Dr. A. Jacobi said that he had had no personal experience with Bier's treatment, either in medical or surgical cases. The amount of circulating blood in the lungs, however, had much to do with the predisposition to tuberculosis, or to relative immunity. It had already been said that it was known that when the nutrition of the lungs had suffered by anemia, tuberculosis was very frequent in those lungs. Thus if one had a congenital smallness of the lungs, the lungs would be in a condition of undernutrition; then tuberculosis might take hold. If one was dealing with a congenital or acquired pulmonic stenosis, there was a condition of anemia and undernutrition of the lungs, and tuberculosis very frequently resulted. In this way a great many of the subjects of congenital cyanosis, or cyanosis due to obstruction of the pulmonary arteries, died of tuberculosis. On the other hand, it had been known when there was some heart lesion that resulted in obstruction in the veins then there was little tuberculosis following. Many observers had made the statement that valvular disease of the heart and tuberculosis did not go together. Thus it appeared that if the lungs were in a condition of venous obstruction there should be but little or no tuberculosis. The records from the Phipps Institute this year showed that only two per cent. of the cases of tuberculosis at autopsy had stenosis; that almost excluded tuberculosis of the lungs in venous hyperemia. If that was so, he asked if it was not natural to provide a venous hyperemia in order to prevent or to retard the progress of tuberculosis. If the inhalation mask did that, it was a good addition to our means of combating tuberculosis. Tuberculosis could not be cured by any one method; if one attempted to do so he would fail. He believed this method would do much good and should be given a trial. He only feared that the apparatus would fall into the hands of patentees.

Dr. Haven Emerson said that one must accept the fact that increasing the negative pressure caused an increase of blood flowing through the lungs. It facilitated the flow of the blood from the lungs to the right side of the heart. Therefore, it was a true hyperemia and not a venous condition with obstructed entrances. They understood that the increase of volume and increase of blood pressure was due to negative thoracic pressure and increased flow of blood to the right side of the heart. If one periodically increased the negative pressure, just so much did he increase the volume and flow of blood through the lungs and the general arterial pressure. A low blood pressure was characteristic of tuberculous affections. They were improving the character of the general circulation by increasing the blood flow from the left to the right side of the heart.

Dr. George Mannheimer said that in the reports from Berlin, showing the x-ray pictures of patients during ordinary and mask breathing, the condition in the lungs did not show so well in the former as in the latter. He did not believe, however, that the mask treatment of the lungs would do as well as Bier's treatment of tuberculosis of joints or other parts. From his own limited experience he did not know whether the mask did good or not.

Dr. L. Rosenberg, Medical Superintendent Montefiore Home Country Sanatorium, said that after eight months' use of the mask he had two very salient things to say. First, its use increased the moisture in the affected lungs; secondly, it produced a reduction in the blood pressure, usually from twenty to thirty millimeters. So far as he could determine it had no effect upon the blood picture. In one case he used the mask when there were attacks of copious hemoptysis. In that case it did not induce fresh attacks, and the patient was doing well. It did not seem to do harm in those cases where there was a tendency to bleeding. The experience at Bedford was too short to enable him to offer any deductions as to the value of the mask.

Dr. S. A. Knopf believed one should be cautious in the use of any new remedy. He had had occasion to watch the effects of Bier's treatment in surgical tuberculosis and he became very enthusiastic because it prevented a number of operations. On the other hand, he had not seen anything remarkable from the use of the mask as yet. The reasoning would seem to indicate at present that this physical means, if judiciously applied, would help. He was inclined to believe that the patients, after wearing the mask for a while, would have a strong desire to breathe naturally, and take deep inspirations, filling the system with better air, so that they would feel better on account of the deep inspirations.

Dr. Willy Meyer said that after his return from Atlantic City, in June, where he had read a paper on Bier's treatment before the Surgical Section of the American Medical Association, he had written Dr. Alfred Meyer and Dr. George Mannheimer to test Kuhn's mask at the Bedford Sanatorium. Not having heard from them, he thought they had not followed the suggestion. Had he known that they had meanwhile gathered some personal experience, he would not have ventured to discuss a subject which properly belonged to the medical man. With regard to Dr. Quimby's statement, he did not believe it to be wise to go into a discussion on the theory of the hyperemic treatment. Bier and others had proven beyond a doubt that by using this method surgical tuberculosis could be cured. He could, therefore, not see any reason why the same procedure, if properly applied, should not prove of equal benefit to pulmonary tuberculosis. That this treatment injured tissues he did not believe. With regard to the effects of higher altitudes it rapidly increased the number of red and white blood corpuscles, as well as the percentage of hemoglobin. This same was done by the use of the mask. In other words, it was possible now to benefit the patient by the use of the mask in the valley as much as by sending him to some higher altitude, at least to a certain extent. Dr. Meyer then presented a patient with the mask to illustrate its application and method of using.

A Brief Report of Further Experiments in the Use of Parathyroid Gland for Paralysis Agitans.—Dr. Wm. N. Berkeley read this paper. He said that the curious and remarkable symptoms following complete parathyroid excision were now familiar. The animal operated upon began in about twenty-four hours to show enormously hurried respirations, tachycardia, profuse salivation, constant twitching and shivering of voluntary muscles, rigidity, and intermittent convulsions; he refused food, wasted rapidly, and within a few days died, quite often during the convulsive seizure. The essential metabolic chemistry of the process was quite unknown. It was presumed that the gland secreted something itself essential to the organism or something antitoxic to irritant waste products formed elsewhere, or perhaps something complementary to the secretion of the thyroid gland. The close proximity of the parathyroids to the thyroid in all vertebrates so far examined lent some color to this last hypothesis, but

other guesses could be made as well, and a fast line should be drawn between conjecture and proved truth. Was there any disorder of the human frame, analogous to exophthalmic goiter, owing its origin to diseases of the parathyroid glands? This was a subject for experimental clinical study. Over two years ago the Swedish neurologist, Lundborg, and the speaker, independently and along different lines of reasoning, formed the notion that paralysis agitans was the disease, or one of the diseases, in question. Dr. Lundborg's paper antedated his by nearly a year. Avoiding questions of priority the paper meant to set forth briefly some further work on paralysis agitans which had brought forth some new facts and seemed worth writing about. He considered (1) laboratory work, (2) autopsy findings, and (3) clinical results from administration of the gland. It had been possible to prepare from carefully identified ox-gland a highly concentrated parathyroid nucleoproteid for use in hypodermic form. The action of this proteid on dying parathyroidectomized dogs was marvelous. It unquestionably contained a large portion of the principle of the gland. He pulverized and preserved the entire gland. The preparation so obtained was dispensed in capsules, each capsule corresponding to one-half of one fresh ox-gland. Three to five capsules were given each day. The dose for hypodermic injection was 0.5 c.c. per day. It worked better under the skin than in muscles. Veins should be avoided with special care. It was now possible to collate twelve recent autopsies made upon cases of Parkinson's disease in which the parathyroids were objects of special research. Of these nine were reported on by R. L. Thompson, two by C. D. Camp, and one by himself. Thompson concluded that there was no morphological ground for the assumption that the parathyroids were insufficient in paralysis agitans. His own case, on the contrary, showed a definite degree of destructive sclerosis, but whether enough really to embarrass the function of the glands it would be impossible to say. No definite conclusions could be drawn from the reports on these twelve cases. But it should be noted that the histology of the glands of internal secretion generally gave only a very elementary notion of their function. After emphasizing the importance of having a properly identified gland, he said that nothing much in the way of favorable results could be hoped for except from relatively small doses continued through a long period of time. The extremely chronic way in which the disease approached would seem to indicate that slow regression of the bad symptoms should be the rule. Again the temperaments of these patients were somewhat modified, they being easily depressed, easily encouraged, subject to changes of opinion, etc. The results of treatment in his own cases, as well as in the cases of friends and helpers, were given. He had notes or personal knowledge of thirty cases. Of these, two patients declined to continue the treatment; two had not been heard from; five denied any benefit; three showed temporary improvement, and eighteen were progressively benefited during the entire period in which they were under treatment. The benefit consisted in diminished rigidity, lessened pain, cure of salivation, shaking diminished or cured, voluntary control of muscles greatly increased, and restlessness and insomnia almost abolished.

Dr. S. B. Beebe said that but little was known regarding the glands which furnished the internal secretions; no one could successfully controvert that fact. As to the relation of the parathyroids to disease he said he was unable to make any definite statement. But as to the relation of the parathyroids to the condition called tetany, there was a close and definite relation, the relation of cause and effect. This condition was due to the removal of the gland and not to any traumatic injury to the nerves; it was a disturbance caused by the removal of the parathyroid gland. Just how it acted was as yet undecided. Whether it neutralized the toxins or acted as a sedative in itself was a difficult matter to settle. But the evidence we had, so far as we had gone in the study of this matter, indicated that the parathyroids did neuralize or help to eliminate toxic substances which appeared in the course of metabolism. He was inclined to believe that this toxic substance came from the metabolism of proteid foods. We knew that histologically the gland nuclear material and cells were much more prominent in the parathyroids than in the thyroids. Little globulin was found in the parathyroid gland. When the parathyroids were removed, one got symptoms of tetany, which the hypodermic injection of this nucleoproteid of the gland relieved at once. It was impossible to get this relief by any other part of the proteid content of the gland. Administering this organic product by the hypodermic method was the most physiological way of doing it. He had found that the gastric digestion of these proteids, when given by the mouth, rendered them less efficacious in relieving the symptoms of tetany. It did not completely inhibit the power, but required considerably larger doses to get the same effect.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Wisconsin Board of Medical Examiners.

Milwaukee, January 8-10, 1907.

OBSTETRICS.

1. Name the external and internal female organs of generation and describe the uterus.
2. Name the positive signs of pregnancy and at what time they can be recognized. Name the doubtful signs.
3. Name and describe the different stages of normal labor and your management in each stage.
4. Differentiate ascites, ovarian cyst, and pregnancy before the fifth month.
5. Give symptoms and treatment of albuminuria of pregnancy, and treatment of eclampsia.
6. State the danger of a prolapsed funis and give treatment.
7. Name the causes of antepartum and postpartum hemorrhage. Give treatment of each.
8. What are the indications for the use of the forceps? Give rules for applying them.

GYNECOLOGY.

1. Give causes, symptoms, physical signs, and treatment of cervical endometritis.
2. Give etiology, symptoms, physical signs, and treatment of pelvic cellulitis.
3. Define ectopic gestation, name varieties, give diagnosis, prognosis, and treatment.
4. Give etiology, prognosis, and treatment of membranous dysmenorrhea.

SURGERY, LARYNGOLOGY, OPHTHALMOLOGY.

1. Define acute bursitis and synovitis and give treatments.
2. Describe Bassini's operation for the radical cure of inguinal hernia.
3. Define Raynaud's disease and noma and give treatments.
4. Define tumors, name varieties, and give prognoses and general treatment.
5. Name varieties of bone diseases and give treatment of osteomyelitis.
6. Define a fracture and give the treatment for a fractured patella.
7. Define a dislocation and name and give treatment of elbow varieties.
8. Define actinomycosis and tetanus and give treatments.
9. Define perichondritis and chondritis and give etiology and treatment.
10. Describe operations of intubation and tracheotomy and tell when indicated.
11. Define ophthalmia neonatorum and give treatment.
12. Define trachoma and give etiology and treatment.
13. Define iritis and keratitis and give etiology and treatments.

HISTOLOGY, BACTERIOLOGY, AND PATHOLOGY.

1. (*a*) Name the fundamental groups of tissues and

give an example of each. (*b*) Describe the stages in cytomorphosis. (*c*) Give differential diagnosis of a section of stomach, duodenum, ileum, and colon.

2. (*a*) Describe minutely the intima of a medium sized artery. (*b*) Describe the mucous membrane of the bladder. (*c*) By diagram show the normal histology of a lobule of the lung.

3. (*a*) Stain for tubercle bacillus in sputum and give two other bacteria that behave similarly to the stain. (*b*) By culture differentiate *Bacillus typhosus* from *Bacillus coli communis*.

4. (*a*) Name four pus-producing bacteria. (*b*) Describe and explain the Widal phenomena. (*c*) How would you demonstrate gonococci in a urethral discharge?

5. Give the gross and microscopic appearances in fatty degeneration of the heart.

6. Give the reasons for the following phenomena in inflammation: (*a*) The decreased velocity of the blood. (*b*) The formation of border zones.

7. Explain how infarcts are formed and tell where they may be found in the body.

8. Give the steps in the formation of a thrombus, describe its organization; where will it not organize?

9. Classify neoplasms of epithelial origin and describe one.

10. Give the structural changes in a liver lobule found in a case of atrophic cirrhosis.

11. Give the pathology of locomotor ataxia.

12. Discuss waxy degeneration.

NEUROLOGY.

1. Name the ganglia connected with the fifth pair of cranial nerves.

2. Give the origin, principal branches of the median nerve, and its distribution.

3. What is the function of the trochlear nerve?

4. How is the sensation of sound conveyed to the brain?

5. Define the process of cerebral softening.

6. What part of the cord is involved in locomotor ataxia? Progressive muscular atrophy?

DIETETICS.

1. What influence has the nervous system on gastric digestion?

2. Give classes of foods and describe their effect upon the body tissue. Describe metabolism.

3. What should be the diet of a child two years old?

MEDICAL JURISPRUDENCE.

1. When is abortion justifiable?

2. Differentiate between civil and criminal malpractice.

3. What constitutes expert testimony?

ANATOMY.

1. Give names and functions of cranial nerves.

2. Describe the gall-bladder and bile ducts.

3. Name the salivary glands and give their locations.

4. Describe ankle joint and name bones entering its formation.

5. Give the minute anatomy of the kidney.

6. Name and give function of muscles moving the eye ball.

7. Name, locate, and describe valves of the heart.

8. Describe the circle of Willis.

PEDIATRICS.

1. Give the principal causes of infantile convulsions.

2. Give the symptoms and course of an ordinary case of tubercular meningitis.

3. Of what does spina bifida consist?

4. Tell what you know of what is commonly known as membranous croup.

MATERIA MEDICA AND THERAPEUTICS.

1. What is the source and composition and what are the preparations of ipecac?

2. Name the agents affecting the organs of vision when locally applied, illustrating their action and use.

3. What are the principal agents acting on the circulation? Classify them in groups according to their action and name the members of each group.

4. What are escharotics, astringents, styptics, and emollients? Name the principal drugs belonging to each group.

5. What are the principal digestion ferments, where are they obtained, and what are the actions of each?

6. How would you treat a case of poisoning by iodine?

7. What are the preparations, doses, physiological actions, and therapeutics of belladonna?

CHEMISTRY, TOXICOLOGY, URANALYSIS.

1. Define the term "an alkaloid."

2. Define the term "a chemical radicle."

3. Define and give examples of the terms, "acids," "bases," and "salts."

4. State the formulæ and some of the medical uses of nitric and hydrochloric acids.

5. Explain the meaning of the prefixes "hypo" and "hyper" as applied to chemical compounds.

6. State the reaction which occurs when a solution of potassium iodide is mixed with a solution of mercuric chloride.

7. Give the chemical symbol for the element sodium and describe three of its principal oxides and salts.

8. Give characteristic symptoms and treatment of strychnine poisoning.

9. Name the most common sources of lead poisoning, symptoms, and treatment.

10. What are the characteristic symptoms and treatment of corrosive sublimate poisoning?

11. Give the average composition of normal urine, including specific gravity and reaction.

12. Describe tests that you would employ to detect albumen, sugar, and an excess of urea in the urine.

PHYSIOLOGY, HYGIENE, AND PHYSICAL DIAGNOSIS.

1. Give the functions and describe the pneumogastric nerve.

2. Describe the phenomena and give some of the theories of sleep.

3. Describe the mechanism of respiration, both normal and forced.

4. What effect does diet have on the secretion and constituents of milk?

5. Give the products of intestinal digestion and state the disposition made of these products.

6. Give the properties and functions of the medulla oblongata.

7. (*a*) Give function of the thyroid body. (*b*) What effect does its removal have?

8. What precautions are necessary and what is the length of quarantine of (*a*) variola, (*b*) scarlatina, (*c*) diphtheria, (*d*) yellow fever?

9. Give general outline for disinfection and fumigation. Name materials used.

10. Give the differential diagnosis of hepatic colic and appendicitis.

11. Give diagnosis of cardiac hypertrophy affecting (*a*) the left ventricle, (*b*) the right ventricle.

12. (*a*) How would you diagnose cerebral hemorrhage? (*b*) What are the most reliable signs of death?

PRINCIPLES AND PRACTICE.

1. Give differential diagnosis of gastric ulcer.

2. What is spinal sclerosis, its varieties and pathological anatomy?

3. Give differential diagnosis and treatment of pleurisy with effusion.

4. Name four diagnostic facts which can be determined by chemical and spectroscopic examination of feces, giving the test for one of them.

5. Give etiology and pathology of hemiplegia.

6. What is autointoxication? Give the source of the toxins producing this condition.

7. Give diagnosis and treatment of chorea.

8. Give etiology of tuberculosis. What measures in your judgment are best in preventing the spread of this disease?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

WISCONSIN BOARD OF MEDICAL EXAMINERS.

Milwaukee, January 8-10, 1907.

OBSTETRICS

2. *Positive signs of pregnancy.*—(1) Hearing the fetal heart sound; (2) active movements of the fetus; (3) ballottement; (4) outlining the fetus in whole or part by palpation; and (5) the umbilical or funic souffle.

The *positive* signs can all be recognized at the end of the fourth or beginning of the fifth month.

Doubtful signs of pregnancy.—(1) Progressive enlargement of the uterus; (2) Hegar's sign; (3) Braxton Hick's sign; (4) uterine murmur; (5) cessation of menstruation; (6) changes in the breasts; (7) discoloration of the vagina and cervix; (8) pigmentation and striæ; (9) morning sickness.

4. *Ascites.*—Absence of the signs of pregnancy; the abdomen is distended, but the shape varies with the position of the patient; on lying down there is bulging at the sides, the tumor fluctuates, and percussion shows dullness in the flanks, with resonance in the median line, but the dullness varies with the position of the patient.

Ovarian cyst.—Absence of the chief signs of pregnancy; there may be the characteristic facies; the tumor is soft, fluctuating, is more to one side, and does not show fetal signs.

Pregnancy.—The tumor is hard and does not fluctuate, is situated in the median line, and may give fetal heart sounds and movements; the cervix is soft, and the other signs of pregnancy are present. The rate of growth of the tumor, and the general condition of the patient's health, may also help in arriving at a diagnosis.

6. *The danger of a prolapsed funis* is asphyxiation of the child from compression of the cord.

Treatment consists in: (1) Not rupturing the membranes prematurely, unless there is some positive indication; (2) postural treatment, in which the woman is placed on her back or on the opposite side to that on which the cord lies, with hips and pelvis elevated, or the knee-chest position may be adopted; (3) reposition of the cord, either manually, or with some form of repositor; (4) speedy delivery, by forceps or podalic version.

8. *Indications for the use of forceps* are: "1. *Forces at fault*: Inertia uteri in the presence of conditions likely to jeopardize the interests of mother or child. (*a*) Impending exhaustion; (*b*) arrest of head, from feeble pains. 2. *Passages at fault*: Moderate narrowing, 3¼ to 3¾ inches, true conjugate; moderate obstruction in the soft parts. 3. *Passenger at fault*: A. Dystocia due to (*a*) occipito-posterior, (*b*) mento-anterior face, (*c*) breech arrested in cavity. B. Evidence of fetal exhaustion (pulse above 160 or below 100 per minute). 4. *Accidental complications*: Hemorrhage; prolapsus funis; eclampsia. All acute or chronic diseases or complications in which immediate delivery is required in the interest of mother or child, or both." (From Jewett's *Practice of Obstetrics.*)

Conditions necessary for the use of forceps are: (1) The rectum and bladder must be empty; (2) the os uteri must be fully dilated; (3) the membranes must be ruptured; (4) the pelvis must be of sufficient size.

GYNECOLOGY.

3. Ectopic gestation is a pregnancy in which the ovum is developed outside of the uterine cavity.

Varieties.—Ovarian, tubal, interstitial, abdominal.

Diagnosis.—"When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility; nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy; pains are often very severe, with marked tenderness within the pelvis; such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating; this tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

Prognosis.—All forms of ectopic gestation are exceedingly dangerous.

Treatment consists in the removal of the product of conception, by a laparotomy, as soon as the diagnosis is made.

4. MEMBRANOUS DYSMENORRHEA. *Etiology.*—Interstitial endometritis.

Prognosis is not so good as in the other forms; as the condition is obstinate, the prognosis must be guarded.

Treatment consists in curettage, which may have to be repeated (perhaps more than once) before a cure is effected.

SURGERY, LARYNGOLOGY, OPHTHALMOLOGY.

11. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the newborn, due to the gonococcus or other pyogenic germ; produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc.

The treatment is (1) *Prophylactic.*—Whenever there is the possibility of infection, or in every case, wash the eyelids of the newborn child with clean warm water, and drop on the cornea of each eye one drop of a one or two per cent. solution of nitrate of silver, immediately after birth. (2) *Remedial.*—Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

12. *Trachoma* is an inflammatory condition of the conjunctiva, accompanied by hypertrophy, granule formation, and subsequent cicatricial changes.

Etiology.—It is caused by contagion from another eye, being transferred by means of the secretion.

Treatment "consists in an attempt to reduce the inflammatory symptoms and secretion, and to check and remove hypertrophy of the conjunctiva, thus shortening the duration and diminishing the liability to conjunctival cicatrization and to sequelæ. This is accomplished either by the use of certain irritating applications, or by mechanical (surgical) means.

Irritating Applications.—Sulphate of copper in the form of a crystal or pencil is the favorite local application. Nitrate of silver (one or two per cent. solution), glycerole of tannin (five to twenty-five per cent.), and the alum stick are also employed.

Mechanical (Surgical) Treatment includes expression, grattage, excision, curetting, electrolysis, *x*-rays, and galvano-cautery." (May's *Diseases of the Eye.*)

HISTOLOGY, BACTERIOLOGY, AND PATHOLOGY.

3. (*a*) The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

The smegma bacillus and the bacillus of leprosy behave similarly to the stain.

(*b*) The cultural and microscopical points of difference between the *Bacillus coli communis* and the *Bacillus typhosus* (of Eberth) are:

"(1) The motility of the colon bacillus is, as a rule, not very pronounced, sometimes absent; that of the typhoid bacillus is usually very active.

"(2) On gelatine plates the colon bacillus develops more rapidly and luxuriantly than the typhoid bacillus, and on potato it grows more abundantly, being almost always visible.

"(3) The colon bacillus coagulates milk with acid reaction within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

"(4) The colon bacillus causes fermentation with production of gas in media containing sugar; the typhoid bacillus does not.

"(5) In nutrient agar or gelatine containing lactose and litmus tincture and of a slightly alkaline reaction, the color of the colonies of colon bacillus is pink and the surrounding medium red; while the colonies of typhoid bacillus are blue and there is little or no reddening of the medium.

"(6) The colon bacillus produces indol in cultures of bouillon or peptone; the typhoid bacillus does not.

"(7) When a twenty-four-hour-old bouillon culture of the colon bacillus is mixed with the blood or serum of a patient suffering from genuine typhoid fever, in a dilution of one to ten or more, after the first week of the disease, the Widal reaction is negative; cultures of the typhoid bacillus treated in the same manner and examined in the hanging drop give the characteristic agglutination and clumping of the bacilli." (*Reference Handbook of the Medical Sciences.*)

4. (*a*) *Four pus-producing bacteria: Staphylococcus pyogenes aureus, Staphylococcus pyogenes citreus, Staphylococcus pyogenes albus,* and *Streptococcus pyogenes.*

(*b*) The Widal phenomenon "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their mobility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. A posi-

tive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

(*c*) To demonstrate *gonococci* in a urethral discharge.—On a cover-glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly-made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes*, which have been *decolorized by Gram's stain*, and have taken the counterstain.

6. (*a*) The decreased velocity of the blood, in inflammation, is probably due to some change in the vessel walls, which increases the friction.

NEUROLOGY.

1. The ganglia connected with the fifth pair of cranial nerves are: (1) The Gasserian; (2) the ophthalmic; (3) Meckel's; (4) the submaxillary; (5) the otic.

2. The *median nerve arises* by two roots, one from the outer cord, the other from the inner cord of the brachial plexus.

Its *principal branches* are the muscular, anterior interosseus, palmar cutaneous, muscular (to the thumb), and digital branches.

It is distributed to all the superficial muscles on the front of the forearm except the flexor carpi ulnaris; all the deep muscles on the front of the forearm except the inner half of the flexor profundus digitorum; the skin over the palm of the hand; the abductor pollicis, opponens pollicis, and the outer head of the Flexor brevis pollicis; the outer three and a half fingers, and the first and second lumbricales.

3. The trochlear nerve is the motor nerve to the superior oblique muscle of the eye. When this nerve is paralyzed the patient is unable to turn the eye outward and downward.

5. *Cerebral softening* is a degenerative process occurring in the brain as a result of occlusion of an artery and consequent local deprivation of blood-supply. This obliteration of the artery may be due to thrombosis or to embolism. The stages in the process are: Obliteration of the artery, local anemia, degeneration of tissue, necrosis, and softening.

6. In *locomotor ataxia* the posterior columns and posterior nerve roots of the cord are involved.

In *progressive muscular atrophy* the ganglion cells in the anterior horns of the cord are involved.

MEDICAL JURISPRUDENCE.

1. *Abortion is justifiable.*—"(1). In pelvic deformity where there is sufficient space for a seven months' child to be delivered without injury. The object is twofold: (*a*) to save the child's life by obviating the necessity for craniotomy; (*b*) to spare the mother the dangers of craniotomy, cesarean section, symphyseotomy, or other operations that might be required if the pregnancy went to full term. (2) In cases where, in previous labors, the head of the child at full term has been prematurely ossified, or unusually large, so that labor has been difficult and dangerous, even though the pelvis were normal. The period of delivery need only be two or three weeks before 'term' in these cases. (3) In cases where the children of previous pregnancies have died *in utero* during the later weeks of gestation from disease (fatty, calcareous, or amyloid degeneration, etc.) of the placenta. (4) In conditions where the continuance of pregnancy seriously endangers the mother's life, such as: excessive vomiting; albuminuria; uremic convulsions, or paralysis; chorea; mania; organic disease of the heart, lungs, liver, bloodvessels, etc., threatening fatal disturbance of the respiration, circulation, and other vital functions; irreducible displacements of uterus; placenta previa with hemorrhage; and in dangerous pressure upon neighboring organs from over distention of uterus, due to dropsy of ammion, tumors, multiple pregnancy, etc." (King's *Manual of Obstetrics.*)

2. Malpractice is a failure on the part of a medical practitioner to use such skill, care, and judgment in the treatment of a patient as the law requires; and thereby the patient suffers damage. If due to negligence only, it is *civil* malpractice. But if done deliberately, or wrongfully, or if gross carelessness or neglect have been shown, or if some illegal operation (such as criminal abortion) be performed, it is *criminal malpractice.*

3. In *expert* testimony, the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can be done only by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

In *ordinary* testimony, the witness testifies only to *facts* which he has seen, or heard, or with which he has become acquainted by personal observation.

PEDIATRICS.

1. Cases of infantile convulsions are: "Overeating, especially of indigestible food; rachitis, debility from exhausting diarrheal diseases; high fever, especially at the onset of the acute specific infections; very seldom dentition, phimosis, and acute middle-ear inflammation; injuries to the brain at birth, infantile hemiplegia, meningitis, and tumor of the brain; rarely of spinal cord disease."—(From Butler's *Diagnostics of Internal Medicine.*)

3. Spina bifida is a condition in which there is a cleft in part of the posterior wall of the spinal cord; it is due to imperfect development. Through this cleft there may protrude the spinal meninges and cerebrospinal fluid (meningocele); or it may contain in addition some of the cord and nerves (meningomyelocele); or there may be great distention of the central canal, the sac-wall being formed of the thinned cord (syringomyelocele).

MATERIA MEDICA AND THERAPEUTICS.

1. IPECAC. *Source.*—The dried root and part of the stem of the Cephaëlis ipecacuanha or of the Cephaëlis acuminata.

Composition.—Emetine, Cephaëline, another (unnamed) alkaloid, Cephaëlic or Ipecacuanhic acid, Tannic acid, volatile oil, etc.

Preparations.—Fluidextractum Ipecacuanhæ, Syrupus Ipecacuanhæ, Vinum Ipecacuanhæ, Pulvis Ipecacuanhæ et Opii, Tinctura Ipecacuanhæ et Opii.

2. *Agents which affect the organ of vision when locally applied.—Mydriatics* (dilate the pupil): Atropine, Homatropine, Daturine, Hyoscyamine, Coniine, Cocaine; and probably Gelsemine, Muscarine, Hydrocyanic acid, Aconite, and Amyl nitrite.

Myotics (contract the pupil): Pilocarpine, Physostigmine, and probably Nicotine.

Dilators of the pupils, especially atropine and homatropine, are used to dilate the pupil for ophthalmoscopic examination, and to prevent or break down adhesions of the iris. Contractors of the pupil, especially physostigmine, are used to overcome the effects of atropine, to prevent or break down adhesions of the iris, and to prevent too much light entering the eye in painful diseases of it.

Drugs which *impair or paralyze accommodation.*—Atropine, Daturine, Hyoscyamine, Homatropine, Cocaine, Physostigmine, Pilocarpine, Gelsemine, and Coniine.

Intraocular tension is increased by atropine (large doses), hyoscyamine, and daturine. It is decreased by cocaine, hyoscine, and physostigmine.

Gelsemine paralyzes the external ocular muscles, especially the levator palpebræ and the external rectus, by its action on the terminal nerve filaments.

Cocaine, by stimulating the unstriped fibers in the orbital membrane and the eyelids, causes the eye to protrude. Coniine produces ptosis when given in large doses. (From White and Wilcox's *Materia Medica*, etc.)

4. *Escharotics* are agents which, on being applied to a tissue, destroy it, and produce a slough. Examples: Mineral acids, caustic alkalies, zinc chloride, zinc sulphate, silver nitrate, mercuric chloride, mercuric nitrate, bromine, and the cautery.

Astringents are agents which diminish secretion from mucous surfaces and cause tissues to contract. Examples: Acids (especially gallic and tannic), alum, galls, kino, ferric chloride, copper sulphate, bismuth subnitrate, lead acetate, silver nitrate, zinc sulphate.

Styptics are agents which, on being applied locally, arrest hemorrhage. Examples: The cautery, acids, nitrate of silver, alum, collodion, and vegetable astringents.

Emollients are substances which tend to soften, relax, and protect the parts to which they are applied. Examples: Cold cream, cacao butter, olive oil, glycerin, lanolin, paraffin, vaseline, lard.

5. There are only two officinal digestive ferments: (1) *Pepsin*, obtained from the fresh stomach of the hog. In an acid medium it digests the proteid constituents of the food, and converts them into albumoses and peptones. (2) *Pancreatin*, obtained from the fresh pancreas of the hog or other warm-blooded animal. In an alkaline medium it converts the proteid constituents of the food into peptones, converts starches into sugars, and (when recent) emulsifies fats; it may also coagulate milk.

6. In *poisoning by iodine*, large quantities of starch should be given as the antidote; emetics and the stomach tube are also indicated; the body should be kept warm, and hypodermic injections of alcohol, digitalis, and strychnine may be required to maintain the circulation and respiration.

CHEMISTRY, TOXICOLOGY, URANALYSIS.

1. *An alkaloid* is an organic nitrogenized substance of

alkaline reaction and capable of combining with acids to form salts in the same way that ammonia does.

2. *A chemical radical* is a group of atoms capable of passing unaltered from one compound to another, like a single atom.

3. *Acids* are compounds of an electronegative element or radical with hydrogen, part or all of which hydrogen they can part with in exchange for an electropositive element, without formation of a base. *Examples*: Sulphuric acid, H_2SO_4; nitric acid, HNO_3.

Bases are ternary compounds capable of entering into double decomposition with an acid to produce a salt and water. *Examples*: Potassium hydroxide, KOH; Calcium hydroxide, $Ca(OH)_2$.

Salts are substances formed by the substitution of an electropositive element for part or all of the replaceable hydrogen of an acid. *Examples*: Sodium nitrate, $NaNO_3$; Monopotassic sulphate, $KHSO_4$.

4. *Nitric acid*, HNO_3. It is used externally as a caustic on chancres, chancroids; also on warts, phagedenic ulcers, indolent ulcers, and gangrene. Internally it is used as a tonic, in gastric or intestinal indigestion, and summer diarrhea of children.

Hydrochloric acid, HCl. It is used in indigestion, gastric cancer, and gastric catarrh.

5. *Hypo* prefixed to an acid or a salt denotes less oxygen than the "*ous*" acid or the "*ite*" salt.

Hyper or *Per* prefixed to an acid or a salt denotes more oxygen than the "*ic*" acid or the "*ate*" salt.

Examples:

HClO=*Hypo*chlor*ous* acid: KClO=Potassium *hypo*chlor*ite*.

$HClO_2$=Chlor*ous* acid: $KClO_2$=Potassium chlor*ite*.

$HClO_3$=Chlor*ic* acid: $KClO_3$=Potassium chlor*ate*.

$HClO_4$=*Per*chlor*ic* acid: $KClO_4$=Potassium *per*chlor*ate*.

6. $HgCl_2 + 2KI = HgI_2 + 2KCl$.

7. Sodium: Na.

Sodium hydroxide: NaHO. It is a white solid, hard, brittle, amorphous, soluble in water, and has a strong corrosive action; when exposed to the air it is converted into Sodium carbonate.

Sodium dioxide: Na_2O_2. It is a white solid, amorphous.

Sodium monoxide: Na_2O. It is a grayish-white substance.

8. The *symptoms of poisoning by strychnine* are as follows: "Strychnine produces a sense of suffocation, thirst, tetanic spasms, usually opisthotonos, sometimes emprosthotonos, occasionally vomiting, contraction of the pupils during the spasms, and death, either by asphyxia during a paroxysm, or by exhaustion during a remission. The symptoms appear in from a few minutes to an hour after taking the poison, usually in less than twenty minutes; and death in from five minutes to six hours, usually within two hours.

Treatment: "The convulsions are to be arrested or mitigated by bringing the patient under the influence of chloral or chloroform as rapidly as possible; the stomach is to be washed out, and the patient is to be kept as quiet as possible." (Witthaus' *Essentials of Chemistry.*)

9. The most *common sources of lead poisoning* are the following:

"The contamination of drinking water from lead pipes. Contamination of articles of food or drugs by contact with leaden vessels, or from being enclosed in tinfoil containing an excess of lead. Drinking beer, cider, etc., which has been drawn through leaden pipes or allowed to stand in pewter vessels. The ingestion or constant handling of lead or its compounds, as the acetate, nitrate, carbonate (white lead—painter's colic), Goulard's extract, etc. The use of hair dyes containing lead."

The *symptoms* are: "Metallic taste; dryness of the throat; thirst; severe colicky abdominal pains, referred particularly to the umbilical region, and relieved by pressure; pulse very feeble and slow; great prostration; constipation; urine scanty and red; violent cramps; paralysis of the lower extremities; convulsions; and tetanic spasms."

The *treatment* consists in removing the cause and administering the antidote, "magnesium sulphate, which brings about the formation of the insoluble lead sulphate, while the purgative action of the magnesia is also useful. It should be preceded by an emetic, or by the use of the stomach tube." (Witthaus' *Essentials of Chemistry.*)

10. The *characteristic symptoms of poisoning by corrosive sublimate* are: A burning pain in the mouth, pharynx, and stomach; the mouth and tongue are white; the vomitus is white, with shreds of mucous membrane, and tinged with blood; bloody stools, also salivation may occur.

Treatment: The antidote is white of egg, but too much must not be given at one time; this should be followed by an emetic.

12. *Test for albumin*: The urine must be perfectly clear. If not so, it is to be filtered, and if this does not render it transparent it is to be treated with a few drops of magnesia mixture, and again filtered. The reaction is then observed. If it be acid, the urine is simply heated to near the boiling point. If the urine be neutral, or alkaline, it is rendered *faintly* acid by the addition of dilute acetic acid; and heated. If albumin be present, a coagulum is formed, varying in quantity from a faint cloudiness to entire solidification, according to the quantity of albumin present. The coagulum is not redissolved upon the addition of HNO_3.

Test for sugar: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color.

Quantitative test for urea: A comparatively easy test is that of Fowler, based upon the loss of the specific gravity of the urine after the decomposition of the urea by hypochlorite. "To apply this method the specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ (Squibb's). One volume of the urine is then mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted; every degree of loss in specific gravity indicates 0.7791 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely." (Witthaus' *Manual of Chemistry.*)

PHYSIOLOGY, HYGIENE, AND PHYSICAL DIAGNOSIS.

1. *Functions of the pneumogastric nerve*: "Throughout its whole course the vagus contains both sensory and motor fibers. To summarize the many functions of this nerve . . . . it may be said that it supplies (1) *motor* influence to the pharynx and esophagus, stomach, and intestines, to the larynx, trachea, bronchi, and lungs; (2) *sensory* and, in part, (3) *vasomotor* influence, to the same regions; (4) *inhibitory* influence to the *heart;* (5) *inhibitory* afferent impulses to the *vasomotor center;* (6) *excito-secretory* to the salivary glands; (7) *excito-motor* in coughing, vomiting, etc." (Kirke's *Physiology.*)

4. Too little food decreases both the quantity of milk and the percentage of solids. An ample diet increases both the quantity of milk and the percentage of solids. Abundance of proteids in the food increases the fat in the milk; so also does fat in the food, if it is well digested. Watery food increases the amount of milk, but diminishes the percentage of solids.

6. The *functions of the medulla oblongato* are: (1) It is a conductor of nervous impulses or impressions from the cord to the cerebrum, from the brain to the spinal cord, also of coordinating impulses from the cerebellum to the cord; (2) it contains collections of gray matter which serve as special nerve centers for the following functions or actions: respiration, salivary secretion, mastication, sucking, deglutition, speech production, facial expression; it also contains the cardiac and vasomotor centers.

7. (*a*) The *function of the thyroid* is not definitely settled; (1) it has some trophic function; (2) it is supposed to antagonize toxic substances; (3) it produces an internal secretion.

(*b*) Removal of the thyroid causes mental and bodily dullness and apathy, tremors, twitchings, overgrowth of the connective tissues, and development of fat; the hairs fall out, and the patient becomes unwieldy and clumsy in both body and mind. Complete removal causes death in most animals, and it is not considered justifiable in man.

10. In *hepatic colic* the pain is in the right hypochondriac region; there is no rigidity of the right rectus muscle; there are chills, slight fever, sweats, perhaps syncope, and vomiting; the liver and gall-bladder are tender and swollen, and there may be jaundice.

In *appendicitis* the pain and tenderness are in the right iliac fossa; there is rigidity of the right rectus muscle; there are fever and gastrointestinal disturbances, but no jaundice or tenderness of liver and gall-bladder.

11. In cardiac hypertrophy affecting the *left ventricle*: The apex beat is lower than normal and also further to the left, but not so far to the left as when the right ventricle is hypertrophied; the area of pulsation is increased, and there may be a systolic retraction of the interspaces; the area of cardiac dullness is increased down-

wards and to the left; the first sound is long and low-pitched; the second sound (at the apex) is louder and sharper.

In cardiac hypertrophy affecting the *right ventricle*: The apex beat is lower than normal and much further to the left; percussion shows the transverse diameter of the heart to be very much enlarged; the second pulmonic sound is much accentuated, and at times may be observed by palpation.

12. (*a*) *Cerebral hemorrhage* is generally preceded by vertigo, headache, tinnitus aurium, numbness, loss of memory, dreams, or disturbed sleep. The attack comes on suddenly, with vertigo and unconsciousness; the face is flushed; breathing is stertorous, and later may become of the Cheyne-Stokes type; the temperature is subnormal, but later may rise; there may be incontinence of urine and feces; signs of paralysis are evident; the pupils are unequal. The case is to be diagnosed from acute softening of the brain, from embolus or thrombus, also from the coma of uremia, opium, epilepsy, or alcohol.

(*b*) The most reliable signs of death are: Complete and permanent cessation of circulation and respiration; loss of body heat; rigor mortis; pallor of the body; a bright needle on being plunged into a muscle and left there, on being withdrawn shows no sign of oxidation; on the hand being held before a strong light, with the fingers extended and together, there is no translucence; the eye is not responsive to light or mydriatics, and there is loss of corneal transparency; putrefaction.

PRINCIPLES AND PRACTICE.

2. Spinal sclerosis is a condition of hardening produced by inflammation and accompanied by increase and proliferation of the supporting connective tissue, and atrophy of the nerve elements.

The varieties (as given by Dana) are:

Spinal sclerosis
- Primary and degenerative
  - Posterior spinal sclerosis (locomotor ataxia).
  - Lateral sclerosis.
  - Combined sclerosis.
  - Progressive muscular atrophy; amyotrophic lateral sclerosis.
- Secondary
  - Ascending and descending degenerations.
  - Chronic myelitis and sclerosis following destruction of cord.
  - Multiple sclerosis.

4. The feces may be examined *microscopically* for: The *Ameba coli* in dysentery; the *Spirillum* of cholera; the *Bacillus typhosus* in typhoid fever; the *Tænia solium;* the *Oxyuris vermicularis*, and other parasites and bacteria. *Chemical* examination might show the presence of mucin, blood, albumin, peptones, and bile pigment. *Spectroscopic* examination might possibly show the presence of blood.

5. *Hemiplegia* may be *caused by*: Lesions of the cortex cerebri, corona radiata, internal capsule, corpus striatum, optic thalamus, crura cerebri, pons, or medulla.

6. *Autointoxication* is the condition in which a person is (being) poisoned by the reabsorption of the waste products of his own metabolism, which should have been excreted. The source of the toxins producing this condition is the body of the person so suffering.

8. The *etiology of tuberculosis* is the bacillus tuberculosis of Koch.

Suitable preventive measures would include: Careful disinfection or burning of sputum, etc.; avoidance of spitting in public places; plenty of fresh air and sunlight; an abundance of good and easily digested food; the proper inspection of food supplies; the avoidance of kissing; and reporting of cases to the proper health authorities, and co-operation with them.

"Motor 'Bus Disease."—The *General Practitioner* says that the influence of the motor omnibus on the health of the London police promises to call for serious consideration by the authorities in the near future. Men stationed at such centers as the Bank, Ludgate Circus, Holborn, and the Mansion House Station are suffering very severely from headache and a very peculiar hot and dry feeling at the throat after doing duty. The headache lasts a considerable time, while many men say that the throat trouble is continuous, merely changing in degree. One and all blame the motor omnibus, which is peculiarly offensive in the narrow and crowded streets of the city. A prominent city man who is intimately connected with the police told a representative that if the conditions were not changed for the better, the corporation would no longer be able to consider a constable good for twenty-five years' duty in the streets.

Medical Items.

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended November 1, 1907:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, Los Angeles	Oct. 13–19	2	..
San Francisco	Oct. 6–19	3	..
Indiana, Elkhart	Oct. 6–12	1	..
Illinois, Chicago	Oct. 16–22	1	..
Springfield	Oct. 18–24	1	..
Louisiana, Shreveport	Oct. 13–19	2	..
Massachusetts, Somerville	Oct. 20–26	1	..
Missouri, St. Joseph	Oct. 13–19	2	..
New Jersey, Newark	Oct. 13–19	1	..
Utah, Three Counties	Sept. 1–30	11	..
Washington, Spokane	Sept. 1–30	1	..
Wisconsin, Appleton	Oct. 6–12	2	..
Milwaukee	Oct. 15–21	3	..
SMALLPOX—FOREIGN.			
Algeria, Algiers	Sept. 1–31	..	4
Austria, Bohemia	Sept. 22–28	2	..
Vienna	Sept. 28–Oct. 5	12	4
Brazil, Para	Sept. 20–Oct. 12	26	18
Rio de Janeiro	Sept. 15–28	24	13
Canada, Halifax	Oct. 13–19	1	..
Chile, Iquique	Sept. 8–14	..	Present
China, Shanghai	Sept. 16–22	3	4
Columbia, Cartagena	Oct. 2–8	..	Present
Ecuador, Central part—Ambato, Cajabamba, Chasaqui, La Tacunga, and Riobamba	To Sept. 25	1,000	..
Guayaquil	Sept. 21–Oct. 5	..	3
France, Paris	Sept. 29–Oct. 12	3	1
India, Calcutta	Sept. 7–14	..	1
Madras	Sept. 21–27	..	1
Rangoon	Sept. 15–21	..	2
Italy, General	Sept. 27–Oct. 3	4	..
Catania	Sept. 27–Oct. 3	..	1
Java, Batavia	Sept. 8–14	13	2
Mexico, Aguas Calientes	Oct. 6–19	..	2
Mexico City	Sept. 8–14	..	2
Peru, Callao	Sept. 8–14	..	1
Lima	Sept. 7–21	..	Present
Portugal, Lisbon	Sept. 29–Oct. 5	2	..
Russia, St. Petersburg	Sept. 15–21	1	..
Warsaw	Aug. 24–31	..	6
Spain, Barcelona	Oct. 1–10	..	2
Cadiz	Sept. 1–30	..	4
Madrid	Oct. 1–31	..	1
Valencia	Oct. 6–13	27	2
Vigo	Sept. 29–Oct. 5	..	1
CHOLERA.			
China, Hankow	Sept. 8–14	..	1
Shanghai	Sept. 8–22	5	20
	Cases among foreigners.	Deaths among natives.	
Tientsin	To Sept. 14	..	10
India, Bombay	Sept. 16–Oct. 1	..	12
Calcutta	Sept. 8–14	..	38
Madras	Sept. 8–14–27	..	216
Rangoon	Sept. 15–21	..	4
Japan, Kobe	Sept. 15–21	114	34
Moji	Sept. 8–14	463	280
Osaka	Sept. 15–21	43	21
Shimonoseki	Sept. 8–14	69	41
Yokohama	Sept. 24–30	13	10
Manchuria, Antung	Oct. 21	..	Present
Russia, General	Sept. 11–20	2,460	1,109
Siam, Bangkok	Aug. 1–31	17	2
Straits Settlements, Penang	Sept. 21	1	..
Singapore	Sept. 15–21	..	6
YELLOW FEVER.			
Brazil, Manaos	Sept. 22–Oct. 5	..	6
Para	Sept. 20–Oct. 12	5	5
Rio de Janeiro	Sept. 15–28	1	1
Costa Rica, San Jose	Sept. 1–30	1	..
Cuba, Habana Province—Habana	Oct. 16	1	..
Jaruco	Oct. 25–27	2	2
Matanzas Province—Alacranes	Oct. 18–28	1	..
Manacas	Oct. 1–7	1	..
Matansas	Oct. 30	1	..
Santa Clara Province	Oct. 1–7	Present at Central Soledad, Camarones, Connao, Costillo de Jagua and Guanos.	
Cienfuegos	Oct. 19–28	2	..
Ecuador, Guayaquil	Sept. 15–21	..	1
PLAGUE—UNITED STATES.			
California, Oakland	Oct. 28	1	1
San Francisco	Oct. 28	0	8
(Total from Aug. 12)		78	50)
PLAGUE—FOREIGN.			
British South Africa, Cathcart	Sept. 7	..	1
Algeria, Oran	Oct. 2	..	Present
Brazil, Rio de Janeiro	Sept. 8–20	8	1
China, Amoy	Sept. 1–7	1	1
Poochoo	Sept. 14	Still present.	
Hawaii, Hilo	Oct. 5	1	..
		At Olaa Plantation.	
India, General	Sept. 7–14	9,556	6,300
Bombay	Sept. 27–Oct. 5	..	26
Calcutta	Sept. 8–14	..	6
Rangoon	Sept. 15–21	..	29
Japan, Kobe	Sept. 1–21	7	7
Osaka	Sept. 15–21	5	5
Peru, Catacaos	Sept. 5–11	2	2
Mollendo	Sept. 5–11	1	Imported from Tambo.
Paita	Sept. 5–23	4	..
San Pedro	Sept. 5–11	1	..
Trujillo	Sept. 5–11	1	..
Manchuria, Kaiping	Aug. 30–Sept. 12	40	..
Siam, Bangkok	Aug. 1–31	1	1

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Original Articles.

DISEASES OF THE GASTROINTESTINAL TRACT ON THE BORDERLAND BETWEEN SURGERY AND INTERNAL MEDICINE.*

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IT has been a great pleasure to me to have been able to participate, in however trifling a degree, in the proceedings of this Association, which I look upon as a prominent acknowledgment of a principle which is daily forcing its way among us, and which is destined to play an important rôle in the future history and development of American medicine. I mean the interchange of clinicians and surgeons between medical organizations and universities in different States of our Union; and through them the dissemination of the various aspects and view points of medical problems as they present themselves to clinicians and surgeons in the various sections of this great country.

Upon the suggestion of that most brilliant of all monarchs, the German Emperor, an interchange of professors through Germany and this country is at present taking place, and this academic interchange will lead to a better understanding between the two nations than any principles of politics or diplomacy could accomplish. The highest thoughts of a nation are by no means embodied in those affairs that we call political. They are more likely to be represented in the aims of science, and in the principles of that science whose chief object is the preservation of human life.

By the interchange between our States we shall reach a better understanding of the various diseases occurring, as they do, over latitudes that are far greater than the territory of Europe; but one of the greatest prospects to be hoped for is a better understanding between the internist and the surgeon. Of the former we expect the most refined development of the physical methods of examination—percussion, auscultation, palpation, etc.; a more perfect control of the chemical and microscopical methods of diagnosis, and a deeper knowledge of pathophysiological processes; an exhaustive familiarity of the signs and symptoms of disease. All this in the nonoperating clinician on the one hand, and on the other, of the surgeon, the operating clinician, we expect an exhaustive knowledge of regional anatomy; of the many mechanical and physical appliances to aid in the recovery of objective lesions, and a masterly control of technique with all its collateral, chemical, and bacteriological detail.

Between these two domains of internal medicine a cordial understanding is necessary. What we hope for from the internist is not habitual prejudice against operation, not an exclusive and invariable expectant and conservative method of approaching the abnormal phenomena of life; and what we hope for from the surgeon is not invariably to advocate operation; but the attitude in both from which most progress is to be hoped for, is *cooperation.* Operative technique is in a ceaseless state of progress. The surgeons have the advantage that the statistics of operation and the indications and contraindications to operation generally incite extensive discussion. Such elements of surgery are more apt to cause the liveliest interest, not only of the medical profession, but of humanitarians at large. But the internist need not be discouraged at this, for I can say, for the American surgeon at least, that although radical and extreme positions and views have occasionally been announced, they have always been willing to recede from too dogmatic a position, when the untenability of it was demonstrated by a broad experience and conservative critical judgment. Thus the internist has lived to see that diseases which were at one time claimed to be only proper for the surgeon to treat, and that the internist was out of his latitude when attempting to treat them, have been conceded back to him, partially at least. Thus we have it from surgeons of very broad experience that appendicitis need not always be operated upon. They admit the possibility of permanent recovery without removal of the appendix. Such a distinguished surgeon as Treves condemns the operative replacement of the kidney for nephroptosis. Kehr, the greatest gallstone surgeon we know of, concedes that there are forms of cholelithiasis where the operation cannot cure the disease; it may become absolutely necessary to remove the gallstone (or stones), but this does not necessarily cure the abnormal hepatic metabolism which leads to gallstone formation. And in the following I hope to be able to present the evidence that even tuberculous peritonitis may be permanently recovered from under conservative or expectant treatment, although at one time laparotomy was considered the only chance the patient had for recovery.

THE EARLY DIAGNOSIS OF CARCINOMA OF THE INTESTINE.

In early diagnosis of intestinal cancers we must consider theoretically at least two stages: (1) the latent stage, (2) beginning of manifest symptoms. Concerning the first, the latent period, an early diagnosis cannot seriously be considered possible in the present state of our knowledge. Let us assume that a serum reaction for carcinoma had been made feasible as a result of revolutionizing research into the pathology and etiology of cancer. It seems to me that we are not far from a serum diagnosis of carcinoma by means of which we can recognize this disease even before manifest symptoms have occurred. But even if such an early diagnosis could be made on apparently sound individuals for the time being, great difficulties would stand in the way

*Address before the Medical Association of Greater New York, April 11, and before the Academy of Medicine at Cleveland, O., May 12, 1906.

of reaching an early diagnosis, for who cares for his health as long as the admonishing voices of definite disease symptoms do not compel care. Rectal carcinomata lend themselves most readily to an early diagnosis in the second sense—that dating from the first manifest symptoms. My own private cases of rectal cancer during the last fifteen years number sixty-six. Of these forty-eight cases did not consult me nor any other physician until four months had elapsed after the first symptoms appeared. On the average five months had elapsed since the beginning of the first symptoms, before my cases consulted me. There were fifteen cases that came before three months had elapsed, but only ten of these were found proper cases for operation, and of these ten only six lived two years after operation and then a recurrence of cancer took place. Of eighty-four cases of rectal carcinoma (1896-1905) Boas states that sixty-two did not appear before him for relief until at least three months had elapsed since the first symptoms. On the average there was a loss of time of six months. Of only nine cases that came before less than three months had elapsed, four could no longer be radically operated upon, and two had passed the period of a feasible operation.

Carcinoma of the Colon.—In thirty-six cases of carcinoma of the colon the clinical history showed a record of intestinal diseases of two years in fourteen cases; of chronic colitis of four years in two cases. In two cases the symptoms characteristic of obstruction were existing six and seven years respectively, and in three cases the patients asserted they had obstinate constipation and occasional severe colitis for seven, eight, and nine years respectively. In fifteen cases the most searching inquiry failed to reveal any reliable data for the beginning of the intestinal difficulty.

The majority of cases, even of those that come to the clinician early, do not yet come early enough. *The prospects for early diagnosis of intestinal neoplasms are not favorable at present. The time for early diagnosis is beyond the limit of recognition of patient and diagnostician.*

Carcinoma and Sarcoma of the Duodenum, Ileum, and Jejunum.—From records of private practice I am able to report sixty cases of carcinoma and sarcoma of the duodenum, ileum, and jejunum, occurring during the last five years and in the clinical history of which there is a record of the time that elapsed between the appearance of the first noticeable intestinal symptoms and the time at which medical advice was sought.

Average time from appearance of first symptoms to consultation of physician: In twelve cases of carcinoma of the lower ileum, six months approximately (six months ten days to six months and eighteen days).

In twenty cases of carcinoma of the ileocecal valve, cecum, or end of ileum, four months.

In eight cases of carcinoma of the duodenum, extending from the pylorus or gallbladder, two months two weeks.

In eleven cases of carcinoma of the stomach with metastases in jejunum, ileum, and mesentery, average time, three months one week.

In one case of sarcoma of the ileum and splenic flexure of the colon, three months.

In eight cases of carcinoma of the upper ileum with metastases in the jejunum and mesentery, four months and two weeks.

Résumé.—We have before us, therefore, sixty-six cases of rectal cancer, in forty-eight of which the patient did not consult me or any other physician until four months had elapsed since the first noticeable symptoms had become manifest.

Taking them as a whole, five months had elapsed on the average before these patients had consulted me, and even of those who consulted me before three months had elapsed, only ten were operable; and of those ten only six lived two years after the operation.

In thirty-six cases of carcinoma of the colon, twenty-one cases had symptoms of severe intestinal abnormalities existing from two to nine years prior to their consulting me.

Of sixty cases of cancers of the small intestine, the average time from the appearance of the first symptoms to the consultation with the physician varied according to the situation of the cancer. In twelve cases of carcinoma of the lower ileum, this period was six months and fourteen days. The other dates are given above. Here we have a total of 162 cancers of the intestine as they present themselves in private practice, all coming too late for an early diagnosis and arriving at a time when the most enterprising surgeon would decline to do anything more than an exploratory laparotomy.

In the present state of our knowledge, therefore, the time of the early recognition of carcinomas of the digestive tract is so problematical that it will only exceptionally be possible. It is, therefore, of utmost importance that the researches of a biological and pathological nature aiming towards a serum diagnosis of malignant tumors should receive the encouragement of endowed institutions for medical research. I will have to refer the reader to previous publications on this subject for a more complete elucidation of the direction this form of investigation should take.[1]

CURABILITY OF TUBERCULOSIS OF THE PERITONEUM WITHOUT OPERATION.

In 1862 Spencer Wells operated upon a peritoneal tuberculosis owing to a diagnostic error, and for the first time a cure was observed to result from this treatment. Then followed König,[2] whose published observations caused a sustained preference for this method of treatment, and the following three publications, by Lindner[3] in 1892 with 205 cases, by Roersch in 1893 with 358 cases, and by Adossides[4] in 1893 with a report of 405 cases, give account of a total of 968 cases treated in this way. A number of these cases of tuberculosis peritonitis cured by laparotomy were seen at a second operation undertaken for some other cause, on which occasion the peritoneum could be thoroughly inspected and was found free from adhesions and perfectly smooth. The observations had the effect that the majority of surgeons and even of internal clinicians formed the opinion that laparotomy was the only effective treatment for this disease which otherwise would be fatal.

The question for the thinking clinician to decide is whether a tuberculous peritonitis, not treated by laparotomy, is really as malignant, whether its prognosis is actually as bad, as has hitherto been believed. In this connection it would be instructive to learn what the experience of representative clinicians in Europe and this country has been on this subject.

Nothnagel,[5] after emphasizing that the curability of tuberculous peritonitis has been demonstrated by operative observation, does not doubt the possibility of spontaneous cure.

Naunyn, in his lectures, expresses himself as follows: "The prognosis in the majority of cases is bad, but spontaneous cures and improvements are not as seldom as other authors assume." He adds:

"Only a small fraction of our cases have been transferred to surgical treatment."

Strümpell [6] holds that the prognosis of tuberculous peritonitis is absolutely unfavorable; in a few weeks or months a fatal end occurs. In some cases, however, a favorable result occurs in chronic tuberculous peritonitis, or at least a very evident improvement. This cure is only apparent, not an enduring one, for later on the tuberculous process occurs anew in some other organ.

Henoch [7] recommends that the peritoneal tuberculosis of children should be treated by laparotomy, in view of the "hopelessness of any internal therapy." If, in rare cases, a cure results by internal treatment, he considers that they were really not cases of tubercular peritonitis, but some simpler type of chronic peritonitis.

Pribram [8] reports spontaneous improvements which in rare cases have been followed by permanent cure.

Kussmaul [9] describes the case of a young girl with tuberculous peritonitis and incessantly swollen belly, who recovered spontaneously in spite of very impoverished environment.

The surgical and medical treatment of tuberculosis of the peritoneum is very ably compared by E. Graser,[10] but while the results of laparotomy are placed in a brilliant light, the results of conservative treatment are not compiled. The possibility of spontaneous recovery from the disease is, however, mentioned.

H. Braun,[11] in an article on tuberculous peritonitis, says the only successes possible are to be attributed to laparotomy. He does not doubt that spontaneous recoveries may occur, but this fact is not emphasized.

Classification.—The expressions used in classifying the different forms of peritonitis differ according to the view point of the observer making them. Thus we can already see in the literature of this subject three kinds of classifications of peritonitis, according to the standpoint of (1) the internal clinician, (2) the surgeon, and (3) the pathological anatomist. A favorable classification among surgeons is into three forms of peritonitis: (1) the simple exudative form or ascites; (2) the dry or adhesive form, and (3) the ulcerative and purulent form. According to König and Roersch laparotomy is capable of curing all three forms under certain conditions, but other surgical authors do not share this opinion. Pic recommends laparotomy only for the fibrous form with or without ascites, and Frank [12] found a mortality of 100 per cent. in the ulcerative purulent form of tuberculous peritonitis, seventy-four per cent. in the adhesive dry form, and thirty-four per cent. in the exudative form. The anatomical classification is beyond doubt the most exact and had best be considered under two headings, (1) acute and (2) chronic forms of peritonitis; under each of these there are several subdivisions.

Acute Forms of Peritonitis.—(1) Circumscribed, nonpurulent peritonitis. (2) Circumscribed, purulent peritonitis (abscess of the abdominal cavity). (3) Progressive purulent peritonitis: (*a*) Fibrinopurulent, (*b*) purulent, (*c*) gangrenous or ichorous form.

Chronic Forms of Peritonitis.—(1) Serous or serofibrinous peritonitis: (*a*) Purely serous, (*b*) partially adhesive, (*c*) diffusely adhesive form. (2) Purulent peritonitis: (*a*) Encapsulated, (*b*) diffuse chronic, purulent peritonitis. (3) Neoplasms of the peritoneum: (*a*) Tuberculous peritonitis, (*b*) benign neoplasms, (*c*) malignant neoplasms.

Neither the surgical classification above mentioned nor the pathologico anatomical classification can be followed by the clinical internist, for both of these classifications require in most cases that the peritoneal cavity of the living or dead body shall be opened before the diagnosis can be made. *The internist, however, is restricted to methods of physical and chemical diagnosis and the symptomatology of the case.* In a consideration of tuberculosis of the peritoneum, like the present, from the viewpoint of the internist, especially when the object and purpose is to demonstrate the possibility of a cure of this disease by nonsurgical methods, one has to be prepared to meet the objection that any given case of peritonitis which he cures may really not be tuberculous. In the following I will endeavor to give my experience in differentiating the different forms of peritonitis, but I wish to emphasize right here that *it would be very unfortunate for internal medicine if the clinician were allowed to diagnose only those diseases that could be objectively demonstrated to the eye.* The surgeons are given the opportunity for what might be called "an autopsy during life," but in defense of the purely clinical methods of the internist it should be said that the operative era has been of especially great value for the diagnosis of peritoneal tuberculosis, inasmuch as the operators have proven that tuberculous peritonitis is too seldom diagnosed and that it never is absent when the internist suspects it.

Clinical Types of Peritonitis.—In enumerating the various forms of peritonitis that might be confused with tuberculosis of the peritoneum I will, for the sake of brevity, pass over those forms of inflammation that are due to infection (1) through the genital tract in the female perioophoritis, perimetritis, (2) from the digestive tract, perigastritis and perityphilitis, (3) from the biliary apparatus, pericholecystitis, etc. There are forms of peritonitis also which occur secondarily during the course of chronic heart and kidney affections. These will also be passed over.

The more important left then are the following:

1. When peritoneal tuberculosis gradually develops with the clinical picture of simple ascites it is sometimes difficult to distinguish from the ascites due to cirrhosis of the liver. Both diseases may occur together. I have personally observed a case of peritoneal tuberculosis associated with typical hepatic cirrhosis. In those cases the diagnosis is extremely difficult.

2. Infectious diseases like measles, typhoid fever, and dysentery are sometimes found associated with ascites. Cases are on record where an ascites occurring during the course of measles was operated upon and the entire peritoneum was found covered with miliary tubercles.[13]

3. Malignant tumors of the peritoneum, intestine, gallbladder, or pancreas may be very difficult to differentiate from the tumor form of tuberculous peritonitis. For a distinction between such cases reference must be had to special works on the intestine and peritoneum. (Nothnagel, Hemmeter.)

4. There is a type of ascites that occurs in young girls during the period of adolescence called by French authors "ascite des jeunes filles." This is not due to an inflammation but is supposed to be caused by hyperemic and hypersecretory conditions of the peritoneal regions approximate to the inner genitalia. It disappears spontaneously after the first menstruations have occurred.[14]

5. Traumatic peritonitis. Chronic exudative peritonitis that is not tuberculous may occur after injuries to the abdomen. Cases of this type have been described by Henoch.[7]

6. In 1884 Curschmann [15] described a chronic inflammation of the peritoneum of a very peculiar type

and of nontuberculous nature which he entitled "Chronic Fibrous Polyserositis." It is always associated with a perihepatitis of the same peculiar type, giving the peritoneal and abdominal organs the appearance of being enclosed in a cast of opaque sugar "Zuckergussleber," "Zuckerguss der Serosen." The cause of this condition is not known. It has been observed after various infectious diseases and after circumscribed forms of peritonitis (cholelithiasis and perityphilitis). Curschmann states that the disease is characterized by two features, namely, a much reduced small hard liver, cylindrical at its edge, and a very protracted course, lasting from two to sixteen years. A distinction between this disease and tuberculosis of the peritoneum would be very difficult if no other signs of tuberculosis were in evidence, but this so-called Curschmann's disease is so rare that the diagnostician will not often be required to make this distinction.

7. Idiopathic chronic peritonitis. If we deduct from all possible forms of peritonitis those that are due to inflammations starting from the internal abdominal organs, those due to cirrhosis of the liver, to malignant tumors, to traumatic influences, the ascites in young female children and the chronic fibrous polyserositis, very little is left for the so-called idiopathic form. I have never seen a form of this type and doubt its occurrence, and I agree with Nothnagel, who states that the demonstration of a genuine primary idiopathic peritonitis has not yet been given. All of the cases that could possibly be classed as idiopathic would, in my opinion, be found to be tuberculous if some of the exudate were injected into the peritoneum of guinea-pigs or if the tuberculin test were made. Pribram [8] found among 3,500 autopsies by Chiari 165 cases of chronic peritonitis, but not a single one of them could, in his opinion, be designated as chronic idiopathic peritonitis without tuberculosis.

Differential Diagnosis.—In speaking of the diagnosis I shall not attempt to give the objective and subjective signs and symptoms that characterize all the forms of peritonitis which I have mentioned in the preceding, but simply emphasize three methods by the aid of which we are enabled to determine at least what is a tuberculous peritonitis and what is not. They might almost be called specific reactions for tuberculosis. These are:

1. Intraperitoneal injection into guinea-pigs of some of the peritoneal exudate. In three of the cases in my experience this method has helped us materially to make the diagnosis absolutely certain. I would suggest in doubtful cases to have the exudate drawn from the most dependent (lowest) portion of the peritoneal cavity, because the success of the infection in the guinea-pig depends upon the presence of the tubercle bacillus in the exudate; and one is more likely to get the bacilli in the pelvic portions of the peritoneum if the patient has been in the erect position for eight to ten hours.

2. Injections of tuberculin (Koch). With this material I have had a very extensive experience, having used it very often since 1890 for the diagnosis and treatment of pulmonary, gastric, and intestinal tuberculosis. In my work on diseases of the intestines (Chapter of Ulcers), I have described a case of tuberculous ulcer of the rectum which was diagnosed and cured by the injection of tuberculin, it being possible to observe the cure by inspection through the proctoscope.

3. The diazo reaction of Ehrlich. This has, in my experience, been a very valuable aid to secure a diagnosis in doubtful cases. If the diazo reaction is very decided and occurs repeatedly during several weeks, one has a right to suspect that any enlarged gland or abdominal tumor or peritonitis is due to a tuberculous process. A patient in my practice (female), aged thirty-eight, consulted me for severe abdominal pains and symptoms of obstruction. A tumor was palpable in the right iliac fossa that might have been mistaken, and was at first considered an appendical tumor. The diazo reaction was repeatedly found and an operation advised. Prof. L. McLane Tiffany found a tuberculous tumor of the colon involving the iliocecal valve, and at the same time there was a general tubercular peritonitis, but the tumor itself was not due to the tuberculosis of the cecum, but to a large caseous conglomeration of glands in the omentum. It is usually considered that a very evident diazo reaction is indicative of a very bad prognosis in pulmonary tuberculosis, and that such patients should be excluded from treatment in public institutions for tuberculosis. In cases of peritoneal tuberculosis, however, a very strong diazo reaction, lasting for six and even for eight weeks, need not necessarily be a cause of hopelessness, for such cases have been known to become very much improved, and even free from fever. There are cases of peritoneal tuberculosis on record which in spite of the diazo reaction, were cured by the conservative method, and remained cured for two and four years. The reliability of the diazo reaction is doubtless limited; typhoid fever, sepsis, miliary tuberculosis, and other conditions mentioned in most of the works on clinical chemistry, must be excluded; but if the yieldings of the first two methods support the diazo reaction there can be no doubt as to the existence of tuberculosis.

I have compiled eighty cases of tuberculosis of the peritoneum from the statistics and clinical records of the Hospital of the University of Maryland, Bayview Hospital, and from consultation and private practice. Twelve of these cases did not occur in my own private practice, but were seen by permission of other physicians, yet could be studied with sufficient thoroughness to definitely establish a diagnosis of peritoneal tuberculosis, not only from the clinical history, the results of physical examination of the lungs, but also one or more of the objective methods referred to in the preceding.

The question for us to decide was whether any so-called cure was possible by conservative or expectant treatment; and secondly, whether operative treatment could accomplish anything more and give evidence of any better results than the conservative treatment. In the American literature on the subject of prognosis of tuberculosis of the peritoneum, these two points are by no means satisfactorily investigated. There is a compilation of 357 cases collected from literature in the Johns Hopkins Hospital Reports, Vol. II., but there is no effort to ascertain the comparative merits of the operative and the conservative treatment of this disease of the peritoneum; nor could I find this point considered in our standard textbooks on the Practice of Medicine by American authors. Without going into a detailed quotation of American authors on this subject, it can be said that up to the year 1900, at least, the great majority held the view, and still holds the view, that tuberculosis of the peritoneum is almost always fatal unless treated by laparotomy. Even the most conservative internist shared the view of the surgeon that laparotomy gave decidedly better results than conservative treatment. In fact, at one time this operation was almost looked upon as a specific means of cure. It was, therefore, very astonishing to learn of the views of a prominent surgeon, in which he emphasized the possibility of spontaneous cure of tuberculosis of the peritoneum more

emphatically than any internist had ever done before. I consider this contribution so important that I will give a condensed abstract of it in the following:

Borchgrevink[17] found that those cases of tuberculous peritonitis healed most readily in which he found the tubercles already in a process of healing during laparotomy, and vice versa. He describes (p. 430) a primary healing of tubercles during which they disappear entirely, without leaving a trace on the peritoneum. This is the rule in peritoneal tuberculosis, and caseation of the tubercle is the exception. In the tissue of the serosa the growing tubercle produce a histological and physiological reaction that leads to proliferation of connective tissue cells and the appearance of leucocytes in varying numbers. Thus the serosa swells up around the tubercles which apparently sink deeper and deeper into the surface of the peritoneum. Eventually an organization occurs in this proliferation, most pronounced in the most superficial layer, and later a microscopical examination shows no tubercle bacilli nor giant cells. They appear as small fibroid nodules, but sometimes may yet produce tuberculosis when inoculated into guinea-pigs (p. 441). A simple (idiopathic) chronic peritonitis independent of tuberculosis does not exist, according to Borchgrevink. In six of his cases that were formerly sound with no hereditary history of tuberculosis, no tuberculosis of other organs, and that healed readily and definitely, it was proven that they were tuberculous after all, because the infectiousness of their exudate for guinea-pigs was shown by inoculation.

Laparotomy, according to Borchgrevink, exerts no healing influence on tuberculosis of the peritoneum (p. 446). The reported cures attributed to operation were in reality due to the spontaneous healing already described. Borchgrevink, therefore, rejects laparotomy as a curative means for all cases of tuberculosis of the peritoneum (p. 450).

The description of the resolution of the peritoneal tubercles in this article is given with all the evidences that usually reveal a complete mastery of the pathology of this subject. The account of the retrograde metamorphosis of tubercle stamps Prof. Borchgrevink as a very thorough surgical pathologist. He reports a clinical material of forty-four cases, and in addition three cases of perforation peritonitis. Of these, one-half, or twenty-two cases, were operated upon, and one-half were treated by the conservative or expectative method. In the cases that were treated by operation there were sixty-four per cent. of cures, and among the cases that were treated by the conservative method there were eighty-two per cent. of cures. Of those eighty-two per cent. of spontaneous cures there were forty-one per cent. that remained lastingly sound and well; namely, were reported well one to two years after they left his observation. A further twenty-seven per cent. were well two years after; so there are really sixty-eight per cent. of cures which lasted over one year as a result of the conservative treatment.

Borchgrevink is a surgeon, and it is therefore so much the more surprising that he should absolutely deny any curative effect to laparotomy in tuberculous peritonitis. My personal experience and opinion is that this view of Borchgrevink, while perfectly justifiable, if deductions are made only from his own cases, is too sweeping a view, if we should apply it to the results of our American surgical statistics of laparotomy for tuberculosis of the peritoneum. For although there may be a smaller percentage of cures after laparotomy for this disease, one cannot fail to recognize that there are a great many cases in which marked improvement followed, though here again one has to decide how much of the improvement is due to the laparotomy itself and how much is due to the favorable conditions of hospital environment and to the normal processes of repair.

As was said above, of eighty-two per cent. of Borchgrevink's spontaneous cures, forty-one per cent. were reported perfectly sound one to two years; and twenty-seven per cent. two years after they left his hospital; all in all sixty-eight per cent. of cures lasting over one year. This brings me to define what is meant by a permanent cure in operative and nonoperative cases. We should at least require that a case has been *observed by some reliable physician and reported well one year after the laparotomy or after the conservative course of treatment before we should feel justified in classing such a case among the cures.* I have observed in numerous American reports on operative cures of this disease that the writers do not speak of the length of time during which the after history of the operative case was controlled and reported by a physician. In the German reports by surgeons, the same objection can be urged against the great majority.

In an article on "Surgical Tuberculosis of the Abdominal Cavity," with special reference to tuberculous peritonitis, William J. Mayo[18] does not state definitely how long he had observed his cases of tuberculous peritonitis after this operation. In one place he states that since January of this year, meaning January, 1905, he operated on sixteen cases of tuberculous peritonitis; but as the article is published in April, 1905, this does not leave a sufficient time to speak of a cure in the sense of the term as it has been defined above. In another place Mayo asks the question, "Can we prevent a relapse?" and answers, "Certainly we can in many cases," and then continues, "Of twenty-six radical tubercle operations we have made on cases of tuberculous peritonitis, twenty-five recovered, and of these seven had been operated on by simple laparotomy one to four times previously; in not a single patient as yet has another operation become necessary." While this paper of Dr. Mayo is unusually meritorious because it emphasizes the necessity of seeking out the source of infection, either the appendix, the cecum, or the tubes and ovaries in women, and that a cure is more likely to follow if reinfection could be prevented by removal of the original portal of entry, it leaves us in doubt regarding the main condition upon which a claim of a cure can be made; namely, the time during which the patient was authentically observed after the operation. Mayo thinks the failure of simple laparotomy and evacuation of the fluid exudate in tuberculous peritonitis to maintain a high place in surgery is due to reinfection from lesions in the mucous membrane of the Fallopian tube, appendix, or some part of the intestinal tract. He admits, as is undoubtedly true, that the original infecting lesion can many times not be discovered, and that not all cases of reinfection can be explained by overlooking of the original source of infection. Mayo also admits that expectant or conservative treatment may many times cure the primary lesions by aiding a natural process of cure which I have described in the preceding.

We have here a fair-minded surgical presentation of the subject, which endeavors to do justice to the possibilities of cure that may come from a purely conservative treatment. We shall not reach the real truth as to which is the most expedient and correct course to pursue in the treatment of tuberculous peritonitis by asking whether we are to treat them all surgically or all by the expectant or conservative method. Put in this manner, the proposition with which we have to deal could not be settled

except in an unsatisfactory and dogmatic manner. The surgeons should, personally and individually, convince themselves of the spontaneous natural cure of tuberculosis of the peritoneum, to be impressed with capabilities of the normal forces of the body tending towards recovery (phagocytosis, opsonins, etc.), and in any given case be guided by accompanying conditions. For instance, I have known a number of cases operated upon that terminated fatally because the vital resources of the patient were too exhausted to overcome the effect of the narcosis and laparotomy. From the condition of the peritoneum I formed the idea that if the laparotomy had been postponed and executed, say a month later, the patient might have recovered.

The internist, on the other hand, should not gain the impression from Borchgrevink's work, nor from my experiences, as stated herein, that conservative medical treatment will always and under all conditions give better results and a larger number of cures than surgical treatment. There are cases of tuberculosis of the peritoneum which should always be operated; that is, as soon as certain accompanying constitutional signs and symptoms are evident, a laparotomy should be done. The rules that should serve as guiding lines to determine which cases should be operated and which should not, can only be determined by very large and objective experience and mature critical judgment.

I am not dealing in this report with acute peritonitis, nor with perforative peritonitis, nor with traumatic nor postoperative peritonitis; but with that form of peritonitis caused by the tubercle bacillus, and I desire that my remarks should be strictly interpreted as confined to this condition. The fact which William J. Mayo points out that removal of the Fallopian tubes effects a more permanent cure of the peritoneal tuberculosis if they constitute the source of infection, is shown in the following results of Adolf Frank,[12] published in 1900.

The conclusions of Adolf Frank are:

1. The best prognosis is met with in operative treatment of the exudative form of peritoneal tuberculosis, with forty to fifty per cent. definite cures.

2. In the adhesive form there is a grave prognosis; only twenty-five per cent. of operative cases are cured.

3. The ulcerative suppurative form has a very grave prognosis.

4. In the exudative as well as adhesive form the best prognosis is found in those cases of peritonitis that emanate from the female genitalia, and which are treated by removal of the adnexæ. In this manner seventy-five per cent. of the exudative, and fifty per cent. of the adhesive form are cured.

5. The attempt to relieve peritoneal stenotic phenomena by laparotomy and enteroanastomosis, appears justifiable, although the results leave much to be desired.

6. Tuberculous fecal fistulæ yield an exceedingly grave prognosis.

7. In ovarian cystomas associated with peritoneal tuberculosis, a definite prognosis cannot be established on account of the deficiency of material.

8. A compilation of nonoperative cases with a view to learning the permanent cures, and also those treated by abdominal puncture or aspiration, is exceedingly desirable.

The greater frequency of peritoneal tuberculosis in the female is undoubtedly due to the greater liability of infection by way of the adnexæ (Murphy, "Tuberculosis of the Female Generative Organs"). That a conservative treatment in such cases is liable to be followed by reinfection is a point in which I must agree with J. B. Murphy, Ochsner, and the Mayos, and it simply shows that this question cannot be decided by castiron rules one way or the other. It is still a subject that is on the borderland between surgery and medicine; yet I should like to formulate three conditions under which a tuberculous peritonitis should not be operated upon.

1. A diffuse tuberculous peritonitis, with high fever, is not a proper condition for operation. Such patients should be given a chance for improvement under conservative treatment.

2. Diffuse or localized forms of tuberculous peritonitis, with the objective signs of extensive irritation of the peritoneum (irritation meaning sensitiveness, not necessarily inflammation), and with symptoms of intoxication of the entire body. In these the operation should be postponed.

3. A general systemic infection and pronounced weakness should contraindicate the operation.

4. Extensive tuberculosis of other organs (lungs, larynx, liver, pleuræ) is a contraindication for operation.

Personal Observations.—Of the eighty cases of tuberculosis of the peritoneum which I could study personally, eleven could not be traced for sufficient length of time to render them available for this report. Of the sixty-nine cases that could be reached by correspondence with their physicians or because they belonged to my own private practice in Baltimore and its environs, twenty were operative. Of these twenty that were operated upon, the following gives the result one year after the date of operation:

John M. C. Diffuse peritoneal tuberculosis; source of infection unknown; laparotomy; living and well fourteen months after date of operation.

Henry H. O. Acute tuberculosis of the peritoneum and pleura; laparotomy; tuberculous appendix removed; well and sound two years after laparotomy.

Miss Elizabeth J. A. Tuberculosis of the peritoneum; no ascites; permanently cured, four years after operation.

Frank D. P. Tuberculous peritonitis; laparotomy; cured and well fourteen months after operation.

Anna W. J. Ascites, tuberculosis of the pleura; apparently cured three months after operation; relapse; pulmonary hemorrhages, fever; second ascites five months after original laparotomy; second laparotomy in Philadelphia; death.

Annie R. Ascites, tuberculosis of the lungs; laparotomy; improvement of six weeks, then double-sided exudative pleurisy and death. Ascites returned two weeks before death.

Miss R. T. Tuberculosis of the lungs, circumscribed fluctuating mass in the abdomen; laparotomy; no improvement; death four weeks after laparotomy.

Mrs. Julian B. F. Tuberculous ascites; laparotomy; improvement for three months, return of ascites at the end of third month, palpable tumor in right iliac fossa; reported second laparotomy in Washington and death.

Mrs. A. C. H. Tuberculosis of the peritoneum, otitis media, tuberculosis of the skin below the right ear; laparotomy; improvement for six weeks; return of ascites, high fever, pleurisy; death.

Dr. A. S. R. Tuberculous ascites; tuberculous swollen knee joint; laparotomy; writes that he is well six months after laparotomy; eight months after laparotomy report of his death from his physician.

Mrs. E. de V. Tuberculous ascites, tuberculosis of tubes and ovaries, fever of 103.5°, pleurisy; laparotomy; improvement for three months, then

gradual aggravation, pleuritic effusion, which is withdrawn by aspiration; as the pleurisy is recovered from the ascites returns; second laparotomy, removal of tubes and ovaries, which were found tuberculous; death two weeks after second operation.

Mrs. J. H. S. Tuberculous ascites; reports that fluid has already been withdrawn twice by tapping; supposed cirrhosis of the liver, but positive reaction to tuberculin tests; guinea-pigs become infected with tuberculosis by ascitic fluid, withdrawn; laparotomy; high fever continued; no improvement; death one month after laparotomy.

From the service of Prof. Randolph Winslow, University of Maryland, I am enabled to report the following cases of tuberculous peritonitis that were treated by operation:

E. C. E. Attorney, aged fifty-five; great emaciation, ascites; differential diagnosis between tuberculous peritonitis and cirrhosis of the liver could not be definitely established; laparotomy revealed tuberculous peritonitis; greater omentum retracted and rolled up into a strip; first seen November, 1905; improved after the operation, but lived only two months thereafter.

Miss P. T. Aged fifteen; admitted November 2, 1903; discharged December 1, 1903, very much improved; entered with fever, rapid pulse, distended abdomen and ascites; laparotomy revealed peritoneum studded with tubercles; drainage with gauze for forty-eight hours; there is no record of the length of time this case was observed and known to be well after the laparotomy; she is therefore not counted among the cures. (A recent report gives her present condition as favorable. September, 1907.)

W. M. White, male, aged sixteen years; seen by Dr. Winslow at House of Refuge, Baltimore, August 5, 1900; sent to the hospital of this institution with very high fever, pain in the abdomen; was supposed to be suffering from typhoid fever, and then sent to the University of Maryland; admitted August 11; emaciation, diarrhea, abdominal tenderness, irregular temperature, 99° to 103° F.; still supposed to be typhoid fever; a Widal reaction was reported positive; a sudden fall of temperature from 103° to 97° caused the suspicion of a perforation; laparotomy revealed tuberculosis of the peritoneum; complete recovery; reported sound and well six years after the operation.

W. R. B. White, female; probably from service of Prof. Frank Martin; tuberculous pleurisy, which was aspirated a year before admission to the hospital; admitted for supposed intestinal obstruction; ascites; laparotomy; tuberculosis of the peritoneum; recovery from operation, but symptoms of intestinal obstruction continued; death six weeks after the operation; intestinal obstruction due to peritoneal adhesions and large tuberculous mesenteric glands.

From the service of Prof. L. McLane Tiffany, of the University of Maryland:

C. J. Colored, female, aged sixty; tuberculosis of lungs, ascites; laparotomy; death within a week thereafter.

M. S. Colored, female; tuberculosis of the lungs, ascites; tuberculosis of Fallopian tubes and peritoneum; laparotomy; improvement; seen four months after operation; death reported six months after operation.

Mrs. J. White, aged thirty-six; ascites; peritoneum studded with tubercles; laparotomy; reported well two years after operation; may still be living.

J. C. McG. Male, white; ascites; tuberculosis of the peritoneum and of the lungs; laparotomy; death four weeks after operation.

From these twenty cases, then, I conclude that seven have been cured by operation, which makes a recovery of a little over one-third of the cases. Seven of the twenty were males and thirteen were females. It is interesting to note that of the seven cures five were in men. These cures did not occur in my own practice, but in the practice of colleagues, and some of them came from a great distance and lived where surgical help was not near, and I had to depend upon the reports of the physicians in the country for a knowledge of the progress of the case.

Forty-nine cases were treated medically; I include in this medical treatment the aspiration of extreme ascitic effusion by means of the same apparatus which is used for the aspiration of large pleuritic effusion. Thirty-two of the forty-nine cases treated by the conservative method were reported dead within eight months to one year after they were first seen. Seventeen were reported still living one year after they were first examined for treatment. Five were living three years after the first conservative treatment, two four years after the treatment, six two years after the treatment, and four one year and three months to one year and five months after the first conservative treatment. All in all, this makes seventeen lasting cures out of forty-nine cases treated by the conservative method. This is about one-third of the cases treated medically. While the results are about the same as for surgical treatment, it is necessary to point out that *the duration of the cure after the time of the first medical treatment was much longer in those cases that were treated conservatively than in those cases that were treated by operation.*

Koenig[19] claimed that one-fourth of all his operative cases of tuberculous peritonitis were cured. Czerny claimed thirty-eight per cent. of recoveries. Mikulicz and Rotter give forty-three and fifty-six per cent. of recoveries respectively.

A number of the statistics that have been reported, for instance, those of Frank, who give fifty per cent. of spontaneous cure, and those of Pic, who give twenty to thirty per cent. (quoted from A. Rose[20]), are not based upon a sufficiently large number of statistics. While I cannot confirm the results of the Surgeon Borchgrevink that more cases are cured under a purely conservative medical treatment than under operation, nevertheless my experience proves that at least as many cases of tuberculous peritonitis recover under the expectant or conservative treatment as will recover after an operation.

PEPTIC ULCER OF THE DUODENUM AND JEJUNUM FOLLOWING GASTROENTEROSTOMY FOR BENIGN STOMACH DISEASES (STENOSES).

The digestive act in the human being is so arranged that it occurs in media of varying chemical reactions. It begins in an alkaline, or at any rate, a neutral medium in the mouth. This is the beginning of amylopsis by ptyalin. Next follows a proteolytic action in the acid medium of the stomach. The pepsin of the gastric juice is not active in any but an acid medium, in fact, it forms an unstable compound with the hydrochloric acid. The next portion of the digestive tract is not adapted to the same degree of acidity of contents as the stomach, therefore, we find in the duodenum secretions which contain a great deal of alkali, whose immediate effect is the neutralization of the acid gastric chyme. The bile and the pancreatic juice as well as the intestinal juice of the upper part of the bowel, contain enzymes which are active only in an alkaline medium. If the HCl as it passes through the pylorus is not neutral-

ized the pepsin is still active. The columnar epithelium of the stomach has become resistant to pepsin HCl by a process of adaptation, but this is not the case with the epithelium of the duodenum. If there is free HCl in the duodenum the pepsin will attack the epithelium. This together with an altered state of the mucosa of the duodenum constitute the fundamental causes of duodenal ulcer. There are other causes, such as toxins circulating in the blood ("sepsin" of Edwin S. Faust, Pharmaceutical Laboratory, University of Strassburg) and also the toxins which result from extensive skin burns, but for our present purpose the above process of pathogenesis is of more direct bearing. We see, therefrom, that nature's purpose is to compel the acid chyme of the stomach to pass the orifices of the bile and pancreatic duct, and above all things that degree of acidity in the stomach should not, for any length of time, exceed two parts per 1,000. If, therefore, in gastroenterostomies for benign obstructions of the pylorus where the gastric juice is active (indeed very frequently it is hyperactive) it becomes necessary to establish an artificial communication between the stomach and the bowel, care must be taken to insure such a course for the food as nature intended it should take, for if the hyperacid gastric contents containing considerable active pepsin, continually pass over a duodenal mucosa, which is already chronically diseased, it is evident that conditions must become aggravated, and eventually duodenal or jejunal ulcer may develop.

My personal experience with such grave consequences of operation has all been in private practice. I have been consulted in the same case many different times, by surgeons who had operated for obstruction of the pylorus several months before, and who were obliged to operate a second time because of the return of intense pains and blood in the stools. I regret that it is impossible for me to publish my personal experience on such cases in full, the reason for this inability being that the particular patients were not seen often enough and the surgeon in charge preferred to publish the cases at some future period, but my experience does not differ much from that of Tiegel, which I quote in full in the following.

As a representative of that class of clinicians, who are endeavoring judiciously to cooperate with the surgeon, I desire to express the hope that as a result of this symposium there may be an effort on the part of the surgeons to convince themselves by personal investigation of the power for effecting a cure contained in the nonsurgical methods of treatment. This effectiveness of purely medical treatment holds good both before and after operation, even when such operations have become absolutely necessary, for it is possible to reduce the hyperacidity of the gastric juice and to heal a duodenitis and jejunitis.

Max Tiegel[21] reports twenty-two cases. The diagnosis is difficult in chronic cases; a sure diagnosis is impossible. The symptoms are the same as those of penetrating ulcer of the stomach. Medical treatment, because diagnosis cannot be made with certainty, is beset with difficulties. Surgical treatment is even more unfavorable. Of thirteen cases Tiegel states three died immediately after the operation. In eight cases there was a return of jejunal peptic ulcer. Only in two cases was the operation followed by radical cure, and in these two cases a long postoperative observation of the cases is not reported, and as recurrence of jejunal peptic ulcer in some reports is stated as coming on very long after the operation it is necessary to insist on a long observation of postoperative cases. Heidenhain reports a case that was operated upon a second time for recurring jejunal peptic ulcer and studied for four years, during which time he remained free from further intestinal ulcer. Of the recurring jejunal ulcers Tiegel reports two cases operated upon after the gastroenterostomy. In both a jejunostomy was undertaken. The first showed fresh ulcers at the pylorus, the second showed an ulcer at the place of the gastroenterostomy, which ulcer was excised; a jejunal fistula of jejunum was made (*i. e.* a third operation) and the patient was fed for three months through a tube inserted into the fistula. During this time, as well as three and a half months after removal of the tube, the patient was free from complaints. Then followed new symptoms which were found to be due to a new ulcer at the place of enteroanastomosis. The improvement due to jejunostomy was only transient in this case, and Tiegel now advises to discard a subsequent jejunostomy in such types of cases and substitute the digestive process in the stomach by rectal nutrition. Although rectal alimentation has a much inferior value for nutrition it should be preferred, as a transient measure, to a severe operation, very doubtful in its results, especially when one considers that these means and conditions of alimentation during jejunostomy are by no means ideal.

In view of these discouraging results of secondary operations in cases of jejunal peptic ulcers, a longer concession should be made to purely internal treatment. At least a very extensive attempt with the internal treatment should be made before proceeding to another operation. (Bed rest, liquid diet, rectal alimentation, hot external cataplasms, belladonna, alkalies, bismuth subnitrate, nitrate of silver, etc.) The etiology of jejunal ulcer is not uniform. There are three main causes: (1) Effect of gastric secretion retained by contraction of intestine below the point of gastroenteroanastomosis. (2) Circulatory disturbances. (3) Neurotrophic influences.

Dr. Stephen Watts[22] has reported two cases of peptic ulcers of the jejunum occurring in a dog after gastroenterostomy (published also by Mikulicz[23]). This paper contains an excellent illustration of the condition and and analysis of all cases reported in man to that date.

Of peptic ulcers of jejunum observed only after gastroenterostomy for benign disease of stomach, chiefly in males, there are two tpyes: (1) Those that are at first completely without symptoms, then a sudden perforation takes place into the peritoneal cavity. (2) Chronic cases, with severe pains and adhesions to other abdominal organs. These cannot be distinguished from penetrating gastric ulcer and are characterized by great tendency to recurrences.

In the second class the operative results are unfavorable. Treatment by internal therapeutics, rest, and diet is more favorable. Therefore, a purely medical and dietetic treatment, as in gastric ulcer, should be tried for a long time. Acute perforation compels immediate operation.

Posterior gastroenterostomy is less likely to be followed by jejunal ulcers than the anterior type of this operation.

Gastroenterostomy in benign affections (stenoses) of the stomach should be employed less and gastroduodenostomy more, and medical treatment should be more favored after any operation is recovered from, because of accumulating reports of duodenal and jejunal ulcer after these operations. Where an operation is necessary, pyloroplasty (Finney's operation) gastroduodenostomy is to be preferred. After every operation for benign affections of the stomach where a hyperpeptic gastric juice continues to be

secreted, strict diet, olive oil, and alkalies should be recommended for a long time. In short, such operated cases should be turned over once more to the internist for treatment by diet, rest, mineral waters, and such chemical agents as experience and experiments have proven to be of remedial and curative value.

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SKIN GRAFTING WITHOUT ANESTHESIA.

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SKIN grafting is generally considered to be a difficult surgical operation, requiring a general anesthetic. In reality it is very easy, and it does not require any anesthetic at all, not even local anesthesia, except in rare instances. The preliminary preparations are few, the instruments needed are fewer, and failures to obtain very satisfactory results are practically zero. Instead of being done only in hospitals by eminent surgeons, it can be easily and successfully done by the ordinary physician in his office or in the homes of his patients. It need not bear any resemblance to major surgery. In fact it is minor surgery first, last, and all the time.

But skin grafting without anesthesia is not of minor importance by any means. It is the most useful and practical healing agent we possess in cases where there is loss of skin and subcutaneous tissue, as in burns, ulcers, traumatic amputations, or following excision of tumors, carbuncles, etc. It heals these wounds in a small fraction of the time required by other methods, even if they are successful.

If it is employed early enough, as it can easily be if grafting is done without anesthesia, it prevents the formation of scar tissue with its subsequent contraction. And so, when the denuded area is over a joint, deformity and disability may be easily avoided; when the loss of skin, etc., extends partly or wholly about a limb, as at the ankle, or wrist, later contraction of the scar tissue and constriction of the circulation may be prevented; and, when employed on the face and neck, distortion of the features does not occur, and the skin covering obtained markedly diminishes the usual unsightly scarring.

When traumatic amputations of the extremities occur, with loss of skin extending to a greater or lesser distance beyond the line of amputation, it is not necessary to cut away bone and soft parts back far enough to get a healthy and complete skin flap. Just hasten the separation of the sloughing tissue, and, as the areas clean up, graft them.

Ulcers anywhere, but especially those troublesome ones on the legs, and any granulating wound, may be quickly and easily healed by this simple method of treatment.

No conscientious physician should hesitate, or fail, to use this method of rapid healing whenever and wherever it is needed. The cutting of a very thin graft, composed as it is mostly of the corneal layer of the epidermis, causes very little pain. Patients describe it as a burning feeling, and it causes in nearly all of them only a sharp indrawing of the breath, "ssss," for the few seconds required to remove the grafts; then the pain ceases. The opening of a boil or of an infected finger, the removing of a sliver from beneath a finger nail, the dressing of a sensitive wound or sinus, and many other common things done daily by the physician, without anesthesia, are much more painful while they last, and they last much longer. There is no pain connected with spreading the grafts on the wound or in applying the dressings, so the pain caused by skin grafting without anesthesia is quite insignificant. Yet for hysterical adults, or for very nervous children, it may be best to take the grafts from a friend, or to use local anesthesia, as ethyl chloride spray, ether, or ice, or to infiltrate the skin with a weak solution of cocaine, before attempting to remove the grafts. Covering the eyes of these patients with a bandage is often of use, so they cannot "see the pain."

If the various benefits that the patients will receive from this simple little proceeding, such as quick healing, avoidance of scarring, deformity, and disability, diminution in the number and frequency of painful dressings, each one of which may be as painful as skin grafting without anesthesia—if these and many others be brought to the attention of the patients, they will nearly all, nervous or otherwise, entirely disregard the trifling pain that they will expect to suffer, and choose to be treated by this most interesting and wonderful means of healing.

The following directions, if carefully followed, will give uniformly good results: Clean the skin which is to furnish the grafts with soap and hot water, and thoroughly flush off with physiological salt solution (boiling water 1 pint, common salt 1 teaspoonful). It may be necessary to shave off the hairs, if they are numerous, but hair does not grow on these grafts. Alcohol alone is a perfectly satisfactory cleansing agent. Grafts should be taken preferably from the arm or leg on the same side as the wound.

If the wound is a fresh one, irrigate it with hot salt solution; see to it that all bleeding is stopped, and

lay on the grafts at once. Grafts take readily on fat, muscle, connective tissue, periosteum, etc. If the wound contains tissue that must slough out, then hasten this process as much as possible. When it is desirable to avoid the formation of scar tissue, the grafting must be done as soon as the slough has separated. Do not wait till the whole area is clear, or for hollows to fill up, but cover the little areas of the wound as fast as they clear up every day, or every two or three days, as opportunity offers, until the whole wound has been completely covered. If the wound is already covered with healthy granulations, flush off with salt solution, and apply the grafts immediately. Do not cut down or curette the granulations. Do not rub them, or scrub them, or level them. Leave them alone.

If the granulations are unhealthy, treat them assiduously till they are healthy. It is surprising on what exuberant granulations these skin grafts will take, and how they seem to cut these granulations down, sometimes as much as a quarter-inch, or even half an inch. But it is not advisable to experiment with poor granulations; so, obtain healthy granulations before grafting. Every physician has his own special methods for bringing about this result. The following suggestions are offered as worthy of trial in these cases: (1) Where there is inflammation about the wound apply wet dressings of red wash, which consists of zinc sulphate, one dram, compound tincture of lavender, two ounces, and water, one quart; or use a 5 per cent. aqueous solution of ichthyol. (2) Where the circulation is poor and there is edema, elevate the part, strap the limb with zinc oxide adhesive strips, confine to chair or bed, give strychnine, etc. (3) Where a very rapid growth of healthy granulations is needed to fill in a deep wound, or to cover in exposed tendons, nothing equals diachylon ointment. Naphthalin crystals sprinkled thickly over the wound under the ointment helps to keep the granulations healthy and to separate the sloughing tissues when present. (4) Boric acid ointment is the best preliminary dressing to skin grafting on granulations, and is especially good where wounds are being grafted in sections, as it does not harm the grafts.

The instruments needed are (1) a very sharp, ordinary razor to cut the grafts with, (2) a flat-ended probe or small curette to spread them with, (3) a rectangular block of wood 3x2x1 inches, or a good sized glass syringe, to level and stretch the skin with. Soak them in 5 per cent. carbolic for 10 to 20 minutes, then rinse them off in alcohol, and put them into a dish of salt solution with some cotton wipes.

The skin having been cleaned, wet it with the salt solution, and press an edge of the block down onto the skin and toward yourself, thus securing a flat, tense strip of skin of the desired width for the graft. If an assistant presses the skin sideways around the limb it will help to put the skin on the stretch, and so diminish its sensitiveness. The razor should be held as for shaving, with the blade at a slight angle to the strip of skin, and crossing it at right angles, and with its edge resting gently against it. Do not make any pressure, but engage the edge of the wet blade in the corneal layer of the skin by drawing the edge lightly across it, and then, with a quick sawing to-and-fro motion, let the blade glide under the very thin, bluish graft which heaps itself up on the blade as it advances. Keep the graft thin by holding the blade almost flat on the skin, varying the angle as necessary just to keep it engaged, and no more. Remember, the razor must be *very sharp*, there must be *no pressure* with the edge, the graft must be *very thin*—and just *keep on sawing*. A graft can easily be cut 1 inch to 2 inches wide, and as long as desired, by moving the block along from time to time, as necessary. Of course, the size of the graft, as well as its shape, should depend upon the space to be covered.

Spread the graft at once directly from the blade. Drop some salt solution squeezed from the cotton wipes over the surface of the wound, then lay the edge of the blade against it, fix the end of the graft with the probe, or curette, against the wound or skin edge, and then withdraw the blade from under the graft in the direction desired. This spreads the graft almost perfectly. Any fold or air bubble may be easily worked out by pressure with the probe over it. The edges of the grafts should be made to overlap one another, if possible, and also the edges of the wound. This can readily be done by sliding the grafts by means of the probe to the desired position. Spaces left between grafts, while they heal fairly well in ordinary cases, are peculiarly liable to blister and break down, often involving a much greater area in the ulceration, and proving very troublesome to heal over without grafting again. Then, too, they cause the wound to have a checkered appearance which is far from pleasing.

Apply the dressing as follows: (1) One sheet of silver leaf laid carefully over the grafts. (This material may be obtained where painters' supplies are sold.) (2) A lattice work of strips of silk protective tissue about half an inch in width, and long enough to extend an inch or two beyond the margins of the wound. They should be wet in the salt solution and applied gently. When dry they adhere to the skin, and so fix the grafts firmly from all directions. Do not imbricate them. (3) Two or three thicknesses of gauze, either dry or wrung out of salt solution, and laid smooth. (4) A moist gauze bandage should then be laid very evenly and quite firmly over the grafted area, extending some distance above and below. This completes the inner dressing. (5) Then an abundance of dry, fluffy gauze or absorbent cotton. (6) A splint of wood, or plaster-of-Paris, if necessary to prevent movement of the parts. (7) An outside bandage applied loosely over all. This completes the outer dressing.

This combination of two separate and distinct dressings both fixes and protects the grafts. Any movement of the dressing caused by a bump, or knock, or friction of the clothing, takes place between the two bandages, not extending to the grafts. *This is very important, for if the grafts move they die.* It may be necessary to carry the arm in a sling, or to elevate the hand or the foot when the wound is on these parts, or even to confine the patient to chair or bed to aid the circulation. Strychnine in tonic doses is always indicated.

Dress the area from which the grafts were taken with (1) one sheet of silver leaf, (2) two or three thicknesses of dry gauze, (3) one thickness of dry gauze, larger than the others, stuck down all around with collodion, or adhesive plaster, to hold the dressing on. This is the only dressing required, and it may be removed in a week or ten days, when complete healing will be found to have taken place.

The grafts may be inspected with care in from 2 to 5 days. If there is only a slight discharge, it is better to leave them alone for from 7 to 10 days, but when there is considerable discharge, or the wound is being grafted in sections, the wound may be dressed every one, two or three days, as seems best. Great caution should always be observed in removing the dressing, as well as in applying it, so as not to move the grafts. (1) Cut the outside bandage and remove the dressing down to the inner

bandage. (2) Cut the inner bandage with sharp scissors along a line not over the grafts. Then remove the bandage and the gauze gently and gradually, after thoroughly moistening both with salt solution, especially over the lattice work of protective tissue strips, so as to leave this undisturbed. (3) Free the ends of the protective tissue strips all around; then, keeping the salt solution dropping all the time, turn down the lattice work and separate it very gently from the grafts. If this is done carefully, no grafts will be pulled off, or flushed off, or moved. Never rub, scrub, or sponge the grafts. If any secretion, or bit of silver leaf, adheres after salt solution has been gently dropped over it to flush it away, it is best to leave it alone, as it will do no harm and will come away of itself in due time. Beware of meddlesome cleanliness. Cultivate a certain amount of neglect.

(4) Repeat the dressing, as at first, with the same care and attention to detail. In ordinary cases after the tenth day a simple boric-acid ointment dressing may be applied. If the grafts are on an extremity, and there is any interference with the circulation, with edema, it is best to strap the part with zinc oxide adhesive strips, beginning well below the grafted area, and extending quite a distance above it. Each strip should pass clear around the limb and cross in front at a higher level, like a figure of eight. Each succeeding strip should overlap the preceding one about one-third. A little boric-acid ointment should be smeared over the grafts under the strips. This will protect the grafts from breaking down and keep them in place.

These directions have been given in considerable detail for the purpose of being complete enough to guide a beginner to a successful result. There are many other ways of preparing the wound to be grafted and of applying the dressings, and there are many other kinds of dressings, all of which may be successful in certain cases. But it is better to have one method that will surely give results you desire, and to have it thoroughly understood and carefully carried out, than to have a "grab-bag" full of possible methods from which to draw, so no others will be considered here.

Do not be misled into thinking that skin grafting without anesthesia is difficult, or impracticable, or beyond your skill. Know *what* to do and *how* to do it, then with a steady hand and a cheerful countenance go ahead and do it. Let the patient reflect your confidence and cheerfulness. The pain will be slight, and only for a moment, quite different from the long period of suffering and distress which accompanies a general anesthetic, and then it is so very important in its results. To repeat briefly: (1) Wash the skin with soap and hot water and flush it off with salt solution; (2) cut the graft with a sharp razor and spread it at once with a probe over the wound; (3) apply the dressing of silver leaf, silk protective tissue, gauze, and bandages; (4) redress in 5 days; (5) well in 10 days to 2 weeks.

The following may be noted as possible causes of failure: (1) Grafts were moved in some way; (2) circulation was poor, edema of the part; (3) fever, indigestion, menstruation, etc.; (4) unhealthy granulations to begin with; (5) pressure on the grafts; (6) hemorrhage under the grafts; (7) antiseptics, either on the grafts or the granulations, or both; (8) grafts not applied early enough to avoid the growth of scar tissue, hence subsequent contraction, disfigurement, disability, etc.

The remedies for these troubles have been discussed in the previous pages, and many others will suggest themselves when needed. They are nearly all prophylactic.

The following reports of cases treated by the above methods are offered as illustrations of the practicability and wide range of usefulness in everyday practice of skin grafting without anesthesia:

Case I.—H. H., eight years old. July 26, 1905, while riding on the rear fender of a trolley car, he sustained a compound fracture of the left leg at the junction of the middle and lower thirds. Both bones were fractured, and the opening through the skin was on the outer side over the fibula. The leg was put up in a fracture box with wet dressings of a weak antiseptic solution applied every four hours. July 29, blebs of various sizes had formed over the lower half of the leg, and the skin was very dark about the ankle. The blebs were opened and the leg thoroughly powdered with compound stearate of zinc. Then posterior and lateral plaster-of-Paris splints were applied. July 31, a collar of skin 3 to 5 inches in height, extending entirely around the ankle, was seen to be necrotic. Wet dressings again applied under the splints, and the foot was elevated. August 2, the dead skin and subcutaneous tissue beginning to slough; line of demarcation well defined; naphthalin crystals, and over it a thick dressing of diachylon ointment were applied. August 5, dead tissue being cut away and removed as rapidly as possible, but no areas clear as yet. August 7, same as above. August 9, a considerable area beginning to clear up. Boric-acid ointment applied to this area preparatory to skin grafting next time. The rest of the wound dressed with naphthalin crystals and diachylon ointment. August 11, about one-third of the whole area grafted from his thigh above, using ethyl chloride spray for local anesthesia; the remainder of the wound dressed with naphthalin crystals and boric ointment. August 14, all of the grafts took; a little over half of the remaining area was grafted as before. August 17, redressed; grafts all present and healthy; the remaining area, caused by a very deep slough, not yet clear, so naphthalin crystals and diachylon ointment applied. August 19, remainder grafted; this time the grafts were removed from the thigh of an adult, who was paralyzed and had no sensation of pain. August 23, all grafts healthy. August 28, entirely healed over; he was allowed up in a chair, but directed to keep his leg elevated on account of tendency to edema of the foot; directions not followed. At the next dressing a small area had broken down over a space between grafts. This later was covered by a small graft. Had he been kept in bed a little longer, or had his foot and leg been strapped, the healing would probably have been perfect. After two years this leg is just as healthy and strong and useful as the other. The new skin is movable on the deeper parts, and the tissues have filled out the ankle to normal size. There is no tenderness, and it does not break down under the friction and pressure of the shoe top. There is *no contraction* of scar tissue, because there is practically no scar tissue to contract. The circulation is perfect with no constriction, or obstruction, or edema.

Case II.—Mrs. C., sixty-eight years old. In December, 1905, she was scalded by the spilling of a cup of hot tea over her left shoulder and back. The skin sloughed off completely over an area about 6 by 8 inches. The whole area was grafted, on the removal of the slough, with thin grafts from her left thigh, taken without any anesthesia. She made very little complaint. Nine grafts were applied, but they were not overlapped. They all grew, and healing was complete in seventeen days, except-

ing one place about the size of a twenty-five cent piece. This took longer to heal, without grafting, than for the rest of that large area to be covered with skin. The dressing applied to keep the grafts from moving consisted of silver leaf, protective tissue, gauze, and the wet gauze bandage about the chest. Then fluffy gauze and a modified Velpeau. The dressing was kept wet for forty-eight hours with salt solution.

Case III.—R. D., fifty-seven years old. A carbuncle on the back of his neck was excised, its base cauterized with the Pacquelin cautery, and then packed with iodoform gauze. The wound was encouraged to fill up with granulation tissue. When nearly level with the skin over part of its surface, it was dressed with boric acid ointment for twenty-four hours, and the next day this half was grafted with skin from his thigh without anesthesia. He made no complaint of pain. The grafted area was dressed in the usual way and the remainder was covered with boric ointment. Five days later the dressings were changed and the remaining area grafted as before. On the tenth day the entire area was covered with skin, and a boric ointment dressing was applied. This was a very difficult place on which to fix the grafts, yet none moved or was lost, and the result was very satisfactory.

Case IV.—J. R., thirteen years old. A very nervous, hysterical Italian boy. While pushing material into a cement grinder he slipped and the machinery caught his right foot, crushing the four smaller toes, and tearing away the skin from the dorsum of the foot back to the instep. The toes were removed back to the metatarsal bones.

September 6, 1905. Weak bichloride solution applied as a wet dressing and renewed, as necessary, for forty-eight hours. Then diachylon ointment and naphthalin crystals, were used to stimulate a rapid growth of healthy granulations to cover the denuded area.

September 27. Whole area covered, and boric ointment applied to prepare granulations for the grafts the next day.

September 28. Grafts were removed from the right leg, without anesthesia. He did not make an audible sound while the grafts were being cut. The grafts were carefully overlapped, and the usual dressing applied.

October 3. The grafts were all healthy, and only a few drops of discharge could be found on the dressing, although the area grafted was at least five square inches.

Several months later, after steady use of the foot, there was no tenderness to pressure, and no tendency to break down or blister, and the foot was as useful as the other.

Case V.—J. B., seven years old. The thumb and its metacarpal bone on the right hand were blown off by the explosion of a cannon firecracker, July 3, 1905. The hand was dressed with wet dressings, then later, diachylon ointment and naphthalin crystals until July 20, when argyrol five per cent. solution was applied on gauze for twenty-four hours.

July 21. Boric acid ointment.

July 26. Granulations just right for skin grafting. They were red, they bled easily, and were on a level with the skin, all around the margin of which could be seen the thin bluish layer of advancing epithelium. Grafts were taken from his thigh without anesthesia. He made quite a fuss, but then, he always did whenever the wound was dressed.

August 6. All healed over, area one and one-half inches by two inches. He wore a boric ointment dressing for a few days longer.

During the two years that have elapsed there has been no trouble with the skin covering, and he has a useful hand.

Case VI.—F. S., Italian, twenty-four years old. Trolley accident. First seen July 1, 1905. Three tendons exposed on the dorsum of the foot over the metatarsal bones. Second toe gone. Wet dressings applied for forty-eight hours, then diachylon ointment and naphthalin crystals, and just before skin grafting, boric acid ointment. The granulating wound was from one to one and one-half inches wide and four inches long.

July 29. The grafts were cut from the leg above, without anesthesia. The sharp indrawing of the breath was the only manifestation of pain. The grafts all took nicely. There was considerable edema of the foot, as he was walking about somewhat, and, on the eleventh day, the grafts appeared to have sloughed off. But after elevation of the foot for twenty-four hours it was seen that only the outer layers had been lost, and that the wound was all covered with the thin bluish film, which later thickened and apparently served as well as the whole graft would have done, as there has been no cause for complaint during the last two years, or more.

Case VII.—P. B., nineteen years old.

June 25, 1907. He bumped his leg, and as the circulation was poor in that leg following a chronic osteomyelitis, the skin broke down, and an ulcer formed. The base was raw, and bluish in color and there seemed to be no attempt to form granulations. The base was cleaned, and stimulated, but progress was very slow.

July 6. The leg was strapped with zinc oxide adhesive strips, figure of eight, extending from the ankle to a good distance above the ulcer which was located anteriorly, about the middle of the leg. Granulations formed very slowly.

July 13. The granulating wound was covered with a single graft about the size of a half dollar, which was taken from the leg a short distance above. The skin was sponged off with a little alcohol, only, the graft quickly removed, placed, and its dressing applied, taking very little longer than the regular dressing.

July 18. Graft healthy and entirely covering the wound.

July 23. Same as above. Boric ointment dressing applied with a tight bandage. The gauze was pressed against the graft so as to leave the impressions of the threads. This caused the graft to break down in one place. The bandage was applied looser the next time, but the broken down area seemed to be extending.

July 25. Boric ointment smeared over the graft and the leg strapped from the ankle to above the calf with the zinc oxide adhesive strips.

August 1. Almost completely healed, very satisfactory improvement. Same dressing reapplied.

August 6. All healed. Restrapped.

The patient kept at his work, which required him to be on his feet all day, throughout the treatment. If the adhesive strapping had been used on the tenth day the graft would never have broken down. This is always indicated where there is interference with the return circulation as in forearm, leg, etc.

145 Halsey Street

The Game of Bowls.—In speaking of the revival of the ancient game of bowls, which is again growing very popular in England, the *Medical Press* says that from the medical point of view it has nothing but praise for this most excellent of recreations. It provides open-air exercise and amusement for old and young, it is admirably fitted for many invalids, and, above all, it is one of the best of what may be called natural opiates.

THE RELATIONSHIP OF TRAUMA TO INSANITY.*

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The study of this subject reveals the fact that there has been in the past a wide difference of opinion among medical writers both as to the frequency and forms of insanity which are caused by physical injury. Some writers have included under the title of traumatic insanity any form of insanity or other abnormal mental state which occurs after an operation or injury to any part of the body, at any period afterwards, no matter how remote, and without even being connected with the injury by any clinical or pathological chain of events.

From this illogical situation there has been evolved, for a medical question, a marked unanimity of medical opinion concerning the questions at issue.

It now appears to be established as a fact that, for a trauma to be the producing cause of an insanity, it must be of a character to cause marked injury to the brain; the insanity must be continuous with the symptoms of such injury or occur within a certain period; and when an interval of time is interposed the two conditions must be connected by a definite chain of symptoms.

That insanity is not a common consequence of brain injury is established by the evidence collected by Meyer, who shows that in the Franco-German war only 13 cases occurred in 8,985 head injuries; that Stalper found only 12 cases in 931 cases of head injury; that Meyer found only 1 per cent. in 3,000 cases, Frost 1.87 per cent., Kiernan 2 per cent., and Edel 2.5 per cent. These figures are supported by the experience of the writer, who found only 1.3 per cent. in 2,100 cases of head injury seen by him.

The character of the producing cause is stated by Kraepelin, Kellogg, and Peterson as that of a severe head injury. This contention is supported by the histories of 27 cases seen by Meyer and of 28 collected by myself. In all of these cases the immediate symptoms of the brain injury were severe. In Meyer's cases it was accompanied by cerebral hemorrhage in six, and fracture of the skull in eight. In my cases the same complications occurred in six cases each.

As already stated, insanity is a rare result of head injury, due to the fact that when it occurs there is an additional factor necessary besides the head injury, which is furnished by the evidence of the previous existence of a neuropathic heredity, alcoholism, or syphilis. This contention is supported by the evidence found in Meyer's cases and those of the writer. In Meyer's cases five had an insane family history, two had suffered from previous attacks of insanity, and four from chronic alcoholism. In my cases there was an insane family history in five, previous attacks of insanity in four, alcoholism in six, and syphilis in eight. This evidence, taken in consideration with the well-known fact that the patient and friends as a rule try to conceal these facts, makes it reasonably certain that they are even of more importance than these figures indicate.

It appears also to be well established that there is but one form of insanity for which trauma can be recognized as the producing cause, and that is acute primary traumatic insanity or the acute encephalitis of the surgical writers. This psychosis is one of the few forms of insanity for which the surgeon and pathologist have been able to show us a definite lesion, which is that of cerebral contusion or bruising of the brain tissues. The associated lesions found in the bones of the skull in some cases are now regarded as of no importance, except when the brain is compressed or penetrated by the bone.

Such contusions are most common about the fourth ventricle and at the tips of the frontal and temporal lobes. Microscopically they consist of minute lacerations of brain tissue, ecchymoses, minute thrombi, edema, and capillary stasis with infiltration of the vascular walls. Complicating meningeal hemorrhage is also common. It is a well-established fact that in healthy brains all these lesions, with the exceptions of large hemorrhages, may entirely disappear, but in some cases changes in the cerebral circulation and nutrition may result.

The clinical picture and course of a case of traumatic insanity are held by Kraepelin and Meyer to be diagnostic of a severe cerebral contusion, and the histories of the latter's cases, as well as those observed by myself, fully support the contention of well-marked injury to the brain; as there was coma lasting from one hour to three days, muscular relaxation, dilated, sluggish, or unequal pupils, pale cold skin and rapid pulse, followed by headache, vertigo, delirium, and a rise in temperature. One symptom of cerebral contusion is held to be diagnostic of that condition, and that is a loss of memory for the facts concerning the injury and often of events occurring just before.

To establish a causal relationship between a cerebral contusion and this form of insanity it must appear that the insanity immediately followed the symptoms of the cerebral contusion, or, if a period of time intervenes, the two must be connected by a definite chain of cerebral symptoms. It appears that this intervening period is usually short, though in one of Meyer's cases it was as long as twenty-three months. This contention is supported by the statement of Kraepelin, that "the connection is not proven if a long space of time occurs between the injury and the gradual development of the insanity," and by the facts shown by Meyer's and my own cases. In eleven of Meyer's cases and nineteen of my own the symptoms of the insanity were continuous with those of the cerebral contusion. In eight of Meyer's cases a period of cerebrasthenia intervened, varying from three days to twenty-three months; and in five of my own cases a similar period occurred, varying from three days to twelve months. During this period the patients suffer from pain in the head, vertigo, mental fatigue, loss of memory, change and deterioration of character, irritability, and insomnia. All of which are made worse by small doses of alcohol or high temperatures. The invasion of the phychosis itself is rapid but not sudden. The patient becomes excited and sleepless or somnolent, or the two conditions alternate. The mood varies at different times, and the patient is anxious, irritable, depressed, or elated, with no idea of illness. Mental confusion is marked; and also loss of memory, especially relating to the facts of the injury, "whose happening is often denied." There is marked loss of knowledge of time, situation, and the identity of those about him. Answers to questions are rapid but rambling and often fictitious, resembling the condition known as Korsakoff's psychosis. There are periods of intense irritability at times, often with violent outbreaks from slight or no appreciable cause. Hallucinations and delusions, brief in duration and changing in character, are common. There is a tremor of the face and hands increased by movement, and often

*Read before the Brooklyn Society for Neurology.

causing indistinctness of speech. Paralytic conditions, localized muscular twitching, or seizures of the Jacksonian or grand-mal type may occur either as permanent or temporary conditions. The deep reflexes are increased and ataxia may be present. The pupils vary at different times, being dilated, contracted, or unequal. After a period varying from a few weeks to several months, gradual improvement occurs, which may end in complete recovery, or partial improvement, or the psychosis may pass into some other form of insanity.

The duration of the psychosis in eleven of Meyer's cases, in which recovery occurred, was from two months to two years; and in eighteen similar cases of the writer's from six weeks to two years. Death occurred in four of Meyer's cases after a period of two days to one month; and in four of my own in from two days to one month. Of the remaining cases reported by Meyer, three recovered, but relapsed, two partially recovered, one became an epileptic, and in four the psychosis was followed by other forms of insanity. Of the remaining six cases of my own, two became epileptic, two recovered partially, and in two the condition still continues. Dementia, when it follows traumatic insanity, is, according to Meyer and Kraepelin, always the result of in intervening epilepsy, alcoholism, or arteriosclerosis. In infancy faulty brain development is also claimed as a result, terminating in oddity, imbecility, or moral perversion. Death, when it occurs, is due to persistent insomnia or continuous muscular movement.

Besides acute primary traumatic insanity, the relation of one or two other forms of mental disease to trauma requires consideration. Acute primary or curable dementia appears as one often ascribed to trauma. It is a question of grave doubt if this psychosis should be be regarded as a result of trauma, as it appears especially in neuropaths between fifteen and twenty, from fright, mental fatigue, physical exhaustion, sexual excesses, and in many cases without known cause; nor does it appear that a brain injury alone is capable of producing the disease. It cannot be said then that an injury to the head was the producing cause in cases in which it has developed after such an injury.

Cases of this psychosis in which injury is claimed as the producing cause are rare in my experience, but three having thus come under my personal observation. These were all males, varying from sixteen to twenty. In none was a reliable family history obtainable. In all the physical injury to the head was slight; nor were the accidents of such a character as to cause much fright in normal persons. In my cases there was some evidence of slight shock, followed by irritability and mental confusion lasting from one to three days. The patients then passed into the characteristic condition, in which they remained motionless with vacant expression, paying no attention to dress or other physical needs, with complete loss of memory of time and place, and of those about the patient, with loss of general sensation, increased reflexes, feeble pulse, and respiration and subnormal temperature.

The duration of this psychosis, as stated by medical writers, varies from a few months to five years. There seems to be no authority for the duration of those cases alleged to follow trauma. In my cases the duration was three, nine, and thirty-six months. Complete recovery is claimed for the great majority of the cases of this psychosis. The few remaining gradually pass into secondary or organic dementia. There seems to be no medical authority as to the termination of the cases alleged to follow trauma. My three cases all made a complete recovery.

It is a well-established fact that secondary or organic dementia is never directly due to an injury, but is the natural result of other conditions which may be so caused, as cerebral hemorrhage, meningitis, epilepsy, acute primary traumatic insanity, and acute primary dementia. It can be claimed, then, if such a chain of events is established that the organic dementia is a natural result of the injury to the brain.

As a result, the patient slowly develops loss of memory, especially for recent events, mental confusion, and defective reasoning, groundless likes and dislikes, deterioration of character, and occasionally delusions and hallucinations.

Once developed, it is an unquestioned fact that the condition is permanent in character, but not necessarily in degree, as periods of temporary or permanent improvement are frequently seen. It has been the writer's experience that in young and healthy persons some degree of improvement can be noted after several years. This statement is based upon the condition noted in 106 of my cases. Of these forty had improved, twenty-six improved but relapsed, and thirty-nine had progressed.

General paresis or paralytic dementia is a disease which was ascribed to head injury by many medical writers, but at the present time the majority of such writers consider the disease of syphilitic origin and, with Peterson, deny that it can be so caused. As a rule, the recognition of the disease after a head injury is accounted for by the fact that its usual long and gradual development causes it to remain unnoticed until an injury calls attention to the patient's condition. It seems to be admitted by all that the course of the disease can be accelerated by a cerebral concussion. Starr, however, still claims that it may be due to a head injury, which is concurred in by Kirchoff and Berkeley. The latter two qualify their opinion by stating that traumatic cases present special symptoms and run a special course.

Assuming the facts already shown in describing the symptoms of acute primary traumatic insanity, such as imperfect articulation, irregular movements, intention tremors, increased reflexes, and the pupillary symptoms, it is evident that mistakes in diagnosis can easily occur without frequent and careful examinations, made over a considerable period of time.

It can be stated, then, as a fact that this disease is a sequel of syphilis, that it cannot be directly caused by a head injury, and that such head injury can accelerate its progress.

29 South Portland Avenue.

CRYPTORCHISM COMPLICATING IMBECILITY.

By B. S. TALMEY, M.D.,

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It is advisable, says Professor Grashey, that the family physician should keep records of mentally defective children he meets with in his daily practice. These records may be of great use, should the children in later life collide with the penal code. For this reason I think the history of the following case will be of some interest to the general practitioner in calling his attention to a class of cases he may discover in the families among whom he is practising.

Before giving the history of this case, it will be expedient to describe briefly the salient symptoms of

this class of mental defectives according to Grashey's lectures before his students at the university of Munich.

The Emotions.—The high-grade imbeciles are, in contradistinction to the complete idiots, able to master their language. In the very slight degrees of imbecility the disease represents only a deficiency of the emotions in a higher and lesser degree. Hence the anomaly can be discovered only in the emotional life of the patient. The most conspicuous symptom is the predominance of the passions. The imbeciles are easily irritated and very irascible. Their rage may reach the highest degree. They may fall into a great passion over a trifle. Their passionate moods are of long duration; they may cherish their temper for hours. A melancholy mood may last several hours, and even days, and under its influence they may commit suicide. A great number of suicides may thus be accounted for. The imaginative life is frequently well developed. The imbeciles may even acquire a vast store of experience, being often possessed of a splendid memory. Still the memory is in so far defective that the receptive power is extended alike upon the important and unimportant things. The splendid memory is the reason why the imbeciles are not recognized in school as such. On the contrary they are believed by their teachers to be talented. Still this deception is only possible if they happen to be good-natured, and not irascible or stubborn. Then they acquire a great amount of knowledge. But if the same is scrutinized a little more carefully, it is found that the imbeciles have not the right understanding of the things they have learned. They have learned everything by heart in a mechanical way, and they only reproduce like an encyclopedia the judgments of others which they have retained by means of their splendid memory.

Ordinarily the educators are able to recognize the mental deficiency of such individuals. The imbecile children cannot endure very long in school, because they cannot stand punishment. If punished they become entirely obstinate, and in their passions they fall into blind rage and become irresponsible. It is, therefore, dangerous to punish children with mental stigmata of degeneracy, especially to lock them up in confinement, for they may jump through the window.

The Ethical Life.—If the faculty of pure reason is closely scrutinized, it is found that imbecile children grasp with great difficulty ethical and moral conceptions. Although they have heard of parental piety, patriotism, truth, honesty, perseverance, gratitude, and know the meaning of the words, the deeper understanding is lacking. A normal person acquires with the ethical conceptions certain indefinable feelings—"Gefühlsbetonungen." At the mentioning of any ethical conception the normal person invariably feels something indefinable; he has a corresponding "Gefühlsbetonung." These accompanying feelings are of extreme importance to the character of the individual. They govern his actions and stimulate him in case of necessity to make the greatest sacrifices. The imbecile, on the other hand, lacks these ethical emotions; he does not possess the "Gefühlsbetonungen"; he is, therefore, not guided by them, they do not govern his actions. Even if he has learned a good deal and has found a good position, he is unable to remain there long. He has to have a change. This vacillation of the will and inconstancy of aspiration is often a very early symptom. Imbecile children are prone to run away. They leave their schools and do not return to their parents. When, as adults, they obtain a position, they remain there a certain length of time. Suddenly they disappear without any reasonable cause. When they have a public office the least disagreeable happenings will cause them to surrender their position and to desert without knowing what to begin afterwards. When the defect is of a very slight degree the patient may remain in his position a little longer, a year or so, but he will finally quit. If the imbecile has been a mechanic for some time, and something does not go according to his wishes, he will suddenly turn to painting or some other vocation to which he does not stick longer than to the first one. This restlessness, this lack of perseverance, indicates the pathological state even in cases where the imbecility is of a very slight degree.

If the mental defectives live in reduced circumstances and are not subject to the scrutinizing eyes of instructors and governesses, their disease remains hidden until they come in collision with the penal code. For the imbecile knows the ethical conceptions only by name and, therefore, comes in conflict with the district attorney's office through actions done in a temper, immoral crimes, or arson committed out of revenge. It is then often very hard for the expert to convince a jury that the criminal act is due to imbecility.

Exaltation.—The mental defectives have an exalted opinion of themselves. They believe that they possess great learning, and are well satisfied with their knowledge, while the normal man, even if he is very learned, knows that there remains enough for him to learn yet.

Physical Constitution.—In regard to the physical constitution of the mentally defective individual there is often nothing abnormal to be discovered, but sometimes there is to be found microcephalia or an excessive development of the thyroid gland, which may be degenerated by cysts, or otherwise enlarged. The physiognomy shows then certain peculiarities which tend to indicate the mental deficiency of the individual. At the autopsy it is at times found that the weight of the brain is diminished, or that the frontal gyrus is split and thus four frontal gyri are found. Sometimes there are imperfections in the corpus callosum.

This is a brief outline of the symptoms of the high-grade imbecile. Now we will study the history of my case.

P. P. is 22 years of age, stout, healthy looking, and about 5 feet 6 inches tall. The father is of an excitable disposition and the mother is very nervous. The grandmother is his father's half-sister; his father is thus his mother's uncle. His father was 31 years and his mother 19 years of age when they married. A year and ten months later the patient was born at full term in a small town abroad without artificial help. He began to walk and speak when ten months old. As a child the patient was always well, good-natured, and obedient.

Imaginative Life.—His parents came to live in this country when he was five years old, and he attended school in this city. He was very industrious and loved to read a good deal. He devoured especially books of history and biography and he had a splendid memory for dates. He graduated from public school with honor and attended high school for two years.

Emotions.—From the time of puberty he became irascible and easily excited. He began to practise masturbation when 14 years of age. At 17 years of age he began to have regular intercourse with venal women, but not oftener than once or twice a week. He reached his mental limit in his seventeenth year and began to deteriorate. His splendid memory be-

gan to diminish. He became careless in his personal appearance. His habits became unclean. He can now lie in dirt and filth without noticing it, and once his father found that he did not change his clothes at night or fix his bed for several weeks. The least little thing throws him into a rage. Thus he used to become very violent while in the hospital and repeatedly insulted the head nurse in the nastiest way. When reprimanded by his favored nurse he confessed that he knew it to be wrong to use such bad language, but something seemed to drive him to do so.

Ethical Life.—After he left high school he found employment in a jewelry business, but left the same after three weeks. He stayed then several weeks at home, helping his mother in the housework until he found a position in a library, where he remained six months. Suddenly he left this place and began to work in his father's store. Three months later he left the same to study dentistry with a dentist. Suddenly, after seven months' stay, he left the dentist and boarded in the lodging houses of the Bowery. There he led the life of a tramp in company with the scum of the big city for several weeks and returned home in the most shocking condition. He was literally covered with dirt and filth. His father took him again in his store, where he remained eight months. Suddenly, without any reason, he left it again to associate with the women of the Bowery. From this time on his life was divided between working in drug stores in Brooklyn, Yonkers, and Paterson, and the Bowery lodging houses. The characteristic part of his departures from the places of employment is the suddenness and unreasonableness. Without any justifiable reason and without giving notice he suddenly leaves the places, often even taking along the keys of the store, to stay several weeks with tramps, thieves, and venal women in the Bowery. After four to six weeks' tramping it looks as if the attack was over and he returns to his forgiving mother to begin to look again for work.

During his migratory life he came twice in conflict with the district attorney's office. The first time he was released from a magistrate's court, the second time the supreme court justice suspended sentence and put him under the supervision of the board of correction. He has absolutely no affection for his parents. Although he was always pampered by his mother and he knew that she spent sleepless nights worrying over him, yet he never wrote or let her know where he was while the "Wanderlust" took possession of him. Once he left his father to work alone in the store although the latter had just returned from the hospital after having undergone a dangerous operation and could not as yet walk properly. The sense of gratitude is entirely lacking in him. He did not think it worth while to greet on the street the teacher who gratuitously gave him private lessons in Latin.

Exaltation.—The exaltation of his ego was best shown while he was in the hospital. He boasted before the nurses about his great knowledge, claiming that he knew more than anybody else and that he could dispute with everybody on every topic.

Physical Constitution.—When nine years old, the patient's mother discovered one day that the boy had only one testicle, but the father laughed at her discovery and no further attention was paid to this anomaly. Five years ago the patient noticed a swelling in the right inguinal region which increased in size by degrees, but caused him no particular discomfort until a year ago when, jumping from a train, he was suddenly seized with acute pains which compelled him to stay in bed for thirty-six hours and to apply strong tobacco-poultices on the swelling. Since that time he frequently felt pains and was often doubled up on the street. When I first saw him he was also in bed suffering with pain.

Status Presens.—There is a swelling of the size of a hen's egg in the right inguinal region at the internal ring. There is no spermatic cord leading to the scrotum on the right side, nor can the right testicle be felt within the scrotum. The diagnosis was made "cryptorchismus and inguinal hernia," and an operation was recommended.

On March 1, 1907, the patient was operated upon. In severing the superficial fascia the peritoneal sac was opened inadvertently, it being adherent to the fascia. Through this opening we made a thorough examination of the peritoneal cavity and no trace of a testicle nor of a cord could be discovered. The opening was then closed with a tobacco-bag suture, the terminal sac removed and, the construction of a new canal not being necessary in this case, the externus muscle was sutured over the opening and the wound closed.

At the end of a week a stitch abscess developed and compelled the patient to remain five weeks in the hospital. He then went home and was directed to return every other day for a dressing. But he came only once, leaving his home to return to his former haunts on the Bowery.

Epicrisis.—If we analyze the emotional life, the imaginative life, the ethical and moral standard, and the exaltation of our patient, we find that his symptoms are almost identical with those of the high-grade imbecile. Probably the consanguinity of the parents may have something to do with the mental defect of our patient. The lack of the testicle may or may not be a contributing cause, but the entire absence of physical stigmata is not so infrequent in the high-grade imbecile.

There is, therefore, no doubt in my mind that we are dealing here with a mental defective. The prognosis in this case is very bad. If the patient is left to himself he will surely land in jail some day. The only safety I can see for him is in a congenial occupation in sequestration under constant unremitting supervision.

62 West One Hundred and Twenty-sixth Street.

Deviations of the Spine in Young Girls.—Ester gives the predisposing causes of scoliosis as feebleness of the muscular system and heredity. Myopia and bad position maintained at school are also causes. Young girls should be encouraged in all sorts of proper exercises so as to develop good muscular conditions, instead of being shut up in the house over sewing and books. The disease is very apt to develop in girls whose parents have had the same trouble, and some families are particularly liable to its development. Bad attitudes assumed in school at the desk in reading and writing are causes of its occurrence. When a girl is predisposed to it we should adopt a preventive treatment, consisting of placing the girl under the best possible hygienic conditions, allowing her extra amounts of sleep and rest in the horizontal position, and encouraging sea bathing and mountain air. She should never be allowed a corset that will at all compress her thorax, and should be supplied with a chair that will support the back and an inclined desk. Scoliosis is curable only in its earliest or formative stage. When the deformity cannot be removed voluntarily, but can be by suspension, it has reached the second degree. To these hygienic measures must now be added orthopedic gymnastics and an orthopedic corset made over a plaster cast of the body in suspension. In the third degree not even suspension will straighten out the spine, and forced movements under ether are necessary. But in this stage a true cure cannot be obtained.—*Annales de Médecine et Chirurgie Infantiles.*

RADIOGRAPH OF MUMMIFIED FOOT.

By EUGENE H. EISING, M.D.,

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THE mummified foot pictured below came into my possession through the family of an army officer

FIG. 1.—Mummified foot of an ancient Peruvian.

who was sent to Peru to gather specimens for the Centennial Exhibition of 1876.

Curiosity prompted me to make a fluoroscopic examination of the foot. The bony structures of the

FIG. 2.—Radiograph of the mummified foot shown in Fig. 1.

foot were found in so excellent a state of preservation that this remarkable finding was considered of sufficient interest to justify its publication in these pages.

Mummification was practised by the ancient Peruvians 3,000 years ago, and was still in vogue at the time of their conquest early in the sixteenth century. The purpose of embalming was to preserve inviolate the body for the corporeal resurrection of the dead. The soul after death was supposed to perform a painful probationary pilgrimage through the mysterious underworld, which journey consumed a period of time varying from 3,000 to 10,000 years. The wicked were condemned to permanent habitation in the subterranean regions, there to expiate their crimes in ages of wearisome toil, while the good were rewarded with a life of luxury and ease.

Compared to the Egyptians, the Peruvians were amateurs in the art of embalming. The Peruvians used, as did the Egyptians, balsams, oils, resins, and spices in that art, but the process they employed was relatively simple and rendered so by the peculiar atmospheric conditions under which they lived.

Vast mounds were erected for the reception of the dead. These mounds were penetrated by passages, the walls of which were arranged in galleries. In these galleries were placed the embalmed bodies, usually in the sitting posture.

With the deceased noble was buried some of his apparel, his utensils and treasures, and, to complete the gloomy ceremony, his wives and favorite domestics were sacrificed to bear him company and do him service in the happy regions beyond the clouds.

On certain festivals the royal mummies would be brought from their eternal resting place into the public square, where reverential entertainment would be provided to emulate the memory of the deceased hero.

I am indebted for the excellent radiograph and photograph to Mr. J. Harney of the Radiographic Department of the Mount Sinai Hospital.

18 EAST SIXTIETH STREET.

Acetonuria.—A discussion on this subject was recently held at a meeting of the Hunterian Society in the course of which Dr. W. L. Brown said that the presence of diacetic acid in the urine was more important than that of acetone, but diacetic acid was unstable and broke down into acetone if not excreted very rapidly. It was found not only in diabetes, but in recurrent vomiting in children, pernicious vomiting of pregnancy, mountain sickness, delayed chloroform poisoning, and starvation. Acetonuria was a symptom of tissue degradation, of acidosis with insufficiency of oxygen. It was possible that biliousness and migraine were both due to acetonuria. The most successful treatment consisted in the administration of large doses of sodium bicarbonate. Dr. L. A. Smith insisted on the importance of acetonuria in the differential diagnosis between diabetes and alimentary glycosuria. He demonstrated the fact that the urine of a patient who was taking salicylates gave a reaction with a solution of perchloride of iron similar to that given by urine containing diacetic acid. He spoke of the marked changes seen in the epithelium of the renal tubules in some fatal cases of diabetes. Dr. H. R. Andrews remarked on the fact that acetone was found sometimes in the urine after labor, particularly in cases where the labor had been difficult and prolonged, and asked whether it was possible that prolonged administration of chloroform was responsible. The theory that acetonuria could be looked on as a sign of intrauterine death of the fetus had been disproved. In some cases of necrobiosis of uterine fibroids acetone was found in the urine.—*The Lancet.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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TUBERCULIN TREATMENT IN THE TUBERCULOSIS OF CHILDREN.

IN considering this topic in a recent issue of the *British Medical Journal* (October 26), Clive Riviere groups his cases under the two headings of strictly localized disease and not strictly localized, that is, accompanied by symptoms of general disturbance, such as fever. It is in the former group that the most notable successes have been achieved. The author says that success resolves itself into a question of dosage, and believes that this has often been too large. He names as average doses 1-12,000 to 1-8,000 mg. for one year of age, 1-4,000 mg. for five years, and 1-3,000 mg. for from ten to twelve years. During administration the opsonic index should be watched. If this cannot be secured, we must rely on the patient's weight and general progress. In the strictly local cases, tuberculin leads to increase in appetite, gain in weight, color, and general vitality; there is a marked change toward cheerfulness and renewed interest in life, and there is a distinct tendency toward local healing. In the category of cases thus treated have been instances of superficial abscess, dactylitis, gland disease, and joint disease, all tuberculous. The gland cases generally require prolonged treatment. In the second class of cases, such as phthisis and peritonitis, good results have also been obtained. In such cases the general poisoning shows itself, says the author, by a fluctuating and often high opsonic index, and it would seem probable on theoretical grounds that the introduction of fresh tuberculous elements, as in a tuberculin injection, would only add to the patient's disability. In practice this is not so; under tuberculin the opsonic power is steadied, though it rises no higher, and striking improvement in the general and local symptoms often takes place. This contradictory result impresses him with a conviction that there is much underlying the action of tuberculin which we do not yet understand, and that the changes in opsonic power present to us but a partial view of the effects of its injection.

Quite noteworthy results follow the injections as regards the effect on secondary lesions, open tuberculous processes frequently become the habitat of other germs, especially staphylococci and streptococci, and it has been shown that the dissemination of tubercle is favored by the existence of such a mixed infection. In wide lesions a condition of sapremic poisoning is kept up, which largely contributes to a downward course of the case. The author refers to the experiments of C. J. Shaw, who, by examination of the opsonic index of asylum patients to tubercle and other organisms (staphylococcus, *Bacillus coli*, and *Micrococcus rheumaticus*), discovered that a lowered index to tubercle among them was accompanied by a lowered index to these other organisms also. This seems to indicate a proneness on the part of the tuberculous or pretuberculous to infections by other organisms, and he also found that a large dose of tuberculin depressed the opsonic power, not only to tubercle (its specific effect), but also to the other organisms above mentioned. The converse to this, in absence yet of proof, may be taken as probable—namely, that the opsonic power to other organisms rises *pari passu* with its rise to tubercle under suitable doses of tuberculin. If this is so, it will explain the remarkable manner in which the secondary infections clear up under skilled tuberculin treatment.

In conclusion, Riviere urges that tuberculin given according to modern methods be more generally employed in pediatric practice. Failure in the past has been due more to faulty administration than to the uselessness of the remedy itself.

A NEW OPERATION FOR THE PERMANENT ENLARGEMENT OF A CONTRACTED PELVIS.

PREMATURE delivery, cesarean section, symphyseotomy, and pubiotomy are considered competitive procedures by some, while others claim that each has its own special indications and contraindications. No matter which view is held, when any of these operations is performed for a contracted pelvis, none of them cures the condition, and at subsequent pregnancies the same obstruction is encountered. In order to overcome this objection, Léon Maire (*La Presse Médicale*, August 28, 1907) devised the following operation, which permanently enlarges the pelvis, and thus permits subsequent labors to take a normal course.

The patient is placed on her back with the buttocks brought down to the edge of the table, the thighs being hyperextended and abducted. A horseshoe-shaped incision is then made through the skin and subcutaneous tissue, beginning at a point four-fingers' breadth below the right pubic spine, running upward toward it, then transversely across to the left pubic spine, describing a slight curve with its convexity upward, and then descending from the latter spine downward to a point four-fingers' breadth below it. The cutaneous flap thus mapped out is thrown downward by cutting close to the fibrous structures covering the pubes. This flap carries away with it the suspensory ligament of the clitoris, which is detached from above downwards, with the vein which traverses it. The nearer one reaches the ligamentum arcuatum while bringing down the flap, the more closely one must hug the pubes in order to avoid the deep dorsal vein of the clitoris and the plexus of Santorini. The adductor tendons are now severed perpendicularly to the adductor fibers, and to expose the superior border of the pubes the two recti and pyramidal muscles are cut from spine to spine, and the transversalis fascia is pushed back in order to expose the prevesicular space. To protect the vessels and soft parts behind the pubes, a flat metal retractor is inserted behind the symphysis from below, thus holding them back.

A Gigli saw is now passed behind the right pubes opposite the spine, and the bone is sawed from behind forward, as during a pubiotomy, but instead of bringing it through the whole thickness of the bone, the saw is carried only through one-half its thickness when its direction is changed, it being carried transversely across both pubic bones through their middle until a point opposite the left pubic spine is reached; the direction of the saw is now again changed, and it is brought directly forward through one-half the thickness of the left pubic bone. The bones then separate spontaneously from three to four centimeters, and if necessary they can be brought further apart. This separation is made permanent by placing a metallic plate between the two fragments of the right pubic bone behind, or, still better, by sutures which unite the superior and inferior borders of the separated fragments. The severed adductor tendons are then sutured together, and the recti are sewed to the fibrous tissue in front of the pubes; the suspensory ligament is repaired, and the skin flap is brought up and sutured into place.

Maire has performed this operation successfully several times, permanently enlarging the pelvis so that future deliveries took place without any operative interference.

PREVENTIVE MEDICINE.

It would be indeed a trite remark to make at this date that preventive medicine is the medicine of the future. This fact has been dinned into the ears of medical men and others in all parts of the civilized world more or less constantly during the past few years. Undoubtedly, then, it may be taken for granted that future efforts will tend perhaps more in the direction of preserving health than in the attempt to cure disease. Up to the present the commercial spirit had taken so strong a hold of the inhabitants of the foremost nations that public health had been neglected. The truth has now, however, become evident to the lowest intellect that without health a nation cannot prosper materially or in any other way, and consequently all the prominent countries are proceeding to place their houses in order from a sanitary standpoint.

Many addresses dealing with this phase of the matter have been delivered from time to time, one of the latest being the introductory address delivered at the opening of the winter session of the Middlesex Hospital, London, by Mr. A. G. R. Foulerton. The speaker pointed out that England had experienced a long period of indifference to all that concerned the public health, which had grown upon her with a prolonged period of commercial prosperity, but that she was now awakening to the extent of her folly. Mr. Foulerton drew attention to the fact that the people of the United States, the people of Germany, and the Japanese are profiting to-day by the work which has been rejected or ignored by the British party politicians. The British Government has turned always a deaf ear to the cries for sanitary reforms, and it has not been until the authorities have been compelled by public clamor to listen that any heed has been paid to such plaints. All this was in contradiction to Osler, who, when last in this country, took occasion to berate America for her neglect, and to laud Great Britain for her assiduous cultivation of the science of public health and sanitation. But Foulerton is to the manner born, and probably knows the existing conditions sufficiently to talk of them authoritatively. The latter part of this address was the more interesting, in that the remarks will apply to some extent to all civilized nations, especially to those of Europe, and in a lesser degree to this country. In referring to the unemployed, members of which army abound in all countries, the speaker said that for years the unemployed had been looked upon as representing the countryman who had come up to the towns to find work and could not get it; when the matter came to be investigated the healthy countryman out of work was searched for in vain. Instead the town-bred degenerate was found, the physically useless waste product which had been accumulating during long years of commercial prosperity during which the health of the worker had been neglected. The birth rates were then investigated, in order to observe if the town wastage was being made good in the country, and the serious discovery was made that the decline of the birth rate had been greatest in the rural and smaller urban districts, that there had been comparatively little decline in the factory towns and large cities, and that the most prolific of the population were the undesirable foreigners who were populating whole quarters of London, and who were adding to the population children who would be no more desirable citizens than their parents.

Although the evils of a falling birth-rate, and the deterioration of physique and mental degeneration consequent upon urban and factory life, are not confined to Great Britain alone, it is in that country that such conditions are most accentuated. Great Britain in some respects may be regarded as an object lesson to other countries, showing that too close attention to business and to heaping up riches is attended with so great drawbacks that on the whole the game may not be worth the candle. However, it all goes to confirm the truth of the text of this article, that preventive medicine will be the medicine of the future, not only for Great Britain and the crowded European countries, but even for America. The birth-rate among native-born Americans is very low; the quality of the immigrants who are now pouring into the country, despite restrictions and rigid inspection, cannot be described as, on the whole, very desirable; some of the large cities, notably New York, have become overcrowded, and, lastly, the tendency of the present-day immigrants is to herd together in towns. Thus, America has her problem of race degeneration, due to the same causes as produce it in Europe, which must be met by preventive medicine. The potentialities which lie in preventive medicine, properly applied, are described in a recent issue of the London *Times* in the following words: "No physician entertains the slightest doubt that the ordinary current disease of this country could be diminished by a single year of effective sanitary legislation and administration, say, to one-half of its present amount, and that it is becoming a matter of vital necessity that a correct understanding of this aspect of medical questions should be forcibly presented to the public." This is an unexaggerated statement, and may be recommended to the community at large for grave consideration.

A CASE OF MISSED LABOR.

A WELL-AUTHENTICATED case of "missed labor," that is, of ineffectual pains ending with the retention of the fetus for months, or even years, has been but rarely reported. Indeed, since E. Müller[1] in 1878 demonstrated that many alleged cases were those of ectopic gestation or of pregnancy in one horn of a bicornuate uterus, many obstetricians have been inclined to doubt that the product of gestation could be retained *in utero* for any considerable period of time after the physiological process of labor, however ineffectual at the time, had taken place.

A case reported by Balashov in No. 37, Vol. VI, of *Russkii Vratch* is therefore of considerable interest, being well authenticated by the objective findings and throwing light upon the etiology of this unusual phenomenon. A peasant woman who has had eight previous pregnancies was affected during her ninth pregnancy by some acute infectious disease, that may well have been typhoid fever according to the patient's description. During the disease the fetal movements, distinct up to that time, ceased altogether, and a short time after her sickness the woman went into labor. The amniotic fluid escaped in due time, and was followed by an abundant hemorrhage, but no fetus; soon after the pains of labor ceased, and there remained only the sensation of weight and of a "foreign body" in the pelvis. During the three succeeding years the patient suffered very much from leucorrhea, and once or twice passed some small bones per vaginam. She came to the hospital complaining of the offensive, purulent discharge, and general ill-health. An examination showed a small, flat bone in the cervical canal, and this was removed, together with many other small bones and a quantity of other matter. The bones were firmly attached to the internal wall of the uterus, and either during their withdrawal, or as a result of the curettage and bichloride douche that followed, the uterine wall was perforated and symptoms of shock appeared. An immediate abdominal section, performed for the repair of the perforation, now disclosed the probable cause of the "missed labor." The uterus proved to be thinned out and degenerated in many places, and, together with the adnexa, was firmly bound to the neighboring structures by many old adhesions. The perforation was repaired, the pelvic cavity sponged to remove the purulent material and the bichloride solution that entered it, and the woman made an uneventful, though a slow recovery.

It appeared probable that the infection which led to the death of the fetus was complicated by a mild peritonitis, and the weakened and adherent uterus could not expel its contents at the time of labor. An atonic uterus, firmly bound down by adhesions, may therefore be looked upon as one cause of "missed labor." The case reported is interesting because of the full and objective data given, and also because of the recovery of the patient after such a grave accident as the introduction of septic material and of bichloride solution into the peritoneal cavity. The fact that only half an hour was allowed to elapse between the discovery of the perforation and the abdominal section, which led to the complete recovery of the patient, points the moral of quick and decisive action as offering the best chance of safety in such accidents.

[1] E. Müller, De la grossesse utérine prolongée indéfinitement, etc., Paris.

THE ESTIMATION OF THE PEPSIN CONTENT OF THE GASTRIC JUICE.

WHILE for practical purposes the determination of the peptic power of the gastric juice may be roughly tested by observing its effect on discs of egg albumen coagulated by heat, accurate measurements of this function are far from simple. Of the two methods most often used, Hammerschlag's, in which the amount of undigested albumen left in a solution of known strength, to which the gastric juice has been added, is determined by means of Esbach's albuminometer, is not very accurate, while Mett's method, in which the amount of digestion taking place in capillary tubes filled with albumen and immersed in the juice to be tested, is troublesome, and requires extreme attention to detail if the results are to be worth the effort. A method that promises well is one that has been devised by Jakoby (*Zeitschrift für klinische Medizin*, Vol. 64, Nos. 1 and 2), and depends on Solms' observation that the cloudiness of acid solutions of ricin is cleared by the addition of pepsin. The steps of the method are as follows: A 1 one per cent. solution of ricin is made in 5 per cent. salt solution. Of this opalescent fluid 2 c.c. is placed in each of a series of test tubes, together with 0.5 c.c. of decinormal hydrochloric acid solution, which increases the cloudiness. To these tubes 1 c.c. each of different dilutions (ordinarily 1:10 to 1:1,000 of filtered stomach contents obtained after an Ewald test breakfast) is added, and the whole series, together with a blank control tube, is placed in the incubator for three hours. At the end of this time one observes which dilution in the series is the first to give a clear solution. The result is expressed in "pepsin units," one hundred of which represent the amount of pepsin in 1 c.c. of gastric contents of such strength that a 1 per cent. dilution under the above conditions causes the ricin solution to become clear. The method has been tested by Witte (*Berliner klinische Wochenschrift*, October 21, 1907), who finds it both convenient and reliable. In order to increase its theoretical accuracy, he recommends neutralizing the gastric juice with decinormal sodium hydrate solution before making the dilutions, but this would hardly be necessary in routine work. A disturbing factor of rather greater importance would be the difficulty that is sometimes experienced in obtaining filtrates of the stomach contents that are themselves quite free from cloudiness.

A NEW CLINICAL ENTITY—INTESTINAL LIPODYSTROPHY.

THAT the history, physical examination, and clinical course of a case often lead to one diagnosis while the autopsy reveals other conditions, is an established fact, and is well illustrated by the history of a case reported by Whipple in the September number of the *Johns Hopkins Hospital Bulletin*. The remarkable observations at autopsy led him to conclude that he was dealing with a definite and hitherto unrecognized picture which he called intestinal lipodystrophy. The patient complained of a long-standing cough, fever, progressive emaciation, abdominal swelling, and tenderness, and had stools containing many fat crystals indicative of defective fat absorption, all decidedly suggestive of a pul-

monary and mesenteric tuberculosis. The physical signs, however, did not justify a diagnosis of pulmonary tuberculosis and examination of the sputa was negative; the absence of a reaction to tuberculin was also strong evidence against the presence of an active tuberculous process. These observations, together with the finding of hard, enlarged mesenteric glands at an exploratory laparotomy led to a final clinical diagnosis of sarcoma or of Hodgkins' disease of the mesenteric glands. The lesions of interest at autopsy were found in the intestines and the lymphatic tissue draining this region. The intestinal mucosa showed enlarged villi due to deposits of large masses of neutral fats and fatty acids in the lymph spaces, and an infiltration of the interglandular tissue by large uninuclear and multinuclear cells. The mesenteric glands showed the same deposits in even greater amounts. The lymphatic tissue of the bronchial glands, bone-marrow, and lungs showed no abnormalities of importance. The other organs presented no changes relating to the intestinal lesions. Whipple advances several possible causes for the large amount of unsplit fats in the stools, and believes that some of the facts indicate that the deposits of fat in the tissues are in themselves in some way abnormal, or that they hold in suspension some abnormal or toxic substance. Since the pathological changes are limited to the apparatus which has to do with the absorption of fats, he believes the condition to be some obscure disturbance of fat metabolism.

The Infection of Scarlet Fever.

The general belief to-day is that scarlet fever is caused by a microorganism, though the specific germ is still unknown. This belief is justified, inasmuch as the erythematous angina, which can hardly be ranked as a complication since it is nearly as constant as the scarlatinal rash and is at its height with the maximum temperature, is always accompanied by some coccus. In view of this fact we have as much right to consider the secretions from the throat carriers of the contagion as the desquamated skin. In fact some believe, says G. H. Lemoine in the *Bulletin médical,* No. 48, 1907, that the throat is the original source of the contagion and that the desquamated particles of skin are not necessarily infectious, but may be the carriers of the contagion just as bedding and clothing, and that when they are, it is usually the particles from the face and hands which are the carriers, since they can easily become infected by the secretions from throat and mouth. Lemoine discharged fifty-one scarlet fever patients during the stage of desquamation, and in none of their families did any scarlet fever develop. In most of them the remaining desquamating area was confined to the lower extremities, and all the patients had their throats and mouths sprayed with antiseptic solutions throughout the disease, irrespective of the presence or absence of subjective symptoms. Another argument against the contagiousness of the scales was that none of many sufferers from measles and mumps who were placed in a ward which had been previously occupied by scarlet fever patients developed scarlet fever, though some scales of epidermis must have remained in the ward. He believes the mucous membrane of the mouth and pharynx to be the source of the contagion, and therefore holds that the chief prophylactic treatment consists in the disinfection of this part, carried out even during convalescence. To-day the prophylactic treatment of most practitioners still consists in isolating their patients until desquamation has stopped, while they pay but little attention to the throat unless subjective symptoms require it. Until we are certain as to the contagion and its location, it is certainly unwise to discharge desquamating patients, but it might be well to give more attention to the throat, as Lemoine suggests, throughout convalescence, whether symptoms referable to it are present or not.

The Treatment of Inoperable Tumors.

Malignant tumors that have become inoperable present so hopeless a prognosis that it is not astonishing to find many suggestions of the most varied nature made, if not for their cure, at least in the hope of prolonging life. Unfortunately, for the most part, but little success has attended these efforts except in alleviating to some extent the patient's suffering, and therefore interest attaches to any new measure proposed until its uselessness has been clearly demonstrated. Bier, for example, has attempted to influence such growths by the injection of foreign blood, apparently with some success, though in other cases the application of artificial hyperemia by the congestion bandage gave such unfavorable results as to make it seem that it was the character of the injected material, and not the hyperemia that was effective. Ritter, about a year ago, reported ten cases in which hyperemia was induced by the use of suction cups, and, while his results were not discouraging, the patients were all in so wretched a condition that not much could fairly be expected from any therapeutic measure. Recently (*Münchener medizinische Wochenschrift,* October 22, 1907) he has reported another case, that of a young and vigorous man, in which the effect was certainly very striking. On coming under observation, this patient was found suffering from an extensive new growth of the shoulder, which was so far advanced as to be wholly inoperable. A small section of the tumor for microscopic examination could be removed only with considerable difficulty, owing to the profuse hemorrhage, and was shown to be a small, round-celled sarcoma. As a last resort, daily applications of the suction cups were made with the astonishing result that the growth promptly began to diminish in size, and in a month had completely disappeared, so that the patient could be discharged freed from all disability, and to all intents cured. Of course, a single instance of this sort proves nothing, and what is perhaps the most important feature of the case, the patient's future history, is still unknown, but the fact that an individual suffering from such a condition was even for a time restored to health is both suggestive and encouraging.

News of the Week.

Dr. Finlay Honored.—On November 4, Dr. Carlos Finlay, chief of the Department of Health and Sanitation of Havana, was presented by Gov. Magoon with the Mary Kingsley medal in recognition of his work in connection with the transmission of yellow fever by mosquitos. The medal is awarded by the Liverpool School for the Study of Tropical Diseases to commemorate Miss Mary Kingsley, the African traveler.

A Local Treatment for Diphtheria.—Professor Rudolf Emmerich of the University of Munich has made public the results of his investigations on the bactericidal properties of substances formed in cultures of *Bacillus pyocyaneus,* particularly as applied to the treatment of diphtheria. By insufflation of

this material, which he calls pyocyanase, into the throat of a diphtheria patient, the bacilli of that disease are said to be destroyed in a short time.

Cancer Increasing in this State.—According to the monthly bulletin of the State Board of Health, deaths from cancer show no signs of decreasing. In September, 1907, 572 deaths from this cause were reported, as against 526 for the same month last year, and an average of 456 for the past five years. The tuberculosis mortality is said to be practically stationary.

Smallpox in Persia.—At a session of the Central Health Bureau in Teheran, it was stated that the mortality from smallpox in Persia is in the neighborhood of 75,000 annually. In spite of this fact the institute for the preparation of vaccine material, which was authorized in 1905, has not yet been started, although the necessary funds have been provided.

Losses Due to Cattle Ticks.—A report issued by the Department of Agriculture states that the annual loss occasioned through the cattle ticks is in the neighborhood of $100,000,000, which is equal to about 10 per cent. of the value of the cattle. The quality of the animals is the lowest and the loss is greatest in the regions where the natural conditions without the tick should produce the finest cattle with the least loss.

Doctor's Office Robbed.—A man, said to be about thirty-six years of age and 5 feet 10 inches in height, with dark complexion and hair, is being sought by the police for having last week robbed the office of a Brooklyn physician. The thief called during the doctor's absence, and at the servant's suggestion sat down to wait his return. He promptly disappeared after having entered several rooms in the house and abstracted jewelry, etc., to the value of $1,000.

Vaccination in St. Louis.—Since September 1, 6,500 children of the public schools of St. Louis have been vaccinated.

Free Vaccine is to be supplied from now on to the physicians and health officers of the State of Minnesota for use among the poor

State Control of Medical Colleges.—A bill, which gives the Illinois State Board of Health power to regulate and control medical colleges, and to determine the educational qualifications of applicants for admission to medical colleges, was recently passed by the Senate by a vote of 36 to 1.

Bequest to Philadelphia Hospitals.—By the will of the late Eliza R. Weeks of Philadelphia, the sum of $5,000 is bequeathed to the Episcopal Hospital for the endowment of a free bed in memory of her husband, the late Dr. Alfred Weeks. By the will of the late Miss Anna T. Jeanes, the interest and dividends on 148 shares of the capital stock of the Pennsylvania Company for Insurances on Lives and Granting Annuities is bequeathed to the Woman's Hospital, as long as the hospital will take care of women and children only to the exclusion of men; the sum of $10,000 is bequeathed to the West Philadelphia Hospital for Women, to Hahnemann Hospital, and to the Cancer Ward of the Philadelphia Home for Incurables, as an endowment in perpetuity, and the sum of $10,000 to the Women's Homeopathic Hospital and the Pennsylvania Hospital absolutely; the sum of $5,000 is bequeathed to the Red Bank Sanitarium Association of Philadelphia. The sum of $200,000 is to be set aside for the establishment of a new general hospital or infirmary for cancerous, nervous, and disabling ailments. By the will of the late Charles Hewett of Cheltenham Township, Montgomery County, Pa., the sum of $5,000 is bequeathed to the Episcopal Hospital of Philadelphia for a bed in memory of his two deceased wives, Anna Cordelia Hewett and Mary Ann Hewett.

Dr. Robley D. Owen has been appointed by Mayor Reyburn, surgeon to the police and fire departments of the city of Philadelphia in succession to Dr. Francis D. Patterson, resigned.

Medical Mayors.—At the recent election in New Jersey seven medical men were elected mayors in as many towns, and one undertaker, who was a candidate for mayor, was defeated.

New York Academy of Medicine.—The anniversary meeting and reception of the Academy of Medicine will be held at 8:30 P.M. on Friday, November 29, 1907. The anniversary discourse will be delivered by Col. W. C. Gorgas, M.D., U. S. A., Chief Sanitary Officer, Isthmian Canal Commission, the title being, "Sanitation of the Canal Zone."

Harvey Society Lectures.—The second lecture in the Harvey Society course will be delivered by Professor James Ewing of the Cornell Medical College, this evening, November 16, at 8:30 o'clock, at the Academy of Medicine. Subject, "The Etiology of Tumors." The lectures of the Society are open to all interested.

Sixteenth International Medical Congress.—The preliminary program of this Congress has been issued, and announces that it will be held in Budapest, August 29 to September 4, 1909, under the patronage of Emperor Francis Joseph I. Twenty-one sections are provided for, as well as two general sessions at the opening and closing of the congress. Several of the sections will also hold sessions in common. The manuscript of papers to be read must be in the hands of the secretary of the congress by January 31, 1909. The membership fee is five dollars; wives and daughters of members pay half the membership fee. Correspondence is to be directed to the office of the Sixteenth International Medical Congress, Budapest, VIII., Esterhazy-Utcza, 7.

International Congress on Tuberculosis.—Committees have been appointed in the following States for the purpose of participating in the congress which is to be held in Washington in September and October of next year: California, Utah, Montana, North Dakota, Minnesota, Wisconsin, Illinois, Iowa, Indiana, Michigan, Ohio, Missouri, Kentucky, Kansas, Tennessee, South Carolina, North Carolina, Maryland, New York, Massachusetts, Vermont, Maine, and West Virginia. A national committee for Holland has also been appointed.

Third District (Ark.) Medical Society.—At the recent meeting of this society at Helena, the following officers were elected: *President,* Dr. E. D. McKnight of Brinkley; *Secretary,* Dr. H. H. Rightor of Helena; *Treasurer,* Dr. R. L. Saxon of Holly Grove. The next meeting of the society will be held at Forrest City in November, 1908.

Eaton County (Mich.) Medical Society.—This organization has elected the following officers for the ensuing year: *President,* Dr. L. H. Quick of Olivet; *Vice-President,* Dr. A. H. Hixson of Grand Ledge; *Secretary,* Dr. A. H. Burleson of Olivet.

Central Illinois Homeopathic Society.—This society held its annual meeting in Bloomington on October 29 and elected officers as follows: *President,* Dr. W. P. Armstrong of Springfield; *Vice-President,* Dr. Charles Bogardus of Clinton; *Secretary,* Dr. Clara Garber of Decatur.

Hillsdale County (Mich.) Medical Society.—At the meeting of this society, held in Hillsdale on October 25, officers for the ensuing year were elected as follows: *President*, Dr. H. C. Miller of Hillsdale; *Vice-President*, Dr. S. B Frankhauser of Hillsdale; *Secretary*, Dr. H. H. Frazier of Allen; *Treasurer*, Dr. I. J. Stoner of Ransom.

Homeopathic Medical Society of St. Louis.—The following officers have been elected by this society: *President*, Dr. S. W. Coffman; *Vice-President*, Dr. H. Beal; *Secretary and Treasurer*, Dr. H. A. Uhlemeyer.

The Chicago Medical Examiners' Association, at a recent meeting, adopted resolutions severing its connection and affiliation with the American Association of Medical Examiners.

Obituary Notes.—Dr. CAMPBELL C. FITE of this city died on November 9, after a prolonged illness. Dr. Fite was born near Shelbyville, Tenn., in 1855. He studied medicine with his stepfather, Dr. R. F. Evans, and was graduated from the Louisville Medical College. He held several positions on the Tennessee Board of Health, and practised for a time in Nashville. In 1885 he was made assistant superintendent of the East Tennessee Hospital for the Insane at Knoxville, Tenn. In 1899 he removed to this city.

Dr. THOMAS P. CORBALLY of Brooklyn died on November 4, at the age of eighty-four years. He was graduated from the New York College of Physicians and Surgeons in 1868, having been a teacher of languages before he entered the medical profession. He had been connected with St. Peter's Hospital, Brooklyn, for a great many years.

Dr. MORRITZ E. RICHTER of Portsmouth, N. H., died on November 3, at an advanced age. He was born in Germany, and received his medical degree from the University of Leipsig. He had practised in Portsmouth for over fifty years, and retired from active work a few years ago.

Dr. JOHN E. GOGGINS of Conconully, Wash., died on October 21, at the age of thirty-three years. He had been a resident of Conconully for five years, and at the time of his death was health officer of Okanogan County.

Dr. JOSEPHINE KINGSLEY of San Antonio, Tex., died on October 14 of heart disease. Dr. Kingsley was born in Ripley, N. Y., and was graduated from the University of Michigan in 1873. She began practice in Detroit, and for five years was connected with the Women's Hospital of that city. She then removed to San Antonio, where she practised until the time of her death.

Dr. ALBERT M. WHEELER of Houghton, Mich., died on November 1, at the age of thirty-nine years. Dr. Wheeler was a native of New York State, but received his education in Ann Arbor, and in 1878 was graduated from the medical department of the University of Michigan. He had practised in Houghton for the last fourteen years, and had served many terms as county physician.

Dr. ARTHUR H. COWDREY of Stoneham, Mass., died on November 4, at the age of seventy-two years. He was born in Acton, Mass., and received his medical degree from Harvard Medical School with the class of 1857. He served through the Civil War as assistant surgeon in the Seventh Massachusetts Infantry and as surgeon of the Thirty-seventh U. S. Infantry. At the close of the war he settled in Stoneham, where he continued in practice until declining health caused his retirement two years ago.

Dr. THOMAS HILAND, U. S. N., retired, of Concord, N. H., died at Bar Harbor, Me., on October 29, after a long illness, due to cardiac disease. Dr. Hiland was born in Langdon in 1839 and was graduated from the medical department of Dartmouth College in 1862. He immediately entered the naval service, and was retired in 1884 with the rank of medical inspector, owing to an accident received in the service. Since that time he had practised in Concord as a specialist in diseases of the eye and the ear.

Dr. HENRY C. BOENNING died at Philadelphia on November 4, at the age of fifty years. He was graduated from Jefferson Medical College in the class of 1879, and became a resident physician in the Philadelphia Hospital. Subsequently he occupied teaching positions in the Medico-Chirurgical College, the Philadelphia School of Anatomy, the Philadelphia Dental College, and Temple College. He was the founder of the Garrettson Hospital, and he served a term as Port Physician, and later as Quarantine Physician at the Port of Philadelphia.

Dr. WILLIAM CHARLES TODD died at Philadelphia on October 3, at the age of eighty-four years. He was born in Ireland, but came to this country at the age of twenty years. He was graduated from Jefferson Medical College in the class of 1855. At the outbreak of the Civil War he was commissioned surgeon of the Sixty-sixth Regiment, Pennsylvania Volunteers, Infantry. He was subsequently transferred to the Fifth Regiment, Pennsylvania Cavalry, serving until August, 1864. He was the first member of the surgical staff of St. Timothy's Hospital.

Dr. MARY H. CHEYNEY died at West Chester, Pa., on November 9. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1885, and was for many years a member of the medical staff of the Chester County Hospital.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

HARVEIAN ORATION AT ROYAL COLLEGE OF PHYSICIANS—BALY MEDAL—TROPICAL SCHOOL—LONDON OPEN TO PLAGUE—"OLD BARTS" ENTERTAINMENT—GUILD OF ST. LUKE—COLLEGE CALENDAR—OBITUARY.

LONDON, October 25, 1907.

THE Harveian Oration at the Royal College of Physicians was delivered on Friday by Dr. Frederick Taylor, the President, Sir R. D. Powell occupying the chair. It was at this college, in 1616, when giving the Lumleian lectures, that Harvey announced his great discovery, and though he had to contend with doubts and opposition he eventually established his position. In his will he left an endowment for an annual oration at this college in which the Fellows (there were no members or licentiates in those days) were to be exhorted "to search out and study the secrets of nature by way of experiment, and also, for the honor of the profession, to continue mutual love and affection among themselves." So for 250 years these orations have been given, and, as we may well believe, it can be no easy matter to impart novelty to a discourse under such circumstances or to add much in praise of Harvey himself and his great work. The advances in medical science in recent years form an interesting chapter, and their close connection with the dispute on vivisection cannot be overlooked. Dr. Taylor pointed out that Harvey's discovery was preceded by experiments on living animals and showed the necessity of testing the vital operations during life. Opposed to this necessity was, he said, the humane sentiment which restricted by law the number of persons making these experiments and the number of their operations. That policy adopted in this country was only saved from disastrous results because our doctors were able to use the knowledge obtained by vivisectionists in foreign countries; at the present time there was a movement to abolish these experiments altogether. It was asserted that vivisection was useless, but the example of Harvey sufficed to disprove the assertion. It was alleged that vivisection was immoral and cruel, but did anyone ever suppose that the medical profession approved it except to benefit humanity, and even the lower animals, too? For centuries the animals

had been killed for food, slaughtered to make way for human beings, maimed for sport, and kept in captivity for amusement. Why should vivisectionists be more blamed than people who did those things? As part of their daily life medical men saw acute human suffering, sometimes borne by persons very dear to them. Was it surprising that they should seek for means of relieving that suffering at the cost of slight pain to a few of the lower animals?

Passing to the consideration of the advances made in recent times, the orator observed that those connected with the circulation of the blood held a first place in any address in memory of Harvey. He therefore first spoke of the heart's beat in relation to the rather undesirable term "heart-block," the structure of the blood and the conditions of arterial tension. Here he referred to the work of Professor Starling, to whom the Baly medal was about to be presented. Next he spoke of asepsis in surgery and then of the treatment of diseases by antitoxins and opsonins. Having instanced these, he turned to the other side of the medal. Of the diseases of which the microorganisms have been discovered, few can be prevented or cured. Influenza yielded up the secret of its cause at its first invasion after bacteriology became an established science. But no advance in treatment had followed, and it still pursued its own sweet way, broke out in scattered epidemics from time to time without obvious cause, attacked some individuals over and over again, spared others entirely, invaded different organs in a most erratic way, and defied all efforts to control it. Referring next to plague and sleeping sickness, he added that after all the cure and prevention of infective diseases was only a part of the task of the profession. Pathology was not all inflammation, even if inflammation was mostly microbic. There remained regenerations, new growths, mechanical troubles, congenital deformities, and so on. There was extensive room for research, and though the number of workers on the highest lines might be limited, the body of the profession would always support Harvey's injunction to search out the secrets of nature. The orator concluded with the usual commemoration of benefactors of the college.

The President then presented the Baly medal to Professor Starling for his distinguished services to physiology, and said he did so with the greater pleasure on account of the peculiarly painful accusations to which the professor had been subjected by some who should have known better and others who, through simple-hearted ignorance, had been misled.

The School of Tropical Medicine began a new session on Tuesday under most promising auspices. The chair was taken by the assistant undersecretary for the Colonies (Mr. Antrobus), who remarked that the Colonial Office could not be accused of backwardness in relation to the study of tropical medicine, for it had been concerned in the foundation of the school and had helped to establish the chair of the subject in the University of London with which the school is connected. Moreover, the school possessed a chair of pathological entomology, one of three founded by the Colonial Office and, if that office became convinced that more money was needed for the investigation of tropical diseases, it would no doubt be able to get grants for the purpose. Knowledge of these diseases and their treatment was of the greatest importance to the Colonies and had already begun to bear fruit. In the last few years a marked improvement had shown itself in the health of the British Colonies and Protectorates in West Africa, and he saw no reason why that part of the world should not, with the help of schools such as this, be made one of the healthiest sections of the Empire. Everyone knew the part Sir Patrick Manson had played in the investigation of these diseases, and he noticed with pleasure that he had been chosen as the first President of the International Society on the subject.

Sir Lauder Brunton delivered an address in which after reminding his audience of the progress made in dealing with yellow fever and malaria since the discovery that they were communicated by mosquitos, he referred to sleeping sickness, which had devastated large tracts of Africa and threatened to do worse. The only chance of arresting it lay in destroying the fly which caused it, and as the same was true of other cases he urged that the government should establish an institute of pathological entomology well endowed and having attached to it men who could carry out original research. Malaria and sleeping sickness were of especial importance, although they did not directly affect the health of this country's taxpayers. But there was another of these scourges which might at any time do so—plague, now working havoc in India. This originated among rats, but not directly. Beyond doubt, though infected food might communicate plague, the fleas of rats were the main agents. Cases of plague arrived from time to time at the port of London, precautions were taken to isolate them, but rats might become infected. They crept along the ropes to the shore and by infecting other rats might start an epidemic. It was extraordinary, but true, that such minute and despised creatures as fleas were a national danger. It was folly to allow rat and flea-infected districts to exist in East London, which was in daily danger of being attacked by plague.

On Wednesday night "Old Barts" indulged in a sort of magnified house-warming in the new building. Some 2,000 ladies and gentlemen accepted the invitation of the medical staff and lecturers to come to see for themselves the last step in the progress of the great hospital. The colleges, universities, societies, naval and army services, and citizens of all degrees were represented among the guests who were received by the senior physician and surgeon, and in every part something had been prepared for their entertainment. The waiting hall was decorated with flowers and the band of the Life Guards. The building contains special departments for ophthalmic, laryngological, aural, dental, dermatological, gynecological, electrical, orthopedic, pharmaceutical, and chemical work. There were demonstrations in all directions, one of *x*-rays. Exhibitions, too, there were of whatever is important in modern hospital methods. One exhibition was devoted to showing the importance of pathology, and that illustrated the need of the new block now in course of erection for that department and stimulated the appeal for funds for that purpose. As one of the teachers remarked rather sadly, the public give freely to the immediate relief of suffering, but do not understand that the object of pathology is to prevent disease.

The annual service organized by the Guild of St. Luke was held at St. Paul's Cathedral on Tuesday evening There was a large congregation, and many of the doctors paraded in their academical robes. The collection was for the College of St. Luke, a residential institution for students training to be qualified medical missionaries.

The calendar of the Royal College of Surgeons gives 1,387 Fellows on the roll (an increase of 24 over last year). There are 17,544 members and 308 licentiates in midwifery, the discontinued diploma, now remain. The income amounted to £24,326, 17s. 8d., the chief item being fees for the membership, £15,219. But the members have no voice in the government, not even a vote for the council.

An "Olde Englyshe Faire" is being held in aid of the Bolingbroke Hospital, in Battersea Town Hall, which is built on a site which at a similar entertainment in 1881 was occupied by a family who took a leading part in getting it up. The site on which that hospital fair was itself held has long been built over. The other suburbs are growing as fast.

Dr. T. M. Dolan, J. P. of Halifax, died on the 22d inst. in his sixty-fourth year. He qualified at the two Edinburgh colleges in 1866. Took the Fellowship of the Surgeons in 1879, and M.D., Durham, 1883. He had been Vice-president of the British Gynecological Society and President of the local Medical Society, and held office in other societies. He was Fellow and Prizeman of the Medical Institute of Valencia, was awarded the Fothergill gold medal for his work on whooping-cough 1881, the Royston prize of Harvard University, 1882, for his "Sewer Gas," and obtained the £100 prize essay, 1881, on "Life Assurance." His work on "Rabies" appeared in 1878, and in 1892 on "Pasteur and Rabies." He held various professional offices in Halifax and wrote many other articles, translations, and pamphlets, besides numerous contributions to societies and journals—among them an "Analysis of 3,435 Consecutive Labors."

Dr. Wm. Hy. Day, Consulting Physician to the Samaritan Hospital, died on the 22d, aged seventy-six. He qualified in 1854, took M.D., St. And., 1857, and M.R.C.P., 1867. He wrote a work on "Diseases of Children" which went to a second edition in 1885, and a volume on "Headaches," which reached a fourth edition in 1888. Early in his career he entered the army medical service as assistant surgeon to the Buffs and served in the Crimea and during the siege of Sebastopol. Later he settled in London as a consultant and became attached to the Samaritan Hospital. He was a member of several societies, secretary for a considerable time of the Harveian, and a contributor of papers to both societies and journals.

Lt.-Col. Edmond Hoile, M.D., R.A.M.C., died on the 18th inst. in his seventieth year. He entered the service in 1858 and retired on pension in 1883. He served with distinction in the China war of 1860, and displayed unremitting devotion in the yellow fever epidemic at Barbados in 1881. During his long service he had been in the Engineers, the Devonshire, and the Lancers, in China, India, and the Colonies, and always obtained the confidence and esteem of those under his care. He wrote the report on yellow fever in the Army Medical Blue Book and the report on the Hoile military equipment for the War Office.

Deputy Surgeon-General R. W. Carter, A.M.S., who was in his seventy-seventh year, passed away in his sleep on the night of 20th-21st. He qualified M.R.C.S. and L.S.A. in 1854, and at once entered the army service, serving with the 20th Regiment through the Crimean campaign, including the Alma, Sebastopol, and Kinbourn. He afterwards went to India and served through the mutiny, 1858, and received the thanks of the Viceroy and His Royal Highness, the Commander-in Chief, for his devotion in the cholera epidemic in India, 1859. He took the M.D. of Calcutta 1865. He served in the Afghan War 1878-80, and was awarded the medal. He retired in 1884. Afterwards he became surgeon and consulting surgeon to the Weymouth Royal Eye Hospital. He wrote several papers on anesthesia and was the inventor of an ether inhaler.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

APPROPRIATIONS FOR NEW HOSPITALS—PHILIPPINES MEDICAL SCHOOL—CHOLERA—GOVERNMENT DOWRY FOR ORPHAN GIRLS.

MANILA, P. I., October 1, 1907.

THE requirements of the medical and sanitary service of the Philippine Islands have received further substantial recognition by the recent appropriation acts of the Philippine Commission. The sum of 780,000 pesos ($390,000 U. S. currency) was appropriated for the construction of a general hospital for the city of Manila. This sum, in addition to the amount previously appropriated for the site, makes about half a million dollars available for hospital purposes. It is proposed to merge with the new institution the present Civil Hospital, and to take care of the indigent and of such pay patients as may apply for treatment. The building will be of reinforced concrete and will be located upon the exposition grounds next to the buildings of the Bureau of Science, so that the best of laboratory facilities will be readily accessible. The buildings will consist essentially of an administration building, five two-story separate pavilions, which will have a capacity of thirty patients upon each floor, or six patients per pavilion. The present plans provide for 300 beds, and the construction is so arranged that new pavilions may be added as soon as additional appropriations become available. In view of the excellent facilities which this hospital will offer for the study of tropical diseases, and the large staff of the Bureau of Science being available for conducting laboratory work, the hospital will not only be a great benefit to the people of Manila and the Philippine Islands generally, but to the remainder of the world, which will no doubt derive considerable benefit from the study of tropical diseases which will be made there.

The Commission also appropriated the sum of 250,000 pesos ($125,000) for the construction of a new building for the Philippines Medical School, which was started during the past year. In view of the fact that many of the teaching staff have an international reputation, and with the excellent facilities for teaching tropical medicine which will be afforded, Manila bids fair to become the medical center of the Orient, and no doubt students will come from the different nearby countries to participate in the advantages which will be afforded.

The cholera, of which mention has been made from time to time, has shown a tendency to increase in the city of Manila during the past few weeks, although, to date, it has not taken on any of the characteristics of an epidemic, most of the cases being sporadic in character. The disease has been confined, practically, to the city of Manila. During the week ended September 28 there were twenty-eight cases and twenty-seven deaths reported. The disease is, however, virulent in type, the victims succumbing usually in a few hours after the first symptoms appear. To date only a few patients have reached the hospital alive. The presence of the disease has been attributed to the filthy practice in vogue with Chinese market gardeners, of fertilizing vegetables with liquid excrement. It is believed that a stool containing cholera organisms has fallen into the hands of one of these Chinese vegetable gardeners, and persons eating raw vegetables from that garden are being infected. Much evidence has been collected which tends to prove this theory. There is an act of the Commission which prohibits this practice, and appropriate penalties are prescribed, and, during the past week, several Chinese market gardeners were detected infringing the law and were convicted by the courts. The outbreak of the disease in the province of Leyte has apparently been checked; no cases of the disease having been reported for over two weeks.

In a recent appropriation act the Philippine Commission has included a provision which is rather novel in the annals of American legislation. At the Hospicio de San José, where indigent and homeless orphans are maintained by the government, it has developed that a large number of young females have become charges of the government. With a view to conforming to the customs of the country, the Commission has provided that in the event of the marriage of a female inmate of a charitable institution which is maintained at government expense, such inmate shall receive a dowry equal to the expense of maintenance for two years, such payment to be made in the discretion of the Secretary of the Interior.

CONTRADICTORY ADVICE TO CONSUMPTIVES.

TO THE EDITOR OF THE MEDICAL RECORD:

SIR:—Referring to your editorial in the issue of November 2, entitled "Contradictory Advice to Consumptives," I beg to say that your reference to the subject is both timely and just. It is passing strange that it should be supposed that rules can be formulated which will enable the lay reader to know what course to pursue. Even the physician is sorely puzzled in trying to separate the "chaff from the wheat." The disease in question is confessedly one of the most difficult to overcome, and no method of treatment yet discovered is of universal application. We need to learn to treat the patient, and not the disease. The patient himself must become the chief weapon of victory in the hands of the skilful physician. Account must be taken of the personal equation and the campaign planned with special reference to the forces at our command.

When we stop theorizing and adopt this common-sense view, it will be found that every plan which has been suggested has something to recommend it and that certain classes of patients will benefit thereby. No further demonstration is needed to prove the absurdity of further effort to instruct the lay reader or to show the importance of leaving the matter in the hands of the medical profession —where it rightfully belongs.

JOSHUA L. BARTON, M.D.

NEW YORK.

Progress of Medical Science.

Boston Medical and Surgical Journal, October 31, 1907.

The Origin of Right-Handedness.—An interesting article on this subject is contributed by George M. Gould, who traces the development of the child in its mentality and physical growth. Physiologically the only reason why an infant puts forth the right hand to grasp objects is because the right eye is the one which is nearest perfect visually, anatomically, or optically. The law derived from the phylum of the entire past is that the right eye and right fore-foot, or right hand, must work together. In all animals the right eye governs the placing and action of the right front foot of the right side of the body, the guarding against dangers on the right side, etc. The left eye has the same office for the left side. Heredity has place in the creation of the more nearly perfect right eye. If the left eye of the infant is the better seeing eye it will grasp at objects with the left hand, and become left-handed. Handedness, if one may devise the word, becomes either right-handedness or left-handedness, according to the dictating condition of the better eyedness, right or left. The writer goes back to the beginning of human records and says that right-handedness and general right-sidedness date back to primitive war, barter, and the tally-stick. The left hand and arm were used to hold the shield and thus protect the heart, while the right hand held the spear. After summarizing the peculiarities of the left cerebral hemisphere as contrasted with the right, in the adult, he states that the child is born with no discoverable differences of cerebral structure or substance of the two cerebral hemispheres, and none ever appears thereafter. But about the sixth month of life the babe, which will naturally become a right-handed one, begins to put forth the right hand instead of the left to grasp an object, and the cerebral matter about the left third frontal convolution, however unchanged or like that on the right side, is thenceforth increasingly and exclusively used to control the organs of speech, of writing, and of memory. The differentiation and complication of the cerebral mechanism whence spring all the acts begins in infancy with simple homogeneity, and grows in complexity with every year of added life. With each added year of differentiation the expertness grows, and it grows because the single cerebral mechanism has become more and more complex. There-

fore with each added year the impossibility of educating the corresponding centers on the right-brain becomes greater. The writer condemns unsparingly and with customary vigor the attempt to convert the occasionally left-handed child into a right-handed one and he also has no sympathy with the "ambidexterity mongers," whose aims he declares are futile. The trend in all human beings is, he says, for them to become more and more exclusively and despotically either right-handed or left-handed. So that with each added generation the impossibility of ambidexterity will increase.

New York Medical Journal, November 2, 1907.

Hyoscine Hypodermic Anesthesia.—F. B. Kirby follows the plan herewith given. The patient is given a hypodermic injection of hyoscine hydrobromide 1/100 gr., morphine hydrochloride 1/4 gr., and cactin 1/67 gr. The room is darkened and the patient encouraged to sleep. One hour later a second dose is given and in half an hour the operation may be begun. If the patient is not completely "under," a little chloroform will suffice. The writer's experience has been mainly in obstetrics and he notes that the patient usually sleeps between the pains which always awaken her to active help in aiding expulsion. In some few cases the child has been cyanotic for a while, but always revived in a short time. This effect on the child is avoided by omitting morphine from the second dose. In no case have any untoward results been observed. It is doubtful whether labor is prolonged, but rather to the contrary, as the mother's strength is conserved to be used *with* the pains and not lost *between* them. The anesthetic is too profound for minor surgery and should be used with care at the extremes of life. The patient is in a state of slumber and will readily respond to a sharp command. The writer declares that in railroad and other accidents the new method is of great value. Here twenty-five or fifty people could receive preliminary pain-relieving treatment while one was being cared for with ether anesthesia and in the hour and a half necessary could be transported to a suitable place for care.

Treatment of Anemia.—After enumerating the causes and classical symptoms of this condition and describing the blood state, C. Pope takes up the question of treatment. He has had the usual disappointing experiences with drugs and makes a strong plea for the more general employment of hydrotherapy and phototherapy. He considers two classes of cases, bed ridden and ambulatory. The details of his plan are as follows: Commence in the first class with the daily use of a dry blanket pack, enveloping the patient tightly in the same for twenty to forty minutes in order to collect heat upon the surface, this to be followed by the cold sponge or ablution at 70° to 50° F., followed by good reaction and general body friction. When the patient's reactive power has been well developed by this method we may substitute for the pack and sponge the following: While the patient stands in a very hot foot bath, the "dripping or sheet bath" is given with vigorous friction, duration three minutes, commencing with a temperature of 70° F., reducing 2° daily to 60°. It should be given in the early morning as an opening procedure for the day. As soon as the patient is ambulatory we may commence with the administration of the incandescent electric light bath until commencing perspiration, or dry hot air to the same point, although the electric light bath is by far the best. As soon as the patient warms up thoroughly give the circular, needle, or rain bath at 102° F. for one to one and a half minutes, reduced to 60° F. for a quarter of a minute, pressure 20 to 30 pounds. Good reaction must be obtained. In women this will be as strong a treatment as they can usually stand with comfort. With men, however, we may use the electric light bath to point of perspiration, followed by a circular, needle, or rain bath at 102° to 104° F. for one minute, this in its turn to be followed by the jet douche to the spine at 60° F. for one quarter of a minute, followed in its turn by the fan douche to the entire body, especially the abdomen, for a quarter of a minute, 20 to 30 pounds pressure. It is sometimes an excellent rule to play the jet douche up and down the posterior aspects of the lower limbs and gently over the surface of the tibiæ, for this oftentimes very materially stimulates the marrow of the long bones to the formation of blood cells or drives the cells into the circulation.

Diet in Tuberculosis.—J. V. White says that there is no specific diet in tuberculosis. Faulty digestion and malnutrition form an etiological factor in every case. Consequently to practise forced feeding as a routine measure is in the highest degree illogical. If it is attempted, serious results may follow. The treatment of digestive disorders in phthisical patients does not differ from that in other patients except in the urgency of the case. A restricted diet is often necessary at the outset. This rests the digestive organs and facilitates elimination of toxic material. Fever, muscular exercise, age, and mental condition all determine the proper diet. For example, much physical labor calls for a large proportion of carbohydrates. If the temperature is high, salt should be diminished and water increased. Autointoxication is a most pernicious factor in the disease. Consequently the greatest vigilance should be directed against the ingestion of food which may contain bacilli. The best way to do this is to investigate the source of the food. To this end much is being done in the inspection of cows. Cows, the milk of which shows the slightest suspicion of tuberculosis, should be excluded from the herd. When we consider the number of babies and children fed upon an exclusive milk diet, and when we recall the fact that the bacillus that keeps up the great white plague is most commonly introduced into the system in this way, and when we further recall the fact that these germs may remain in the system for years before they begin their deadly operations, we are compelled to regard the milk of tuberculous cows with the greatest apprehension. On occasion of some trifling ailment these germs break their fetters, and like dogs of war attack the very citadels of life. The pale and vanquished victims ascribe it to some cold or exposure, but the physician knows that the primary cause was introduced in babyhood or later, very probably in the form of tuberculous milk.

Physical Defects of School Children, Causing Subnormal and Mentally Deficient Pupils.—S. A. Newmayer enumerates as the chief factors in producing this class of backward children, fatigue or chronic exhaustion, starvation, toxemia, nervousness, defective vision, defective hearing, and defective speech. He then elaborates these various headings and submits a form of chart which he has found satisfactory in recording the facts brought out in examining defective school children. He notes that the examination should be thorough, as upon these findings are based the methods of treatment. Nutrition, weight, and height should be noted, and any increase during treatment should be observed. Nerve signs and coordination should be recorded, after using the various tests at our command. The eyes, ears, and nasopharynx, including speech, should best be reported upon by a specialist of these branches. Questioning the pupil tells much as to the mental and nerve conditions, as well as speech and hearing. As to abnormality or asymmetry in formation of skull or other members of body, its presence with mental deficiency is significant. But they are sometimes present without an impaired mental state. Treatment is preventative and curative. The former includes proper school sanitation and the latter the removal of any obvious defects of eyes, ears, throat, etc. A valuable modern advance has been the placing of backward children in special small classes by themselves and under the care of a special teacher. This includes manual training, which is of value as leading to concentration.

Journal of the American Medical Association, November 9, 1907.

Deep Alcohol Injections in Neuralgia.—H. T. Patrick reports sixteen cases of trifacial neuralgia treated by deep alcohol injections according to the method of Levy and Baudouin, which he describes. The exact location of the injection by the physician is not without its difficulties, owing to the anatomic variations that are so common, but the injections are apparently often effective even if the exact point aimed at has not been reached. Fortunately, Patrick says, it is not necessary to get the alcohol into the nerve sheath, though, of course, this is desirable. The only difficult part of the operation is the difficulty of accurately striking the nerve. The dangers of the operation are probably not all known. With proper care the risk of infection is minimal, but it would be serious should it occur. The blunt point of the stylet used reduces the danger of serious hemorrhage. The injection of the orbital division is considered hazardous by Patrick on account of the proximity of the ocular motor nerves, and the optic nerve itself might be involved. The possibility of entering the orbit in operating on the middle branch is also mentioned. Patrick is sure this happened in one of his patients. No serious results followed, but the immediate consequences, enormous edema, etc., must have been annoying. In most of his cases the operation was not especially painful or formidable to the patient. Anesthesia was used in only one case. Ordinarily there is only a feeling of rather uncomfortable pressure or tension following the injection, sometimes a diffuse headache, usually transient and not severe, or a little local stiffness or swelling. In orbital injections the symptoms, of course, may be more severe. In several of his cases the injection was done at his of-

fice, the patients going directly about their business afterward. The therapeutic results have been most gratifying; all his patients were relieved and most of them completely up to the time of report. It is not claimed that the injections will accomplish a radical cure—according to Schlösser recurrence is the rule—but then the injections can be repeated. Experience is needed to enable us to say how long the relief will continue, but it has been known to last over two years. Early relapses are attributed by Patrick to imperfect injections.

Treatment of Diabetes Mellitus.—J. Tyson says that the problem in diabetes is either to restore the carbohydrate metabolism or to substitute some other source of energy and heat. The dietetic treatment is of the first importance, and the first step is to ascertain how much carbohydrate is assimilable and to give this much or a little more. Each patient is more or less a law to himself, and the food trials must be checked by frequent quantitative analysis and weighings of the patient. The best method is to place him at first on a purely proteid diet, and if sugar disappears in the urine to add gradually small amounts of starch-containing foods until sugar reappears, such reappearance beyond 2 per cent. being the signal for stopping the addition of carbohydrates. The patient should be put again on a purely proteid diet for about five days once a month to see how far the sugar output is controllable. Dietetic treatment is rendered more efficient by hygienic and medicinal measures, and of the former he specially mentions keeping up the action of the skin by daily bathing in tepid or hot water, assisted by friction and massage and exercise short of fatigue. Sleeping in a large and well-ventilated room or even out of doors favors the combustion of carbohydrates. Constipation is to be specially avoided. Calomel is a purgative especially indicated, but large doses may be needed. The medicinal treatment, though not very satisfactory, should not be neglected. The only remedies that seem to have a direct influence on diabetes without regard to its cause are opium and arsenic. Tyson prefers codeine, beginning with a quarter of a grain three times daily, and adding a quarter of a grain daily until the desired effect is produced or the daily dose reaches 4 or 5 grains. Arsenic is much less effective than opium, and chiefly in mild cases. Tyson's favorite preparation is Fowler's solution, which he prefers to give in rather small doses extending over long periods without interruption rather than to produce the physiological effect of the drug. There is some prospect of good in organotherapy, more especially in the injection into the blood of the amylolytic secretion of the pancreas. Some claims have been made for "secretin," the active principle of the succus duodenalis. The prophylactic restriction of sugar and starch in the diet of those hereditarily disposed to diabetes and obesity is also mentioned.

Adenoids in Infancy.—Dr. J. L. Morse thinks that the importance of adenoids in early infancy is not sufficiently appreciated by the profession. An idea is extant that their removal is not indicated because of the great likelihood of their recurrence. In a great majority of cases they do not recur and the removal, which is without danger, saves the little patient from a whole series of ills caused by their presence, and even in case they should recur a second operation is easily and safely performed. He goes over the anatomy of the parts in early infancy, showing how greatly the presence of these growths can interfere with the patient's respiration in the undeveloped nasal pharynx and postnasal pharynx. On account of the small size of the superior pharynx and postnasal opening even a very small amount of adenoids may cause very serious obstruction to nasal respiration. This necessitates oral breathing, which is imperfectly performed by the child, especially when asleep. It also interferes with sucking; the child cannot breathe and take its nourishment simultaneously, and it is astonishing how much disturbance of nutrition may be thus caused, as shown by a case he reports. Rickets is also caused by disturbed nutrition from adenoids and chest deformities are common. Adenoids are a very common cause of colds in the head and snuffles in infancy, and also irritating coughs without physical signs, especially troublesome at night, which is only relieved by removal. Attacks of laryngitis and spasmodic croup are also attributed by him to this cause, and sleeplessness at night, even without the marked symptoms, like oral breathing, cough, etc., should lead to a suspicion of their presence. They open the door more frequently to bacterial invasion and the danger of tuberculous infection is a very real one. Morse also says that they are the most frequent cause of otitis media owing to the special anatomy of the parts at this early age, and in his experience repeated attacks of otitis media in infancy are almost invariably due to adenoids.

Contagion as a Factor in the Spread of Typhoid Fever.—C. F. Mason says that the lesson taught by experience in 1898 that personal contact is a most important factor in the spread of typhoid fever has been thoroughly taken to heart by the army medical authorities. He reproduces a circular sent out to all the officers and men in the army, calling particular attention to this point, and giving full directions how to prevent contact infection. Since the issuance of this circular in 1902, further evidence of the spread of typhoid in this way has accumulated from epidemics in various military posts, and further instructions were sent out which are here reproduced. There has been practically a continuous fall in the death rate per thousand from typhoid in the army since 1898, the rate for 1906 being 0.28, a lower rate than that before the Spanish-American war. The admission rate follows the same course up to 1906, when there was a marked increase, notwithstanding the continued fall in death rate. This, however, is believed to be largely due to two factors, one, the increasing recognition of mild cases, which is indicated by the fact that the case mortality fell from 8.5 to 5.2 per cent., and the other to the presence of practically the entire mobile army in the field at maneuvers during the summer; 40 per cent. of the cases occurred while the army was in the summer camps and were believed to have been contracted while on the march through the country districts.

Tardy Malnutrition.—C. G. Kerley discusses a class of cases, familiar to physicians, of children who, without suffering from serious constitutional disease, show marked developmental defects, such as underweight and muscular insufficiency, and also a lack of physical energy and resistance to disease. They almost invariably suffer from secondary anemia, have indifferent appetites, and are often habitually constinated. The chief cause is underfeeding; not necessarily lack of quantity of food, but ill-selected food. The next most important factors are excessive expenditure of energy and lack of adequate rest. These, he states, may be brought about by exacting school requirements or by anything that overtaxes the developing organism. The defects of school management of children are probably overestimated, but still they exist and should be watched for, but not made the scapegoat for home deficiencies. In the management of these cases, each detail of the child's life should be studied and every error corrected so far as possible. Kerley gives his method in detail for cases in which no condition deterrent to growths exist, consisting in a sort of modified rest cure, avoidance of mental and physical stress, a regulated high proteid diet, three meals a day being usually best for children, and agreeable attendance. Malnutrition children who are inmates of a neurasthenic home or one where there are stronger and noisy children do best when changed to quieter surroundings. In a few of his cases the regulated life of a properly conducted boarding school has been found beneficial. Sugar is generally best restricted, as these patients are apt to be overfond of it while bearing it badly. He says: "A common-sense diet, an absence of food and sweets between meals, with one and a half or two hours rest after the noonday meal, has been proved by bi-monthly weighings and blood examinations to be of more therapeutic value than I would have believed possible had I not personally observed it in a great many cases.'

Ocular Symptoms of Nasal Origin.—O. A. Griffin describes and illustrates the anatomic arrangements of the cranial and facial bones as bearing on the production of ocular symptoms from nasal disease, especially when certain irregularities exist. It is not surprising that active inflammatory conditions in the nasal passages are often associated with disturbances in the visual apparatus. Refractive disturbances, muscular imbalance, conjunctivitis, glaucoma, etc., cannot only be simulated, but actual destructive lesions, neuritis, chorioiditis, iritis, and keratitis may result from an infective process in an adjacent ethmoiditis or sinusitis. These conditions have been observed by him so often that he does not consider an ocular examination complete without inspection of the nose and its accessory sinuses. Eight cases of apparent ocular disease relieved by treatment of nasal conditions are reported. In one case a troublesome heterophoria which could be relieved by glasses entirely disappeared after removal of the inferior turbinates for nasal obstruction, to the surprise of both patient and physician. Under the circumstances, the author remarks, the disappearance of a heterophoria is unique.

The Lancet, October 26, 1907.

A Case of Erythromelalgia.—The noteworthy feature of the case reported by R. G. Hann is that it must be considered in the light of the evidence at hand as idio-

pathic, whereas the majority of recorded cases have been intercurrent in the course of central nervous disease. The patient was a married woman of fifty years who had had many illnesses and numerous ailments. She had been living under circumstances producing very great variations of temperature and was also continually on her feet. She showed three distinct stages of the disease: (1) A premonitory one of severe pain, varying in severity without swelling or redness; (2) an acute stage of the most severe pain worse in the dependent position, with a tender, pink, puffy swelling, and (3) a chronic condition with slighter pain, except on using her limb with tenderness only on deep pressure and a brown-red swelling. In the hands the last stage was represented by slight tenderness without swelling or discoloration. The peculiar feature of the case was that pain always preceded the vasomotor signs. The length of the initial attack (two weeks) is unusual. Initial attacks generally last but a few hours. Desquamation is rare, but occurred here. The patient gave various evidences of vasomotor instability.

Acute Spreading Gangrene.—Two cases are reported by R. R. James. Bacteriological results were the same in both, *i.e.* cultures were obtained of a variety of the *Bacillus aerogenes capsulatus* and it was impossible to discover any attempt at spore formation. Case 2 was one of gangrene following compound fracture of the leg, for which amputation was done thirty-one hours after the accident. This patient recovered. Case 1 reported in detail was that of a man of thirty years run over by a 'bus, which caused a compound fracture of both bones in the upper third of the left leg. Posteriorly there was a gaping wound exposing the bellies of the gastrocnemius, one of which was partially ruptured. The wound was very dirty. Pulsation was evident in both tibial arteries at the ankle and an effort was made to save the limb. Twenty-eight hours after admission, a chill came on with fever, and the next morning the wound was definitely gangrenous and the whole limb swollen. The general condition forbade any amputation, so the whole wound was opened up and hot fermentations were applied. On the third day the leg was black and green about the fracture and large black bullæ were noticed. Death came eighty hours after admission. Blood-stained fluid from the bullæ gave the bacteriological results above noted. The author notes that organisms usually anaërobic have been isolated from many cases of spreading gangrene. Though generally identified as *Bacillus aerogenes capsulatus, Bacillus enteritidis sporagenes,* or *Bacillus edematis maligni,* the organisms isolated rarely conform strictly to the classical descriptions of these microbes. In the present instance the bacillus obtained seems to be most nearly related to the *Bacillus aerogenes capsulatus,* though differing in some respects.

Mobility of the Kidneys.—H. Mackenzie gives a general description of this condition, noting its frequency in women, declaring that in the great majority of cases it produces no symptoms and that where local symptoms are absent, it requires no treatment. If symptoms are present, a fair trial should be given to non-operative methods of treatment. If these fail to relieve and if the kidney is diseased, operative intervention is indicated. The author has collected from literature the results in 131 operations. Out of this number nephrorrhaphy or nephropexy was performed 113 times, with a successful issue in 80 cases, but in some of these the time which had elapsed after the operation was too short to enable one to judge of the real result. In 17 cases partial relief only followed, and in 13 the result was failure, and in 5 of these subsequent nephrectomy was performed with a successful issue. In 3 cases there was a fatal result. Nephrectomy was performed as the primary operation in 18 cases; 14 were successful; 1 was a failure; 3 proved fatal. In these cases which were operated on pain was an almost invariable symptom. Dietl's crises were recorded in 2 cases; vomiting was recorded in 11; irregular micturition in 1; the presence of a tumor was noted in 10; and mental distress on account of the tumor in 1. Believing that more recent years would show better results (the foregoing figures were collected eight years ago), the author has consulted the records of St. Thomas' Hospital for the past six years and finds that out of 106 cases admitted during that period 80 were operated on without a single fatality. In 73 nephropexy was done, in 3 nephropexy with nephrotomy, in 1 lumbar incision with gauze packing, in 1 nephropexy followed by subsequent nephrectomy, and in 2 nephrotomy alone. Mackenzie strongly deprecates the teaching that "minor degrees of mobility of the kidneys are the unrecognized cause of much suffering and distress."

British Medical Journal, October 26, 1907.

Removal of Foreign Bodies from the Hand or Foot.—For removal of splinters under the nail, J. B. Nias advises the use of the so-called lens-hook of the ophthalmologist, which is so often found in the boxes of instruments for microscopical dissecting purposes. The hook is passed down the track of the splinter and the point then turned upward so as to press the splinter against the nail. The whole is then withdrawn. In regard to the foot Nias says that the needle of the ordinary hypodermic syringe filled with cocaine solution makes an excellent probe for the location of foreign bodies under the skin. Instead of being withdrawn after injection of the solution, as soon as anesthesia is established the needle should be pushed on and moved about in the soft tissues till its point clicks upon the foreign body. He adds that this is an excellent way of locating needles which have run into the sole of the foot; also thorns which have penetrated under the skin of the forearm or into the orbit and have then broken off.

Anastomosis Between the Common Bile Duct and the Duodenum for Obstructive Jaundice.—In the case of a man of sixty-six years, the following operation was done by G. A. Fullerton; the patient had four doses of calcium chloride, fifteen grains every four hours, the day previous. A vertical incision five inches long was made over the most prominent part of the tumor and the abdominal cavity opened. The gall-bladder was found to be distended so as to be rather larger than a goose's egg. There were no adhesions. The liver was enlarged and was dark purple in color. It was firm in consistence. The peritoneal cavity having been shut off with large gauze pads, the gall-bladder was opened, and a large quantity of clear glairy fluid escaped. Three small black mulberry-shaped calculi were fished out of the gall-bladder, which was now in a collapsed condition. No stones were discoverable by palpation in the cystic duct. On the under surface of the right lobe of the liver was found an irregular whitish scar about the size of a sixpence. On drawing the liver upwards a hugely dilated common bile duct was brought to view, and on tracing this down it was found to lead to a hard mass in the position of the head of the pancreas. Several smaller nodules, thought to be enlarged glands, could be felt extending towards the foramen of Winslow. The dilated duct was almost as large as a piece of small intestine. An attempt was made to empty it by massaging its contents through the cystic duct towards the gall-bladder, but without success, owing to some difficulty at the neck of the gall-bladder, the nature of which could not be determined. Accordingly, it was decided to drain the common duct by anastomosing it with the first part of the duodenum. This was accomplished with some difficulty, on account of its deep position, by means of a small Murphy button, using fine silk for the purse-string sutures and several reinforcing Lembert stitches to prevent possible leakage. Before placing the female portion of the button in the duct an incision was made into the latter and a large quantity of glairy fluid with no trace of bile in it was quickly mopped up. The finger could be introduced into the duct and passed up into cavities in the liver corresponding with the dilated hepatic ducts. To facilitate manipulation of the parts it was found necessary to make a transverse incision at right angles to the upper end of the original wound in an inward direction. The button having been satisfactorily adjusted, the abdominal cavity was mopped dry and a stab puncture was made in the loin to provide drainage. A split rubber tube with a gauze core was passed through the opening so made. The wound in the gall-bladder was sutured to the peritoneum and transversalis fascia and the viscus was drained by a rubber tube which led from its interior to a sterilized bottle. The abdominal wound was closed with through-and-through sutures of silkworm gut, and the patient was returned to bed, having stood the operation well. Five months later the patient was in good condition.

Indications and Contraindications for Cholecystectomy.—Mayo Robson states that out of nearly 1,000 operations on the biliary passages he has done cholecystectomy 64 times. He summarizes his views as to the applicability of the operation as follows: Cholecystectomy is indicated in the following conditions: (1) In cancer or other new growths of the gall-bladder where the disease is local and limited. (2) In contracted and useless gall-bladder the result of repeated attacks of cholecystitis. (3) In dilated or hypertrophied gall bladder resulting from obstruction in the cystic duct. (*a*) Always, if resulting from stricture. (*b*) Usually, if resulting from impacted gallstones which may have induced ulceration that will subsequently lead to stricture. (*c*) Usually, if resulting from kinking of the cystic duct or from adhesions. (4) In phlegmonous or gangrenous cholecystitis. (5) In empyema of the gall-bladder. (6) In calcareous degeneration of the gall-bladder. (7) In mucous fistula of the gall-bladder, the result of stricture or other obstruction

of the cystic duct. (8) In gunshot or other serious injuries of the gall-bladder or cystic duct. It is unnecessary in ordinary cholelithiasis where the gall-bladder is not seriously damaged and where the cystic duct is not ulcerated or narrowed by stricture; and it is contraindicated in all cases where the surgeon cannot be certain that the deeper bile passages are free from obstruction, unless at the same time the cystic or common ducts be short circuited into the intestine.

Berliner klinische Wochenschrift, October 21, 1907.

The Pathological Changes Produced by Alcohol.—Baumgarten describes experiments made by injecting alcohol of various strengths subcutaneously in dogs, rabbits, and guinea pigs with a view to determining particularly the effect of the drug in producing cirrhosis of the liver. These experiments do not afford any confirmation of the clinical view that the chronic administration of alcohol leads to severe degenerative or cirrhotic changes of the parenchymatous organ. The only pathological finding in the experiment animals in the cases of acute fatal intoxication consisted in the presence of numerous hemorrhagic erosions of the gastric mucosa. Other authors have observed these and ascribed them to the use of the stomach tube employed in administering the drug, but Baumgarten used the subcutaneous method of administration. In a large series of autopsies performed during his fifteen years of service in Königsberg he found that only 5 or 6 per cent. of the alcoholics that came to the post-mortem table presented cirrhotic livers, and this fact, together with the negative results of animal experimentation, lead Baumgarten to agree with Hansemann that the abuse of alcohol is only a predisposing and not an etiological factor in the causation of cirrhosis of the liver. He suggests that in such cases the functions of the gastrointestinal wall may be impaired so that the absorption of toxic products that may possibly have the effect of favoring cirrhotic changes is rendered possible. The absence of cirrhosis in animals subjected to chronic intoxication with alcohol might then be explained on the assumption that such toxic bodies are not formed in the gastrointestinal canal of animals.

Münchener medizinische Wochenschrift, October 22, 1907.

The Treatment of Typhoid Bacilli Carriers.—Dehler says that he believes that in cases in which typhoid bacilli are habitually cast off in the feces, but are not present in the blood or urine, operative cleansing of the gall-bladder is indicated. He describes two cases in which the patients, two inmates of an institution for the insane, were apparently freed from the typhoid bacilli by drainage of the gall-bladder. In the first case before the operation 37 out of 39 examinations of the stools were positive for typhoid bacilli, whereas of 176 examinations made after the operation the organisms were found in only 3. In the second patient, who apparently had never suffered from typhoid fever, before the operation 30 out of 55 examinations of the stools were positive; after the operation 28 out of 30 examinations were negative. In both cases the administration of intestinal antiseptics had been ineffectual in removing the organisms from the feces. The occasional discovery of typhoid bacilli in the stools of these patients after the operation is explained by the author through the fact that in the same ward with them there are several other patients who have typhoid bacilli in their stools, and as all of these individuals are insane and dirty in their habits the possibility of infection of the various utensils used cannot be altogether prevented.

The Treatment of Tuberculosis with Marmorek's Serum.—Schenker reports very favorably on the use of Marmorek's serum. A résumé is given of the histories of thirty-nine cases; most of these were of Turban's second and third degrees of severity. The serum was ordinarily given by rectum in doses of 5 to 10 c.c., the average period of treatment being sixty-nine days and the average number of injections thirty-one. The rectal administration is practically more advantageous than the subcutaneous injection owing to the latter's tendency to produce local lesions in the skin. The improvement produced is slow to appear, but is well marked and includes improvement in the general condition and in the appetite, diminution in the fever and night sweats, improvement in the cough, better sleep, increase in weight, and improvement in the local pulmonary signs. The effect of the remedy was also striking in cases of bone tuberculosis, in vesical and renal tuberculosis, and in a case of tuberculosis of the peritoneum. A disadvantage of the serum is its expense.

Deutsche medizinische Wochenschrift, October 24, 1907.

Appendicitis and the Oxyuris.—Hippius and Lewinson quote numerous authors, some of whom attach etiological importance to the oxyuris in appendicitis, whereas others deny or minimize this. They themselves consider that the worm is a not unimportant factor in the production of the disease and describe a case in point. The patient was a child of six years whose appendix was removed in the course of a more or less typical attack of appendicitis. Externally the organ was normal, but on opening it it was found crammed full of parasites, about eighty individuals, mostly mature females, being in its interior. At one point there was a group of worms that had burrowed under the surface of the mucous membrane so that only their caudal extremities projected. Microscopic examination showed extensive destruction of the mucosa and submucosa and also atrophy of the mucous membrane and muscular layers together with the formation of connective tissue. The authors suggest that the lesions induced by the depredations of the parasites may allow bacteria to penetrate into the deeper layers of the organ.

Acute Orchitis Due to Pyocyaneus Infection.—Hirschberg says that while formerly there was some doubt as to the pathogenicity of the *Bacillus pyocyaneus*, of late years numerous cases have been reported in which it seems to have been the sole cause of disease. For the most part the instances described have been cases of generalized sepsis of considerable severity, in which the organism apparently has manifested no mean degree of virulence. Hirschberg now reports a case of localized infection with this germ in which the bacillus did not exhibit very great virulence. The patient was a man who was considered free from gonorrheal, syphilitic, or tuberculous taint, and who suddenly, while in perfect health, without apparent cause, developed an exceedingly painful and tender swelling of one testicle. Examination of the urethra, prostate, and seminal vesicles was entirely negative, as was also that of the urine. On incision a small amount of greenish purulent fluid was obtained and a pure culture of the *Bacillus pyocyaneus* was cultivated from the secretion. A blood culture was negative and the patient's serum at this time did not agglutinate the bacillus, but during the patient's convalescence another trial of the agglutinative power was positive, even at the dilution of 1-1000, although the blood was still sterile. The manner in which the organism gained access to the testicle could not be discovered.

The Intracellular Occurrence of Tubercle Bacilli in the Sputum.—Löwenstein says that among the factors that have to be considered in opsonic work is the individual susceptibility of different strains of bacilli to phagocytosis. For example, all strains of tubercle bacilli do not behave in the same way in regard to the phagocytes, some being readily engulfed by these, while others exhibit great resistance to the process. The conditions in the living body and *in vitro* are also very different, as is shown by a case of tuberculosis of the bladder in which the pus cells never contained tubercle bacilli, although these were present in great numbers between the leucocytes. If some of the patient's own serum and tubercle bacilli were added to the urinary sediment, active phagocytosis took place in a short time. It is therefore possible *in vitro* to secure phagocytosis by the aid of the same factors that in the body itself are ineffectual. The author further discusses the occurrence of phagocytosis in tuberculous sputum. He has found that the leucocytes of the sputum of tuberculous patients contain the bacilli in chronic cases of very long duration and in recent cases in which the prognosis is favorable. The phenomenon is also observed in instances in which specific treatment with tuberculin or bacterial emulsions has been carried out. Until the conditions underlying phagocytosis in the body itself have been more thoroughly investigated, the author believes that the application of the determinations of the opsonic index will not be fruitful in practice.

Stokes-Adams Disease.—Cardarelli considers that Stokes-Adams disease is a condition dependent on a pathological state of the nervous system. The symptoms consist of slow and intermittent pulse not modified by the position of the body or muscular efforts, increased vascular pressure, arteriosclerosis, cardiac arythmia, albuminuria, and epileptiform or apoplectiform attacks. The author's reasons for his belief in the neurotic origin of the condition are based on its infrequency in comparison with that of cardiac myocardial lesion; that the patient does not complain of cardiac symptoms, but of vertigo and epileptic attacks; by compression of the vagus in the neck one can obtain the syndrome of Stokes-Adams, with syncope and epileptic attacks. The author thinks these symptoms cannot be referred to anemia of the bulb. After using atropine the patient does not respond to pressure on the vagus.—*La Riforma Medica.*

Book Reviews.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker and Dr. J. Trumpp of the University of Munich. Authorized Translation from the German. Edited by Isaac A. Abt, M.D., Assistant Professor of the Diseases of Children in Rush Medical College, in Affiliation with the University of Chicago. With 48 Colored Plates and 147 Black and White Illustrations. Philadelphia and London: W. B. Saunders Company, 1907.

As an atlas this volume is all that can be desired, the plates being of the same high grade as is found in other volumes of Lehmann's Hand Atlases. The text, however, is not so satisfactory—at any rate, for American readers. The book contains much that may be of service to practitioners in Germany, but which is useless here. For instance, the various milk mixtures and artificial foods and some of the medicines mentioned might well have been omitted or replaced by more familiar names. The doses are not indicated uniformly by either the metric or any other system; sometimes one is used, sometimes two are used; the same lack of uniformity obtains in recording the temperatures (both body and room), and the weights and measures in general.

Manual of Diseases of the Ear, Nose, and Throat. By John Johnson Kyle, B.S., M.D., Professor of Clinical Otology, Rhinology, and Laryngology, Medical College of Indiana, etc. Second Edition, revised and enlarged. Philadelphia: P. Blakiston's Son & Co., 1907.

The first edition of this manual received favorable comment in these columns, and the appearance of a second edition after the short interval of fifteen months shows that the opinions expressed have coincided with those of the profession at large. Certain sections of the work have been revised, new matter introduced, and a chapter added on diseases of the trachea and bronchia with full descriptions of the technique of modern instruments. Nevertheless the author has considered only those questions which lie within the domain of the laryngologist. He declares that "the invention of the bronchoscope and the perfection of the technique of bronchoscopy by Killian must be acknowledged by all as the greatest of medical triumphs."

Surgical Diagnosis. By Daniel N. Eisendrath, A.B., M.D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois (College of Physicians and Surgeons); Attending Surgeon to the Michael Reese and Cook County Hospitals, Chicago. With four hundred and eighty-two original illustrations, fifteen of them in colors. Philadelphia and London: W. B. Saunders Company, 1907.

Diagnosis, whether medical or surgical, is a subject of such vast importance that any book adequately dealing with it and tending to the elucidation of its many difficulties is sure of a welcome. In the present volume the question of surgical diagnosis is handled from the clinical standpoint; the various injuries and diseases being grouped in the manner and order in which they must be considered by the practitioner or surgeon when he examines the patient. The work covers the entire domain of general surgery, but omits the diagnosis of affections of the eye, ear, nose, throat, and skin, as well as gynecology. The book is divided into eight chapters, each with several subdivisions. In the first, the surgical affections of the head are considered; and the various traumatic lesions of the scalp, the skull, and the brain are considered together. The affections of the face, mouth and palate, lips, jaws, tongue, and salivary glands are included in this chapter. Succeeding chapters treat of the surgical affections of the neck, thorax, abdomen, the extremities, and the spine. These are followed by a very valuable chapter on post operative complications. Considerable attention is paid to the description of the various methods of examination, and with the aid of illustrations and tables of differential diagnosis the subject is rendered very clear.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D., LL.D. (Yalen.), Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. Johns, and Christ Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Fifth Edition. New York and Philadelphia: Lea Brothers & Co., 1907.

Nowhere in medicine is the diagnostic use of the .r-ray of greater utility and more certain in the aid it gives than in clearing up the doubtful points in a case of fracture or of dislocation. The shadows are so distinct that the altered contour of the joint or the displacement of the fractured portion of the bone can be seen as clearly as it would be in an artificial dislocation or fracture in a skeleton. Dr. Stimson has made free use of this fact, as the 52 plates, many of them containing two skiagraphs, witness. In addition to these there are 352 illustrations, line drawings and halftones, scattered throughout the text of the work.

The present edition differs but little, in the main, from its predecessor, the changes being chiefly in the way of additions. The section on fractures and dislocations of the bones of the wrist and of the tarsus have been considerably augmented by the incorporation of the addition to our knowledge of these accidents made during recent years. The work is one adapted especially to the needs of the general practitioner, whose special line of work is not surgery, but who may at any time be called upon to manage a case of bone or joint injury and to manage it properly at the risk of a malpractice suit if the result is not satisfactory. The author has laid special stress on the details of diagnosis and treatment. The accidents and complications liable to occur in the course of treatment of these injuries are dwelt upon at length, so that the practitioner is put upon his guard and warned to look for them and to institute measures to forestall them. There is no better monograph on the subject in any language than this classical work—a worthy successor to Hamilton.

Metabolism and Practical Medicine. By Carl von Noorden, Professor of the First University Medical Clinic, Vienna. Anglo-American Issue Under the Editorship of I. Walker Hall, Professor of Pathology, University College, Bristol; Pathologist to the Bristol Royal Infirmary. Vol. I. The Physiology of Metabolism. By Adolf Magnus-Levy, Berlin. Vol. II. The Pathology of Metabolism. By Carl von Noorden, Fr. Kraus, Ad. Schmidt, W. Weintraud, M. Matthes, and H. Strauss. Chicago: W. T. Keener and Company, 1907.

It was no light task to undertake the production of an English version of this monumental German work; but it is evident that the editor and his associates are to acquit themselves well of their laborious project. In the second edition of his treatise on metabolism von Noorden expanded what had been a modest volume into two goodly tomes, which comprise an authoritative exposition of the present status of this intricate and consequently growing subject. The two volumes of the English edition that have appeared are a translation, with some additions, of the first volume of the German original, and as the title indicates it has so happened that the first English volume could be devoted entirely to the subject of metabolism under normal conditions. It is the work of Adolf Magnus-Levy, and is divided into four main sections dealing respectively with the foodstuffs, digestion and absorption, the fate of the foodstuffs in the tissues, and metabolism in man. The subject matter of the second volume includes the following headings: Hunger and chronic starvation, overfeeding, fever and infection, diseases of the stomach and intestines, of the liver, of respiration and circulation, of the blood, and of the kidneys. A comparison with the German original shows that this is followed with adequate fidelity of substance, while the English is untrammeled by any awkwardness of phrase or construction. Indeed, the difficulties of finding suitable equivalents for the tenia-like compounds in which the German nomenclature of particularly this subject is so rich have been met with felicity and ingenuity so that the reader is free from all consciousness of getting the author's meaning at second hand. Noorden himself in an introduction to the present edition pays a high tribute to Professor Hall's qualifications for the task of editing the English version of the work, and those who cannot or do not care to read the German original may rest assured that in this translation they will find an efficient substitute. It is hardly necessary to speak of either the important place the processes of metabolism have assumed in the theory and practice of modern medicine or the authoritativeness that stamps anything on this subject appearing under the sponsorship of von Noorden.

Die chronische progressive Schwerhörigkeit; ihre Erkenntnis und Behandlung, von Dr. August Lucae, Professor an der Koenigl. Friedrich Wilhelms-Universität zu Berlin. Mit 25 Textfiguren und 2 Tafeln. Berlin: Verlag von Julius Springer, 1907.

In this book the well-known Berlin clinician discusses successively the historical aspect of the question, the pathological anatomy of the form of deafness considered, etiology, symptoms, course, methods of examination, diagnosis, prognosis, and therapy. An elaborate bibliography is appended. The volume is the result of a long life's experience in the treatment of aural maladies. The author declares it is wrong to make of otosclerosis a distinct pathological entity and that many cases of chronic deafness which are considered hopeless can in reality be greatly benefited by treatment.

Society Reports.

FIRST DISTRICT BRANCH OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

First Annual Meeting, Held October 28, 1907.

THE PRESIDENT, DR. CHARLES E. NAMMACK, IN THE CHAIR.

THE first district branch, comprising the Counties of New York, Westchester, Rockland, Putnam, Orange, and Dutchess, met at the New York Academy of Medicine.

Difficulties of Procuring Pure Milk.—Dr. H. J. SHELLEY of Middletown read this paper. He said that in Middletown the attempt had been to get macroscopical rather than microscopical clean milk, and examinations of the farms and dairies had been made. Much had been accomplished by the various Boards of Health, but the amount of legislation yet to be enacted was appalling. Cleanliness was the great thing aimed at. In the summer of 1906 the conditions were such that the Health Officer made a visit to most of the dairies supplying the city with milk and then existing conditions were brought before the local board. Notices to clean up and keep clean were issued. In the fall of 1906 a milk ordinance was passed which brought about better conditions on the farms and a purer milk for the consumer. The milk producer had to issue a statement to the Board of Health as follows. Where was the dairy located? How many persons were employed? Were they all in good health; if not, what was the nature of the disease or affection? How was the stable lighted, ventilated and drained? Were the walls whitewashed, and how often? How often did they clean the stable? How many cubic feet of air space did the cow stable contain? How often and where did they remove manure? What did they use for bedding? How many cows did they usually keep? Did they know they were all healthy? What did they feed them when not in pasture? Did they keep the cows clean, and how? Did they clean the udder and surrounding parts before milking? Did they use milking garments? Where did they keep the cans during milking? Where was the milk-room located with respect to the stables? How did they clean their cans, pails, and utensils? Did they do anything to sterilize them? If so, what? What was the source of water supply and where was it situated? Did they dispose of their milk; if so, to whom? Did they peddle their own milk from wagons? Rules and regulations were issued by the Board of Health. The room in which the cows were kept should contain at least 500 cubic feet for each cow housed therein, and should be ventilated and lighted, and have a dry, well drained floor, and be cleaned each day, the manure being removed at least twenty feet from the barn at each cleaning. The ceiling and side walls should be whitewashed twice each year and be kept free from dust, cobwebs, and filth at all times. No swine should be kept in the same room with the cows. No musty or dirty litter should be used for bedding. The food and water given the cows should be at all times pure and wholesome and subject to the approval of the Board of Health. All cows should be free from stable filth and loose dirt, and the milkers should have clean hands and clothing at the time of milking. Milk should be removed immediately after being drawn from each cow to a well ventilated milk room separate from the stable room and there aerated and cooled before being placed in cans. Milk should be strained through a cotton flannel or other equally efficient strainer, which should be renewed as often as necessary to be efficient. All strainers should be cleansed and sterilized after each milking. All vessels having contained milk should be washed clean and sterilized after each milking or using. Milk delivered in bottles should be bottled in the milk room, at the dairy or creamery, and bottles should be cleaned and sterilized at the dairy or creamery, even though having been washed by the customers, and no milk should be sold dipped from cans and poured into other vessels. No milk bottles, tickets, or other things should be taken from a house while it was under quarantine for a contagious disease. No milk tickets should be used by customers more than once. All wagons, sleighs or other vehicles from which milk was delivered should be kept cleaned in a manner satisfactory to the Board or its authorized agent. All wagons upon which milk was brought from the dairy or from which it was delivered to customers should be kept covered to protect the milk from the rays of the sun, in a manner satisfactory to the Board or its authorized agent. In closing he quoted Dr. Henry Enos Tully as follows: "What has been said goes to prove that the problems involved in the production of a pure market milk are difficult of solution. Eternal vigilance, elimination of politics, a well-equipped laboratory, with a competent head to that department, veterinary inspection, proper laws and ordinances, education of the public and a public demand for pure milk, milk commissions, and education of dairymen, soliciting their co-operation rather than antagonism, may produce a fairly good supply. However, it cannot be too forcibly impressed that there may be adequate laws governing chemical standards, etc.; no good will be accomplished until inspection can be carried to the dairy, there to include regulation of everything pertaining to the herd, feed, production, and handling of milk and its shipment and handling until it reaches the consumer."

The Problem of Regulation of a Rural Milk Supply.—Dr. S. W. S. TOMS of Nyack read this paper. He said that previous to four years ago the community in which he resided had a most creditable quality of clean milk, the product of a dairy conducted by a public-spirited citizen as a hobby. This enterprise was in no way a profitable one. Strange as it might seem, this philanthropist was driven out of business by the petty annoyances of complaining housewives and servants and soon followed a lower standard of milk. This suggested that the public were lacking in elementary knowledge of what constituted good milk. A propaganda of education was essential to inspire public sentiment in favoring and enforcing sanitation in milk as it had in drinking water sources. For some inexplicable reason the milk supply had not received the watchful care the importance of the condition demanded from the State Board of Health. There should be State and national protection of this supply. He then related the experiences of a medical milk commission organized in Rockland County over two years ago. Three important considerations presented themselves to the commission. First, the improvement of the milk supply; second, the protection of the public against the possibility of spreading infectious and contagious diseases through the milk supply; and, third, to have uniform laws adopted by the various municipal boards of health that would legally enforce rules and regulations whereby these objects might be obtained. These suggestive rules and regulations, which were to become official by-laws after acceptance, were submitted to the State Department of Health at Albany, were duly approved of by said Department, and recommended for presentation to the municipal boards of health for their action. (See *New York State Journal of Medicine*, September, 1905, page 341.) Up to this point few obstacles or objections were encountered. They interviewed some of the members of the Board of Health of Clarkson, from which most of the milk delivered in Nyack came, and one of the members objected on the ground that some of his neighbors had one or two cows and derived an income thereby which was a necessary source of help in supporting his family, and these regulations would be a hardship to them, etc. Dr. Toms had found generally that dairymen were sufficiently appreciative of unsanitary milk as it was not profitable, and would try to get the farmers

to produce a good quality of clean milk. They themselves in most cases were clean in their methods of handling, bottling and caring for it. However, they did not make the necessary endeavor to keep it at or below a safe temperature after it left their milk-houses during the delivery to customers. Some used dirty horse blankets or old filthy bed quilts to cover their cans and bottles. Some had been seen filling bottles in their delivery wagons. Many cans were rusty. Most of the infection was introduced by the milker. He was not clean, his pail was not sterilized and was so open it caught falling hairs and particles of excreta adherent to the animal's flanks which were shaken off during milking and fell into the pail. The hands of the milker or the animal's udder were not washed. The milk was rarely cooled quickly enough after it was produced and the bacterial life multiplied very rapidly, which no straining or after care could purify. Those interested in the Milk Commission in achieving some showing as the result of their labors had encountered much apathy and discouragement from those they expected would take an interest in the movement. Conditions became so bad in Nyack that the citizens appealed to the State Agricultural Department through the State Department of Health. He was satisfied that the solution of the problem for those living in districts similar to that about Nyack, was in the efforts of a Sanitary League, composed of leading citizens, who would take up the matter in a public-spirited way. They must see that the Health Boards enforced their sanitary rules against the abuse of sanitation in all things. The pure milk propaganda must not stop in its education short of all that concerned the customer and user alike, as well as those more concerned in its production and marketing.

Infant Mortality in the Summer Months; the Methods Adopted in Yonkers for Its Reduction; the Results.—Dr. S. F. Getty of Yonkers said that the infant mortality in Yonkers during the early nineties had increased at a greater ratio than the growth of the city. The deaths were at the maximum in July and August and the chief causes were the various forms of digestive disorders. It was decided to take some steps to reduce the mortality. In 1893 the Nathan Straus Milk Laboratory was opened in New York and it was deemed a wise move to establish a similar dispensary in Yonkers, which was done in 1894, and had been in operation during the summer months ever since, with the exception of the summer of 1904. With the establishment of the milk dispensary a vigorous campaign of education was inaugurated through the press, by personal interviews with physicians, and by means of cards of instruction to mothers. The result of the first season did not show a lowering of the death rate, the second season showed a marked decrease, and the third season showed a decrease of 50 per cent. in the number of deaths from digestive diseases. The steps of their advancement in Yonkers might be enumerated as follows: Twelve years ago the appointment by the city of a Milk Inspector, shortly following the adoption of a sanitary code pertaining to production and sale of milk; registration of all producers and dealers in milk; inspection of all local dairies; inspection of stores retailing milk, with the result that the number of places where milk was sold at retail had been cut in half, although the city had doubled in population. Careful observation had failed to show any increased mortality traceable to continued high temperature or humidity. Statistical tables were presented showing the results accomplished in Yonkers; they covered a period of eighteen years, from 1889 to 1906 inclusive, and had been averaged in four periods of five years each, except the last, which three years. The problem of reducing infant mortality from digestive disturbances could be summed up in a few words: Clean milk, properly proportioned for these infants and young children who could not be fed on the breast, and intelligent care and feeding by the physicians and parents. To produce these results he suggested the following means: (1) Rigid State or municipal inspection of all milk from the producer to the consumer. (2) Milk dispensaries, to properly modify clean milk, in feeding bottles ready for infant use. The milk might preferably be Pasteurized, if it was to be used in the tenements. (3) A campaign of instruction education, to instruct both physicians and mothers in the art of infant feeding, and to urge upon the officials the necessity and economic value of clean milk. (4) The employment of trained nurses in the summer months to follow up cases of digestive disturbances in infants and to aid the physicians in this work. (5) The continuous enforcement of improvement of tenement houses, so that the dwellers might have the benefits of proper sanitation and plenty of fresh air and sunlight.

Dr. A. Jacobi of New York said he believed they had with them more bad than good milk, but in New York City a favorable change had taken place. Mr. Nathan Straus had done a great deal in simply giving the clew as to what was required. The Board of Health had done much, and was trying to do more to-day, by asking for more milk inspectors for the purpose of getting clean milk from all over the State. Milk was brought to New York from distances of from 100 to 400 miles, and the Board of Health had a dozen inspectors to-day for a work which could not be done by less than 100 inspectors. All over the State were many difficulties that Yonkers had not experienced. In Yonkers they had gone to work themselves and had told the truth to the public. Dr. Jacobi was delighted with the courage the men had shown in their efforts to get clean milk, and he believed it would be a matter of slow education. Every year each County Society should send out a constituent to post on church doors and elsewhere simple rules, ten or twelve short sentences, for caring for and keeping clean milk, and they should be told that the doctors in the community were of one mind. Educate the public not only as to the necessity of having pure milk, but upon the necessity of doing a great many things not in the interest of the doctors, but in their own interest. He hoped the newspapers would make free abstracts of the papers just read; publishing them would be productive of much good. In some way the public must be reached.

Dr. L. Emmett Holt said the milk question was a difficult problem and was not going to be solved in one year or ten years. The basis of success was education; education so that the public could appreciate the difference between good and bad milk, between clean milk and milk that was contaminated. He said he had secured some figures from a dairy in which the books were carefully kept as to the cost of milk and how the cost had changed in seven years. During the period from 1900 to 1907 the cost of feed had increased 31 per cent. and the cost of labor 45 per cent. The total cost of producing a quart of milk had increased 100 per cent. in seven years. The small dealers should be eliminated, for their greatest difficulties were with the poor producers. They should be absolutely eliminated from the milk trade. This was inevitable. The better class of dairies must receive more money for milk, because now they had to have better ventilation, better light, etc., than they used to, and the cost of labor had gone up so. Educate the public as to what clean milk was. The production of milk was a business; the number of bacteria in the milk depended upon whatever one wanted to pay. Of course, it was the character of the bacteria and not so much the numbers that made milk dangerous. The first thing to consider was dirt, which could be eliminated by cleanliness. As yet there was no conclusive evidence that milk spread tuberculosis, except that the disease was far advanced. The State of Maine had spent $250,000 each year for its Board of Health to investigate and attempt to wipe tuberculosis from the State. They started in on one side of the State and worked

all across and over it, destroying tuberculous cattle wherever found. When reinspected it was found that there was as much tuberculosis as before. He did not believe that they were yet ready to begin the use of tuberculin, as was done in one city in New Jersey.

The Transmission of Typhoid Fever.—Dr. H. D. Pease of Albany said that Mr. George C. Whipple had prepared a paper on typhoid fever in which would appear a chart covering the ground of the transmission of typhoid fever most admirably, and this chart he presented by consent. He considered transmission by water, by contact, by flies, by milk, by shell fish, by raw vegetables, and fruits, and by various means now unknown. In considering transmission *from* the patient, he showed three barriers; inside the first was the medical treatment, urinary disinfection, and instruction as to disinfection of the excreta of the patient, and report to the Board of Health. Within the second barrier was the proper disposal of stools and urine, cleanliness, disinfection of stools and urine, screens to protect from flies. Within the third barrier was sewage disposal, supervision of disinfection and disposal of stools and urine, the Widal examination of the urine, study of the case to ascertain the cause and to protect others, and instruction to members of the household. In considering the transmission *to* the victim he showed three barriers; inside the first was personal cleanliness and the avoidance of certain risks in traveling, and the maintenance of health tone. Within the second barrier was cleanliness in the kitchen, the boiling of water and sterilizing of the milk, care as to the source of milk, of oysters and raw fruits, and the close inspection of shell fish, and supervision of quality of public wells and vendors of special waters. Within the third barrier was the general sanitary inspection and removal of garbage and stable manure, and other things for which the public authorities were responsible. What was contained within the second barrier in both was what the household was responsible for. The matter of education was very important, and the question of price entered into all the digestive diseases which the Health Boards had to contend with. The condition of the water supply in the State of New York was a menace, and the only way to protect the water supply was through the State Health Department. The enforcement of rules must originate from local boards first. Every case of typhoid should be reported. He asked what proportion of cases of typhoid fever was transmitted by water. He showed a chart giving the typhoid deaths per month, taking the average for five years, and this showed as follows for the State (approximately): January, 150; February, 135; March, 130; April, 108; May, 100; June, 80; July, 110; August, 160; September, 200; October, 220; November, 180; December, 175. Deaths in the City of New York averaged as follows (approximately): January, 40; February, 30; March, 40; April, 36; May, 38; June, 35; July, 60; August, 90; September, 88; October, 95; November, 70; December, 60. At Cohoes they had typhoid throughout the year for the inhabitants drank polluted water from year to year; but there was a tremendous rise in the mortality rate during summer which he ascribed to contact with flies. D. D. Jackson, at the meeting of the Public Health Association last month, showed clearly that the prevalence of flies in various sections of New York City was followed by a rise in the number of cases of typhoid fever. He also showed that there were many opportunities for the access of flies to typhoid material. Sixty-eight per cent. (68%) of the cases in Washington could not be traced by a commission which had been appointed for this purpose. He wished, in closing, to emphasize the importance of a tabulation of the facts known regarding typhoid. With proper sewage disposal typhoid fever could be eliminated as caused by shell fish.

The Advantages of a Country Watershed.—Dr. Clark G. Rossman of Hudson read this paper. The three practical sources of a potable water were: 1. From an uninhabited or but thinly populated watershed directly, or, preferably, with the intervention of an impounding reservoir. Such a source might be unobtainable on account of prohibitive distance or geological conditions. It was most available in hilly and poor farming districts. 2. Good ground waters, *i.e.* spring or well water which by its passage through the ground had become thoroughly freed from impurities. It was adapted to small and medium sized towns on account of the usually restricted supply. 3. Filtration of surface waters, which would otherwise be unsuitable for domestic purposes. The advantages of a pure spring or deep ground water were self-evident. The question of potable water became one of purification of sewage, its treatment and disposal. Protective measures were naturally of first importance and were divided into two classes, those which must be enforced during the construction of the works, thereby avoiding epidemics of the type which Ithaca not long ago experienced, and those which must be enforced after the works were placed in operation. The chief aim in managing a rural watershed was to prevent immediate contamination, insufficient natural drainage, or surface washings into the feeders of the supply. The best method of control of privies was the institution of the impervious pail and dry earth system. For the purification of sewage from large institutions or villages the septic tank supplemented by filtration was applicable. Disease germs should not be present in the drinking water. Legal protection of a water supply was a very great safeguard, but it could not guarantee absolute protection. The most important agents of purification were dilution, time, sunlight, aeration, sedimentation, and filtration. In brief, the advantages or disadvantages of a rural watershed as compared to other sources depended upon the ability or inability to prevent contamination and the thoroughness with which water pollution material could be removed. From 1872 to 1905 the city of Hudson drew its water supply from the Hudson river directly in front of the town. The water was purified by slow sand filters, which, however, were not covered and not cared for as they should have been. From 1899 to 1906 there were reported an average of 62 cases of typhoid fever, originating in a city of 10,000. During the same period there was a mortality rate of 8 per 10,000 from diarrheal diseases, including "malaria," principally occurring among adults. By far the larger number of these occurred during the months of January, February, and March, a time which suggested that the diarrheal diseases and malaria should be classed as typhoid. In 1906 a gravity supply was obtained from a thinly populated rural watershed, mostly upland pasture and woodland, which could develop 25,000,000 gallons daily. An integral part of the system was a separate storage reservoir of 90 days' capacity. The bacterial content of the feeders showed a maximum of 1,800 and a minimum of 157 per cubic centimeter. These factors have reduced the number of cases of typhoid fever originating in the city to 4 per 10,000. There had also been a considerable saving in operating expenses of the water supply, due to the fact that water would run down hill more cheaply than it could be pumped up.

The Hudson River as a Source of Water Supply.—Dr. Frederick J. Mann of Poughkeepsie presented this communication. It was claimed that during the next eight years leakage and wastage of water in New York City must be stopped to avoid a water famine. This could best be done by requiring all water to be delivered and sold by the use of meters. The water supply from the Croton and Bronx systems, plus the new Catskill supply, would suffice Manhattan and Bronx, if wastage was not stopped, only till 1922, a period of fifteen years. If complete metering was required and wastage thereby stopped, said sup-

plies would satisfy till 1937, a period of thirty years. After this, or sooner, an additional amount of water would be necessary. This would mean either the use of the Fishkill and Wappingus creeks in Dutchess county and the Jansenkill in Columbia county, or water from the Hudson river above Poughkeepsie, or from still more distant sources. Other possible sources of supply were from the Walkill in Orange county, Lake George, Lake Champlain, the Adirondack waters, or even the Great Lakes. The keynote of the paper was that the Hudson river was the logical source of supply for New York City, and with slow sand filtration would give a safe and abundant water. No matter what the source of supply for New York City, sooner or later it must all be filtered. Filtration was no longer an experiment. The Merchants' Association of New York City, whose report was published in 1900, gave the following reasons why the Hudson river water, taken a little north of Poughkeepsie, was the most advantageous supply: (1) It was the largest possible supply short of the Great Lakes. (2) It was practically as safe as the Croton water and its purity could be controlled by filtration. (3) It was capable of being added to from time to time until a supply of fifteen hundred million gallons a day was reached. This was about five times the total present Croton and Bronx supply. (4) It would help in the creation of a large water power in the upper Hudson valley by the construction of reservoirs in the Adirondacks to control flood waters. New York's typhoid fever rate to-day was much larger than that of many European cities using filtered water, and Dr. Darlington had clearly shown the need of filtration of any water used. Albany had successfully filtered the Hudson river and thereby wonderfully reduced the cases of typhoid. The proposed Catskill supply of two hundred and fifty million gallons per day would not quite equal the present Croton and Bronx supply of three hundred and ten million gallons per day; and these together would only suffice for a few years. To add to them the waters from the Fishkill and Wappingus creeks in Dutchess county and Jansenkill in Columbia county, a total addition of two hundred and fifty million gallons per day, was only postponing the inevitable a little longer. The possible available supply from the Hudson river above Poughkeepsie, which was figured at fifteen hundred million gallons per day, was almost double the total of all the supplies mentioned and would suffice for many years. The best direct proof that the Hudson river could be satisfactorily filtered by a slow sand filter was afforded by the results obtained at Albany. That city took its water from about the worst polluted part of the Hudson. Prior to the installation of slow sand filters in November, 1899, Albany's death rate was excessive, averaging about 100 per 100,000 of population for the five years before that date; since then, with efficient slow sand filtration, it was about 20 per 100,000 per year. During this time the average efficiency of the Albany filters had been about 99.7 per cent. removal of bacterial contamination. In contrast stand Cohoes and Troy, still drinking the Hudson water, with resulting excessive typhoid. Cohoes' rate ran from 50 to 130 per 100,000, and Troy's rate from 30 to 80 per 100,000. In conclusion he said that a logical deduction was that filtration would be easier in proportion to the purity of the raw water and therefore the physicians of this State should help the State Department of Health in every way possible to make and keep free their rivers and streams from pollution.

Pregnancy and Cancer of the Breast.—A warning has been sounded against pregnancy following removal of a carcinomatous breast. The increase in the breast function in all respects because of the occurrence of pregnancy is very likely to cause a redevelopment of the disease, even after all signs of a favorable course to recovery have been noted.—*Clinical Review.*

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Thirty-third Annual Meeting, Held at Columbus, O., October 8, 9, and 10, 1907.

THE PRESIDENT, DR. HORACE H. GRANT OF LOUISVILLE, IN THE CHAIR.

(*Concluded from page 791.*)

MEDICAL SECTION.

Address in Medicine.—Dr. GEORGE F. BUTLER of Chicago in this address discussed the medical men and their influence on human progress, and said that if we were to prevent disease as the chief mission, or as the most effective method of warfare upon this chief enemy of human progress, the conditions must be known, not merely the material, mechanical, and social, from which they resulted, but the primary conditions that lay still farther back of the immediate conditions that resulted in diseases. He discussed the relations between physician and the public service, and gave considerable attention to the need for a better understanding of the social question, and deplored the danger to innocents of silence and secrecy. He advocated the abolition of State lines with reference to medical practice regulations. Referring to expert witnesses in legal cases, he condemned "expert liars" in strong language. In the medical profession, as in religion or science, the perils of dominating influence could not be escaped. While the evils flowing from industrial concentration could be met, the evils that followed the syndication of intelligence could not be avoided. The struggle of the ages had been the emancipation of truth from authority.

The Relations Between the Medical Profession and the People.—Dr. H. H. GRANT spoke on this subject. He said that we all realized the world was full of wretchedness, deformity, and disease; that this was due to ignorance and cupidity, distributed well over the whole population, from rich to poor. All realized the measures of relief must be a slow and gradual reform, conducted by a concentration of many influences, yielded by society at large. All realized the obstacles to success, as well as the possibilities of abuse in the methods, and all knew the need of a directing influence which was thoroughly informed and could be confidently entrusted with power. It was his belief that through the trust and the support of the general public, given to a conscientious medical profession, disinterested as a body, with identical concerns with the public, a highly comforting progress would soon be recorded. With a view to the hopeful advance of these noble and world-rewarding benefactions, the profession of medicine, without jealousy or thought of self-interest, should devote its wisest and most faithful workers as chieftains; let the lay and the religious press, every ready upon conviction as earnest and determined associates, with unremitting zeal unphold and champion the cause, and add to this the patient and never-failing confidence of a liberal and trusting general public rallying its invincible support, and there would open up before the coming generation such a prospect of achievement and victory as would be a soul-satisfying record.

Neurasthenia Gastrica.—Dr. CLEMENT R. JONES of Pittsburg reported four cases of this condition, and concluded that neurasthenia gastrica or nervous dyspepsia was frequently due to or complicated by eyestrain. That other gastric disturbances were sometimes aggravated by eyestrain. That along with other points in the examination of gastric cases this should not be neglected. When eyestrain was the cause of gastric symptoms the relief by proper refraction was prompt and satisfactory.

Dr. R. D. CLIPPINGER believed that eyestrain often produced all the symptoms of an old so-called chronic gastritis. The general practitioner was apt to ignore the eyes.

Dr. MARK D. STEVENSON found that very many patients were relieved of nausea and vomiting by the wearing of proper lenses.

Dr. Geo. P. Sprague said that so-called gastric disturbances in neurasthenia were very often roundabout reflex disturbances due to vertigo; in one case a lack of equilibrium due to a visual defect; in some other case not. He found very commonly in sending neurasthenics to oculists for the correction of eyestrain that until the attention of the oculist was called to the possible psychic connection between the patient's condition and the visual defect, he very often failed to give the correction, which he could and did do after that had been called to his attention.

Reinfection with Syphilis.—Dr. A. U. Williams of Hot Springs, Ark., had seen a number of cases in which he had suspected reinfection. In many the history of the first attack was indefinite and unreliable. In but very few cases was the history sufficiently plain to make anything like a positive diagnosis of a second attack. He cited two cases in which the symptoms and history were so plain that he thought he could safely claim both as cases of reinfection.

Toxemia from the Standpoint of Perverted Metabolism.—Dr. Ralph W. Webster of Chicago concluded that toxemia, aside from that following the acute or chronic bacterial processes, was always of metabolic origin. The toxemias under discussion were more the effects of a general metabolic perversion than of a direct organic disorder. A specific toxemia, in the sense that it was due to a specific substance, was unknown in the class of toxemias treated.

Dr. Thomas Hunt Stucky of Louisville, Ky., followed with a paper in which he discussed autointoxications of intestinal origin which resembled typhoid fever.

The Treatment of Scarlet Fever as a Streptococcus Disease.—Dr. J. E. Coleman of Canton, Ill., had treated this disease with carbolic acid internally and externally, together with small doses of aconite, the first few hours until fever was allayed. In all of the cases he had thus treated the disease was materially shortened, the rash rapidly faded, and on the second day the fever disappeared and the throat symptoms were also relieved. When this treatment was used, there was not any desquamation of the skin, nor any after-effects from the disease, such as nephritis, or discharge from the ear. He had successfully treated cases of scarlet fever by the application of the two remedies mentioned since the time of an epidemic of the disease, year after year, admitting, however, that the results obtained might possibly have been due to the fact that the disease ran a benign course.

Relations of the Doctor to the Alcoholic Problem.—Dr. T. D. Crothers of Hartford, Conn., showed the intimate associations of alcohol with a large part of the mortality, disease, and degeneration of the present time, and urged the profession to take up the physical study of the subject. He showed that the mortality from alcohol, both direct and indirect, was from ten to twenty per cent. of all deaths, and at least ten per cent. of all diseases were very largely influenced by or due to this cause; also that from twenty to fifty per cent. of all mental diseases and fifty per cent. of idiocy, pauperism, and other degenerative conditions had an alcoholic causation. Fifty per cent. of all criminals serving sentences for crime in 1906 were due to the influence of alcohol. Nearly half a million persons came under legal recognition for intoxication and petty crimes last year. Reliable authorities showed that fifty per cent. of all railroad and other accidents were due to the mistakes of persons under the influence of spirits. Beyond this the losses, the revolutions, and the injuries noted in every community assumed great proportions. This problem was a physical and medical one. Every advance in science showed that there were physical causes which developed from distinct sources which could be studied and known, and that the whole subject was not a mass of theories, but one of facts the same as that of epidemic and contagious diseases. The evils had reached such a stage that public opinion was making herculean efforts along theoretical lines to overcome and break it up. The author urged that it was a medical subject to be understood by medical men. When the facts were studied and known, the remedies and methods of prevention would be clear and practical. The failure of physicians to know the subject had brought in an army of quacks whose presence was a reflection on the intelligence of the physician who understood and treated these people. The great temperance movement should be directed and managed by physicians along exact lines of scientific study above all prejudice, then they would become practical and reach to the bottom of the great drink problem and point out the methods of cure and prevention. When medical men were taught to recognize the physical side of this problem and study the facts alone, irrespective of all theories, then the mortality and disease would disappear.

The Recognition and Management of Acute Mastoiditis by the General Practitioner.—Dr. Leartus Connor of Detroit, Mich., in a paper on this subject, drew the following conclusions: (1) Patients with acute mastoiditis should be regarded as seriously ill, placed in bed, given a brisk cathartic and a diaphoretic, and the diet limited to at least one-half. (2) If there were present tenderness of the mastoid, redness and bulging of the inner, upper, and posterior external auditory canal and adjacent membrana tympani, Wilde's internal incision should be promptly done. (3) Regular irrigation with water, as hot as could be endured, should precede and follow the incision, and dry heat follow during the interval of irrigation. (4) An aseptic should be applied to the wound after each irrigation. (5) Thus managed, many cases of acute mastoiditis would speedily recover. (6) If they grew worse steadily, the mastoid should be promptly opened, all diseased tissues removed, and the wound dressed aseptically. (7) A painful deaf ear merited quite as careful attention as a red painful eye, or a painful stiff limb. Until this was accorded it, physicians would continue to have cases of extensive destruction of mastoid bones, permanent loss of hearing, infection of lateral sinus, facial paralysis, subdural, cerebral, and cerebellar abscess, and death.

Morphine Addiction.—Dr. George P. Sprague of Lexington, Ky., discussed some of the essential points in the etiology, pathology, and treatment of those addicted to morphine. He divided the cases into three groups: (1) A small one composed of normal individuals, who from unwise treatment for pain in acute illness had contracted the habit; (2) a larger group of moral degenerates who indulged in the vice of morphinism; (3) much the largest group, recruited from among the neuropathic weaklings, from the victims of improper training and lack of early discipline, from the vast army of defectives, who, beginning to lose ground in the race of life, resorted to drugs as a spur, and from the large number who, suffering from sudden shock of disease, loss, etc., resorted to the drug in the hope of obtaining relief. These patients should be under treatment for months; the patient should not be alone a moment when he might procure morphine, day or night; everyone coming in contact with him must be above bribery, and his nurse must be above suspicion, and ever suspicious. The patient's sense of right and power of will should be steadily stimulated, and every physical ill he might have should be found and vigorously combated.

The Nature of Morphine Disease.—Dr. Chas. W. Carter of Richmond, Ind., said that the physician who would understandingly and conscientiously treat the morphine disease must have a generous breadth of view in reading human character, an entire want of prejudice in interpreting symptoms, and a broad and thorough knowledge of remedial agents.

Medical Inspection of Public Schools.—Dr. Frank W. Gavin of Canton, O., said the medical inspector should look after, first, the school building, its condition, ven-

tilation, lighting, heating, seating, etc. Second, the inspection of candidates for teachers' certificates in the principles of preventive medicine and school hygiene. Third, physical and mental condition of the child. He pointed out the advantages of medical inspection and the methods of examination. The salary of a medical inspector should be generous, thus warranting the selection of the best men procurable. He sincerely believed it would be money wisely invested on the part of cities and municipalities.

Urinary Infections in Children.—Dr. I. A. Abt of Chicago pointed out the avenues through which microorganisms gained access to the bladder and to the pelvis of the kidney in these infections. Bacteria might enter the bladder through the urethra and migrate upwards to the bladder and thence to the kidney. The infection might be hematogenous in character, the microorganisms finding access into the bladder through the blood-vessels. The microorganisms might pass in some manner from the bowels through the loose cellular tissue of the pelvis into the bladder. The fact that sometimes a bowel infection, particularly follicular enteritis, preceded an attack of cystopyelitis, had suggested this view. Congenital malformation of the bladder and kidney predisposed to cystitis and pyelitis. Such a case had come under his observation. This was given in great detail. He described the symptoms and course of the disease. With reference to treatment, the ordinary urinary antiseptic in one form or another used internally would usually bring about the desired result. In the severe forms of streptococcus or staphylococcus infection the vesical irrigation might be indicated. In other respects the treatment was purely expectant and symptomatic. The pain and restlessness might require the use of antispasmodics and sedatives.

The following papers were likewise read: "The Profession of Medicine, As It Was, and As It Is," by Dr. Robt. Barclay of Pittsburg, Pa.; "Purulent Conjunctivitis in Infants and Adults," by Dr. Mark D. Stevenson of Akron, O.; "Gelseminine," by Dr. Wm. F. Waugh of Chicago, Ill.; "Colorado and the Eastern Pulmonary Case," by Dr. W. A. Campbell of Colorado Springs, Col.; "Pregnancy When Complicated by Tuberculosis," by Dr. Harold A. Miller of Pittsburg, Pa.; "The General Practitioner's Attitude Toward Eyestrain," by Dr. Richard D. Clippinger of Bellefontaine, O.; "Gallstones as an Etiological Factor in Diabetes," by Dr. J. C. O'Day of Oil City, Pa.; "A Résumé of Gallstone Factors," by Dr. R. Alexander Bate of Louisville, Ky.; "The Psychasthenic States," by Dr. Chas. W. Hitchcock of Detroit, Mich.; "What We Learn from Analysis of the Feces," by Dr. Joseph A. Sweeney of Louisville, Ky.; "A Contribution to the Literature on the Pathology, Etiology, Symptomatology, and Technique of the Operation of Supravaginal Hysterectomy for Fibroid Tumors of the Uterus," by Dr. Frank D. Smyth of Memphis, Tenn.

Officers.—The following officers were elected for the ensuing year: *President*, Dr. Arthur R. Elliott of Chicago; *Vice-Presidents*, Dr. F. F. Lawrence of Columbus, O., and Dr. Robert C. McChord of Lebanon, Ky.; *Secretary*, Dr. Henry E. Tuley of Louisville (reelected); *Treasurer*, Dr. Samuel C. Stanton of Chicago (reelected).

Louisville, Ky., was chosen as the place for the next annual meeting in October, 1908.

Revaccination of Soldiers.—According to Bondesen the proportion of successful revaccinations varies among different troops from 30 to 100 per cent., averaging during the past eight years 70 to 78 per cent. In the German Army the percentage of success is about 92 to 95 per cent. The cause of this is undoubtedly due to different views as to the result. Some vaccinators demand a pustule, others scarcely perceptible infiltration at the vaccination point. In France the result in 1902 averaged 42 per cent., varying in the several Army Corps between 19.8 per cent. and 67.7 per cent.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held September 17, 1907.

Dr. Glentworth R. Butler in the Chair.

The Sources of the Contamination of the Air in Greater New York.—Mr. D. D. Jackson, B.S., Director of the Laboratories of Water Supply, Gas, and Electricity, City of New York, read this paper. He said that much interest had been aroused in recent years in the study of city air, and that some progress had been made toward improvement. Relief from existing conditions was gradual, but a continued agitation of the subject tended toward progress and to prevent the establishment of new sources of contamination or the increase in those already existing. The consideration of this subject included, 1. the question of excessive dust, and the bacterial contamination of floating particles; 2, the smoke and cinder nuisance, and offensive trades, and, 3, the transmission of filth and disease-laden material by means of insects. It was a fact that dust which did not contain disease germs was nevertheless capable of producing irritation of the eyes, nose, throat, eustachian tubes, bronchi, and lungs. The soil was made ready for bacterial invasion and propagation. Contaminated dust caused conjunctivitis, nasopharyngitis, middle-ear disease, tonsillitis, quinsy, laryngitis, bronchitis, pneumonia, and influenza. Other diseases, besides, were capable of transmission by floating dust particles. Following gusty winds there were usually epidemics of acute colds and catarrhs, many of the victims of which had been apparently in previous good health. It was only a step to chronic catarrhal and acute inhalation diseases. It was significant that most of the sickness and death due to throat and lung troubles occurred during the months of the year when the most dust was being blown about by the winds. In round numbers the yearly deaths in New York City from the four principal diseases in this list were as follows: Influenza, 500; bronchitis, 2,000; tuberculosis, 8,500; and pneumonia, 10,000. In recent years there had been in this city more deaths from lobar and bronchopneumonia than from any other source, not even excepting the great white plague. Most of the deaths occurred between December and April. A reduction in the quality or in the virulence of the street dust would undoubtedly reduce the enormous death rate from this source. A microscopic examination of the constituents of street dust usually revealed the following substances: Stone dust, plaster, iron rust, and cement from building operations; dirt from excavations or from loosely constructed carts; ashes, house sweepings and dried garbage blown from barrels and cans; chimney soot and cinder from industrial plants, and excrement of horses, dogs, and other animals. It also contained the dried sputum of individuals possibly having tuberculosis, bronchitis, nasopharyngeal catarrh, or the first stages of pneumonia. If this latter material was protected by other accumulations, or did not happen to be exposed to direct sunlight, the germs which it contained were not destroyed, and constituted a direct source of disease by inhalation. The floating dust in the air of our homes had the same composition as that of the streets; it was largely a question of amount. With the wind blowing eighteen miles per hour there were five times as many bacteria in the air as when it was blowing nine miles per hour. On a windy day thousands of bacteria settled on each square foot of sidewalk per minute. They also settled in raw foods exposed for sale. The average New York City dust contained about 500,000 bacteria per gram, but the number varied enormously in different portions of the city. Under average conditions, as computed by Dr. Soper, a single individual inhaled in one day 16.5 mg. of dust, including 8,250 bacteria. If unsanitary conditions prevailed, many of these bacteria were pathogenic. It was incumbent on every one to take a personal interest in the work of the Street Cleaning Department, and to note that

the streets were first sprinkled and then thoroughly swept, that the material was immediately removed, and the streets flushed with water, if necessary, and that proper appropriations were provided to do this work in a thorough manner. From the economic viewpoint the city could not expend money to better advantage. As regards the smoke nuisance, the speaker said that smoke and cinders could not be considered as a menace to health except in an indirect way. Like other forms of dust they served as a mechanical irritant. The sanitary code of the city prohibited the discharge of dense smoke from various sources. The experience in Cleveland, the smokiest city of the Middle West, had been that the mechanical stoker had caused a permanent condition of incandescence and prevented the cooling and clogging of the fires when fresh coal was added, thereby maintaining greater economy and better combustion. Another device used in that city was the down draft furnace having two grates. When the fresh air was fed to the upper grate, the air draft was down through the fire on this grate. All the volatile products mixed with the air were then obliged to pass on their way to the chimney through an intensely hot fire in the lower grate and were therefore completely burned. Firebrick, arches, and checker work maintained at a white heat were also used. When ordinary flat grates were used additional air in the proper amount was supplied by blowers above the grate just after firing. This excess air was afterwards automatically shut off. Other means of smoke prevention had been successfully employed to fit the various cases at hand. A change from improper to proper combustion meant a saving of from ten to twenty five per cent. in fuel. The subject of infection from flies was an important one. Considerable time and money had been spent in a war on mosquitos, yet the cases of malaria reported in New York City in 1905 were but 359 and the deaths only 52. Much more to be feared was the common housefly, which was one of the chief carriers of the infection which in New York City causes annually about 650 deaths from typhoid fever and about 7,000 deaths from diarrhea. The fall rise in typhoid death was considered an established institution. This rise, if set back two months from the report of deaths to the time of the contraction of the disease, probably corresponded to the curve of the prevalence of flies and to the curve of rise in deaths from diarrheal diseases of both children and adults. It also corresponded to the temperature curve. The activity of the house fly was in proportion to the temperature and the times at which it was most active and most numerous corresponded exactly with the time of contraction of diarrhea and of typhoid fever. The immunity from diarrhea of breast-fed babies and its frequency of occurrence among those artificially fed pointed strongly to the food and drink as media of transmission. Much of the actual infection was undoubtedly due to flies. Several epidemics of dysentery of a malignant type had been known to radiate from a single point and to entirely disappear when proper disinfection of closets was enforced. Ordinarily, flies traveled only a few rods from their breeding places, but when the days were warm and sultry the flies were stimulated to extra exertion. They extended their travels in the daytime and flocked indoors at night. They were attracted equally by food and filth, and this commingling of tastes made the ominous buzzing in the pantry more to be dreaded than the high-keyed note of the mosquito in the sleeping room above. The speaker captured, last summer, a fly on South street, and on his legs and in his mouth were found one hundred thousand fecal bacteria. He had been behind the large packing boxes down by the wharf and was on his way to the nearest milk pitcher. There was a crying need for better sanitation on our dairy farms and likewise in our own city. Our entire water front was without decent sanitary toilets, and most of the wharves were without any at

It was not to be expected that the city's air was to be free from dust, but it was to be expected that it should not contain an abnormal amount of dust and that this dust should not be laden with the germs of disease. It was not to be expected that small amounts of smoke and offensive or noxious gases should not enter the atmosphere, but it was to be expected that no industrial institution, factory, or dwelling should be allowed to produce amounts of either of these in quantities sufficient to vitiate the surrounding air or become a nuisance or menace to health. It was also to be expected that a strong movement should be started against the extensive and foul breeding places of that very dangerous insect, the house fly.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON SURGERY.

Stated Meeting, Held October 4, 1907.

DR. JOHN F. ERDMANN IN THE CHAIR.

Interscapulo-Thoracic Amputation for Sarcoma of the Shoulders.—Dr. CHARLES GOODMAN presented a Russian boy, aged eighteen years, who was admitted to Beth Isreal Hospital August 6. He had been one year in this country and always enjoyed good health until seven years ago when he had typhoid fever. Both his parents are living and well. Until he was thirteen years old he was of average size; then he began to grow rapidly, now measuring over six feet in height, being several inches taller than either of his parents. He first complained of pain in the region of his shoulder; this was followed by a swelling below the shoulder. Examination revealed a painful mass below the shoulder and restricted movement of the arm. The patient, when admitted, was poorly nourished and overgrown. His physical condition proved negative, except in the region of the left shoulder, where there was a uniform enlargement, tender to the touch. The swelling was aspirated, but nothing obtained. An exploratory incision revealed an extensive, soft, pultaceous mass about the shoulder joint. This was followed by much bleeding. A small section was removed and the pathologist reported it to be sarcoma. Dr. Coley was out of town and his treatment was not given. Resection was out of the question because of the soft, pultaceous character of the growth extending down the shaft of the humerus. Most surgeons agreed that a resection of a joint hardly offered the patient a fair degree of safety as regarded recurrences. Therefore, he decided that a more radical operation was indicated. Operation was performed on August 12. A preliminary ligation of the subclavian vessels and branches of the thyroid axis was done. The incision was along the entire border of the clavicle; the subclavian vessels were ligated in two places and divided. Some difficulty was encountered in this because of the depth of the wound. An interscapulo-thoracic amputation of the extremity was performed. At the close of the operation normal saline infusion was given because of the shock. The pathologist reported the specimen removed to be a large spindle-celled sarcoma. The mortality after such operations, with strict aseptic precautions, was from 8 to 11 per cent. The average duration of life following this operation was three years, although some cases reported lived twenty-six years without recurrences. Dr. Ochsner reported recurrences ten years after operation. Dr. Goodman intended to administer Coley's toxins with the view of preventing recurrence. He also intended to devise some apparatus to obviate the chances of scoliosis, which so often followed amputation of this extremity.

Dr. SAMUEL LLOYD congratulated Dr. Goodman upon the results obtained in this case.

Dr. REGINALD H. SAYRE said the results obtained were excellent.

Acute Perforating Gastric Ulcer.—Dr. C. A. MCWILLIAMS presented a man, twenty-four years old, to illus-

trate an acute perforation at the pylorus. He was admitted to the Presbyterian Hospital at midnight. He had sudden pain in the epigrastrium at four o'clock, eight hours before the patient was seen. He had vomited three times. He could not locate the pain at any particular spot, although at first it was on the right side. His temperature was 100°, pulse 88. The polynuclears were 80 per cent. His history prior to onset of sudden pain was negative. A diagnosis of appendicitis was made. The recti, especially the right, were rigid. Per rectum nothing could be felt except a fullness. There was flatness in the right flank. There was absolute absence of liver dullness. A tentative diagnosis of appendicitis was made, and operation advised. A Kammerer incision was made, the abdomen opened, when a large quantity of turbid fluid, without odor, escaped. It was neutral in reaction, and contained particles of what looked like milk or particles of fibrin. The appendix was found to be normal. The diagnosis of a perforating gastric ulcer was then made. The wound was enlarged and the pylorus exposed. On the anterior surface of the stomach a perforation was found as large as a lead pencil. The edges were indurated. A great quantity of fluid was found under the liver. The pelvis was filled with fluid. A purse-string suture was introduced, with a cigarette drain below the stomach. Convalescence was uninterrupted. The highest temperature was 101.5°. The operation was performed last April, and there has been no stomach trouble since. He was a laborer by occupation, and was accustomed to swing lumber upwards, resting on his abdomen. He was not an alcoholic. For six weeks prior to admission he stated that he had cramp-like pains after eating.

Reduction of Fracture-Dislocation of the Dorso-lumbar Spine by Open Operation.—Dr. C. A. McWILLIAMS presented this patient. This man was admitted to Presbyterian Hospital September 4, 1906. He was thirty-four years old. At one o'clock of the day admitted he was bending over hammering nails when he was struck in the center of his back. He fell to the ground and was unable to walk. He was taken to Portchester Hospital, placed on an air mattress, and later transferred to the Presbyterian Hospital, ten hours after he was hurt. Examination revealed a hematoma in the lower dorsal region, underneath which was an irregularity between the spinous processes of the twelfth dorsal and first lumbar vertebræ. Palpation was painful. There was total loss of motion below the line of fracture. The soles of the feet were absolutely insensitive to stimulus. This extended to the middle of the calves. The popliteal spaces were hyperesthetic. On the back of the toes he could distinguish the prick of a pin, but not on the back of his calves. There were no plantar reflexes. There was retention of urine. It was evident that there was a fracture or possibly a dislocation of the spine, and the question of operation came up. Incision was made over the tenth, eleventh and twelfth dorsal and first lumbar. There was a large amount of subcutaneous bleeding. After exposing the spine, the finger went down between the eleventh and twelfth dorsal vertebræ to the spinal cord. The interspinous ligament had been torn through. The lamina of the eleventh and twelfth dorsal and first lumbar were removed. The bleeding was stopped by pressure and packing. The articular processes on the left side of the twelfth dorsal vertebra seemed to be amputated. There was a dislocation of the left side of the dorsal vertebra anteriorly upon the upper surface of the twelfth dorsal. The right eleventh and twelfth dorsal vertebræ were com-
[illegible] the
German Army[illegible]eral fragments were removed. The dura
per cent. Th[illegible]ed, and was not opened. The dislocation
views as to [illegible] and convalescence was uninterrupted. The
others [illegible]atment was by plaster-of-Paris cast. Catheteriza-
poin[illegible]or about three or four weeks was necessary. The
vary[illegible]ovement was gradual, first shown in the great toe
and 67[illegible]int twitch; then this appeared in the other toes. Finally he got so that he could move both legs. The function returned in the left leg earlier than in the right. The speaker then read the neurological examination as reported by Dr. Ramsey Hunt.

Dr. REGINALD H. SAYRE thought that Dr. McWilliams had had a most beautiful result. He had a case last Saturday, a very extensive fracture, and he was in considerable doubt as to the ultimate outcome. Seeing the case this evening made him feel more hopeful of his own case.

Dr. SAMUEL LLOYD said the case presented was interesting to him because it corresponded so with his original spinal case which he operated on in 1888. He believed he could prognosticate what the outcome would be, that improvement would go on. His patient was an engineer who fell, and was sent to the hospital with complete paraplegia. The only symptom left was a mild drop-foot. Dr. Lloyd referred to the difficulties encountered in reducing fracture dislocations, and said that the lower down the injury the better surgical results.

Dr. REGINALD H. SAYRE said that he was struck years ago, when he read a paper on the subject, in finding so many cases not improved after operation until after some method of immobilization had been applied to the spine. These patients would lie in bed without much relief of the paralysis; but after the jackets had been applied, and the spine so locked up, they were soon able to go about their business.

Empyema (Pyopneumothorax).—Dr. W. S. SCHLEY presented a patient. The boy entered the hospital in May, three years ago. An operation for empyema had been performed by a doctor in the country. One year later, because of a persisting fistula, resection of the ribs was done. When he entered the hospital he was terribly emaciated because of this chronic discharge from the sinus, mostly due to streptococci. The chest was much shrunken. There was a perforation into the bronchus and he coughed up one-half pint of pus every day, mostly streptococcic. The apex beat was displaced. The cavity measured one and a half inches in depth and three or four inches backwards. The walls were dense, hard, and firm, and the discharge was profuse. In five weeks the wound almost closed with the method treated of in his paper. (See below.) He did not believe that the sinus could have been closed by any other method except aspiration drainage.

The Surgical Treatment of Ulcer of the Stomach.—Dr. SAMUEL LLOYD said that acute ulcers of the stomach, or the non-indurated, were in about 74 per cent. curable by medical means. Of the remaining 26 per cent. 21 per cent. were improved, and 2.4 per cent. died, and 2.6 per cent. were unimproved. The usual death rate from gastric ulcer was about 13 per cent., 6 to 7 per cent. from perforation, and 5 to 6 per cent. from hemorrhage. From statistics it was evident that about 13 per cent. of the 26 per cent. not cured by medical means resulted fatally. This would mean a mortality of 50 per cent. If the surgical treatment of these cases showed a mortality of 50 per cent., there would be no object in submitting these cases to operation. All things considered, the operative mortality ranged between 2 and 5 per cent. They could not expect such good results in the hands of the unexperienced, and the statistics given had been compiled only from the reported series of skilful and experienced abdominal surgeons. It was a mistake for the surgeon to undertake this work with the preconceived idea that a gastroenterostomy would answer in every case. That this could not be so was demonstrated when one considered the location and character of the ulcers as they appeared in the statistics of a number of authors. Fenwick, after a study of 1,015 ulcers, found that in nearly 76 per cent. the ulcer was situated in the pyloric region near the lesser curvature and on its posterior surface. Welch's statistics, based upon 793 cases, corresponded very closely with those of Fenwick. These statistics included both the chronic and

the acute types. It was evident, therefore, that in the great majority of the cases the ulceration occupied the pyloric area and the posterior surface. The acute ulcer usually developed at any spot between the cardia and the pylorus, along the upper margin of the stomach, and more frequently on the posterior than the anterior surface. From a consideration of a series of statistics it was evident that it was rarely possible to determine before the examination of the stomach was made by inspection through the wound how extensive the lesion might be, and how much cicatricial change might have gone on in the organ. The general condition of the patient with regard to endurance and the condition of the diseased tissue when exposed should form the basis for the determination of the operative procedure. The Mayos claimed that 85 per cent. of the stomach ulcers coming to operation were indurated, and only 15 per cent. non-indurated. They considered that gastrojejunostomy was the best procedure because it gave rest to the diseased organ by diverting the food and gastric contents. In cases of hemorrhage the best method was to open the stomach, locate the bleeding point, and suture the part firmly with catgut and a curved needle, going well through the coats of the stomach from the mucous side. The outer surface should then be exposed and mattrass sutures of silk or linen should bring together the musculoperitoneal surfaces of the ulcerating area. A hemoglobin percentage below 30 per cent. would not give a very great chance of success. As a general rule a case that had resisted medical treatment for any length of time, or that had persistently recurred, should be operated on. Rodman believed that medical treatment should be carried out for four weeks, and then, if not successful, surgery should be resorted to. Mayo said that "when all the cases are summed up that have been operated upon, it is the non-indurated mucous ulcer that has not been relieved and sometimes not even found. So far as the indurated and callous ulcers were concerned, they were surgical conditions." He facetiously said, when he was asked when he considered a gastric ulcer should be operated upon, "not until it has had nine medical cures."

Aspiration Drainage in Empyema.—Dr. Winfield Scott Schley read this paper. He said the length of time in healing and the persisting sinuses in many empyema cases suggested that the methods of ordinary drainage were inadequate in many cases. As the majority of patients get well through simple drainage, they had regarded the method of thoracotomy, with or without rib resection, and ordinary drainage as sufficiently successful, and had disregarded the smaller number of cases that dragged on for months or years, and perhaps later with shrunken chests and worse complications were obliged to have one of the radical procedures to obliterate the pus-producing cavity or tract. Dr. Schley had tried a number of schemes to facilitate drainage, but without any great success until the present year with aspiration drainage; this year he tried this method in all cases of empyema and of persistent sinuses of the pleura with so much success that he thought the method worthy of further record and more general adoption. He then gave a brief review of the history of surgical drainage in empyema. The healing cavity in the chest in empyema closed much more rapidly from side to side by lung expansion than from above downward, and it was in this factor that the danger of pocketing and retention by unequal expansion laid. In delayed sinus healing unequal lung expansion and the more rapid progress of the skin and fascial planes might so shut off the tract as to interfere with proper drainage. With a lung that had been compressed for a long time by purulent exudate the adhesions were so dense and the exudate so thick that some of them never expanded again under simple drainage. Such a lung needed in addition to pressure from within not only the removal of pressure from without, but the establishment of a decided negative pressure. While he believed the method of aspiration drainage of greater value in the older cases of empyema and in the persisting cavities and sinuses, it had in the simple cases answered so well that he had used it as a routine procedure in all cases. The amount of negative pressure required to overcome the elastic contraction of the lung itself was slight, and had been variously estimated to be from 1/80 to 1/100 part of an atmosphere. It had seemed to him that in addition to the direct effect of expansion upon the lung they had a certain amount of Bier's passive hyperemia. He thought it best to wait several days after operation, allowing the escape of the major part of the purulent material, and then to substitute a single tube of 35 to 40 French caliber, inserting it 2½ to 3 inches within the pleura and packing about it iodoform or absorbent cotton saturated with boric acid ointment. A piece of dentist's rubber dam, four inches square, with a small hole cut in it, was stretched over the tube and run down to the side of the chest. This was overlapped by strips of two-inch adhesive. A circular wad of absorbent cotton was placed about the tube and a chest binder placed on with the tube coming through. A glass connecting piece and smaller tubing connected the Pollitzer bag. The dressing was changed every week and the lung expansion and vertical depth of the cavity or sinus noted. As the cavity was obliterated the tube was gradually removed. Fibrin coagulum seldom occluded the tube; if it did it was easily remedied by probing up the tube. Dr. Schley then reported the histories of eight cases operated on in which this method of aspiration drainage was employed.

Dr. Samuel Lloyd said he did not consider drainage necessary. For a long time he had been interested in this subject and had studied the question of mechanical drainage and expansion of the lung by drainage, and he had had considerable experience with it. He believed the whole question of forced drainage to expand the lung was based on wrong mechanical methods; the idea was to pull the organ down, just as the old method was to allow the chest to fall in. What they wanted to get was a full expansion of the lung, filling the cavity by an expansion of the pulmonary tissues. That was feasible and possible at the time of operation and could be continued afterwards. The idea of pulling down was all right for acute cases, or where the adhesions were not dense or extensive, and where the thickening of the pleura had not advanced too far. What was wanted was a full expansion of the lung and natural adhesions between the parietal and pulmonary pleura for the closure of the cavity. That was better than trying to pull or draw down the lung into place.

Dr. William C. Lusk said that he had seen Dr. Bryant's original case and had followed his work since. He was particularly interested in the report of Dr. Schley's case, the boy with empyema of three years' duration. He called attention to one important point in the technique, as employed by Dr. Bryant; instead of resecting a rib he made a simple incision between the ribs under cocaine, and this did away with the use of an anesthetic and reduced the operation to one of comparatively small magnitude.

Dr. A. V. Moschcowitz said that the general practitioner was not inclined to look upon these cases of empyema, as a rule, as grave or serious. The prognosis was said to be generally good, but he confessed that he always treated a case of empyema with trepidation. It had been his misfortune to lose a case of empyema within one year after operation. He believed it was a mistake to place in a long drainage tube. He made it a rule to introduce a number of drainage tubes, but just within the pleural cavity. He had found cases, comparatively recent, in which the adhesions had not formed to very great depth, which healed promptly, whether one kind of tube or another was used. But those cases which had been neglected, the old cases, they, as a rule, were difficult

to treat. He said he had given up the Estländer and Schede operations except in extreme cases. He endeavored to clean the cavity, and introduced a short drainage tube. He had had excellent results from Bier's cups. He thought good followed drawing down the lungs. A negative pressure was created by this. He applied them twice a day, half an hour at a time. By this method, the insertion of a short drainage tube and application of sterilized Bier's cups, he had been able to cure most of the cases. He asked Dr. Lloyd if he freed the entire lung of adhesions and, if so, was there not danger of infecting the supra-empyemic part of the pleural cavity. He confessed to be afraid of that method.

Dr. Samuel Lloyd replied that he ruthlessly broke down all adhesions. These adhesions walled off certain sections. With the finger, or with scissors, or with a periosteotome, he ripped the adhesions until he had denuded the lung surface; then he allowed the patient to practically come from under the anesthetic and take a forcible inspiration. What he wished to attain was a full expansion of the lung and adhesions between the pulmonary and parietal pleura, in order to close the cavity.

Dr. W. S. Schley, in closing, said that the method was recommended for old chronic cases, with hard and small sinuses or cavities.

Specimen of Gall-Bladder and Concretions.—Dr. A. H. Goelet presented this specimen which was removed June 12. He found everything densely adherent to the gall-bladder, omentum and intestines all being covered by a dense exudate.

Radiograph of Fracture of the Humerus.—Dr. A. H. Goelet presented this radiograph. The patient was an habitual tippler, and was under the influence of liquor all the time. He came in July 21, and said that he had met with an accident on July 4. He was out boating and put out his arm to stop the boat. In doing so something gave way and he was precipitated to the bottom of the boat. The diagnosis was made of a downward dislocation of the shoulder. He tried to reduce the dislocation, but failed. He damaged the shoulder in his efforts at reduction. He made an appointment for the next day, intending to give an anesthetic, but the man got drunk again and was not seen until ten days later. He examined the part again and changed his diagnosis to fracture of the humerus. He made the mistake in his first diagnosis because he found a depression where he expected to find the head of the bone. Seventeen days after the fracture occurred the efforts at reducing a supposed dislocation did not break the bone, because the fragments were firmly united.

Specimen of Sarcoma of Shoulder.—Dr. Charles Goodman presented this specimen. It was a giant-cell sarcoma, and showed the sarcoma starting from the periosteum of the surgical neck, extending down the shaft, and infiltrating the muscles about the shoulder. Nothing short of operation could have offered the patient any hopes of relief. The specimen was removed from the patient presented early in the evening.

Acute Gangrenous Cholecystitis.—Dr John H. Erdmann presented this specimen.

An Ancient Medical Work.—According to the *Tidsschrift for Kemi og Farmaci*, the oldest medical document in the ancient Norse language is the *Icelandic Pharmacopœia*, published in the thirteenth century. It now forms part of a collection of antique manuscripts in the Royal Library of Copenhagen. The work consists of five octavo pages and was intended as a guide to the people in times of sickness and accident. Needless to say the methods of treatment were primitive in the extreme. The remedies were derived mostly from the vegetable kingdom, although a few were taken from the animal and mineral.—*The Physician and Surgeon.*

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 9, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	317	155
Diphtheria	283	32
Measles	203	5
Scarlet Fever	231	9
Smallpox	..	..
Varicella	91	..
Typhoid Fever	107	22
Whooping Cough	15	3
Cerebrospinal Meningitis	3	3
Malarial Fever	..	..
Totals	1250	229

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service during the week ended November 8, 1907:

		CASES.	DEATHS.
SMALLPOX—UNITED STATES.			
California, San Francisco	Oct. 18–26	1	..
Colorado, Four Counties	Sept. 1–30	9	2
Illinois, Chicago	Oct. 27–Nov. 2	2	..
Springfield	Oct. 25–31	2	..
Indiana, Elkhart	Oct. 20–26	2	..
Indianapolis	Oct. 22–27	1	..
Kansas, Kansas City	Oct. 20–26	1	..
Louisiana, New Orleans	Oct. 20–26	1	..
Missouri, St. Joseph	Oct. 20–26	3	..
Montana, Fourteen Counties	June 1–Sept. 30	57	..
New Jersey, Newark	Oct. 20–26	3	..
Ohio, Cincinnati	Oct. 26–Nov. 1	2	..
Tennessee, Nashville	Oct. 20–26	1	..
Texas, San Antonio	Oct. 20–26	3	..
Virginia, Three Counties	Sept. 1–30	5	..
Washington, Spokane	Oct. 20–26	1	..
Tacoma	Oct. 20–26	1	..
Wisconsin, La Crosse	Oct. 20–26	1	..
Milwaukee	Oct. 23–29	1	..
SMALLPOX—FOREIGN.			
Africa, British South Africa—			
Cape Town	Sept. 15–21	1	.
Portuguese East Africa—			
Lorenzo Marquez	Aug. 1–31	..	2
Austria, General	Oct. 6–12	3	..
Vienna	Oct. 6–12	3	1
Brazil, Para	Oct. 13–19	12	10
Canada, Halifax	Oct. 20–26	1	..
Hamilton	Oct. 20–26	1	..
Ecuador, Guayaquil	Oct. 6–12	..	3
France, Cannes	July 1–Sept 30	19	4
Germany, General	Sept. 8–28	8	1
India, Bombay	Oct. 2–8	..	12
Calcutta	Sept. 15–21	..	2
Italy, General	Oct. 4–10	139	..
Catania	Oct. 11–17	..	1
Java, Batavia	Sept. 15–21	15	3
Malta, Valletta	Oct. 6–12	1	..
Mexico, Aguas Calientes	Oct. 20–26	..	2
Mexico City	Sept. 15–21	..	4
Peru, Lima	To Oct. 3	47	..
Portugal, Lisbon	Oct. 6–12	3	..
Russia, Moscow	Sept. 22–Oct. 5	1	1
Riga	July 1–31	.	3
Spain, Almeira	Sept. 1–30	..	5
Turkey in Europe, Constantinople	Oct. 8–15	..	1
Turkey in Asia, Smyrna	June 11–Sept. 30	..	18
CHOLERA.			
India, Bombay	Oct. 2–8	..	12
Calcutta	Sept. 15–21	..	31
Cochin	Aug. 17–Sept. 6	..	8
Madras	Sept. 28–Oct. 4	..	98
Rangoon	Sept. 22–28	..	7
Japan, Yokohama	Oct. 1–7	14	12
Russia, Kief	Sept. 22–Oct. 10	07	10
Rostow	Sept. 19–Oct. 4	32	28
Siam, Bangkok	Aug. 1–31	17	12
YELLOW FEVER.			
Brazil, Manaos	Oct. 6–12	..	4
Para	Oct. 13–19	4	3
Cuba, Camaguey Province—Ciago de Avilla	Sept. 30–Nov. 5	1	1
Habana Province—Guines	Oct. 31–Nov. 4	1	1
Matanzas Province—			
Alacranes	Oct. 20–Nov. 2	1	1
Cienfuegos	Oct. 31	1	1
Matanzas City	Nov. 2	1	1
PLAGUE—UNITED STATES.			
California, San Francisco	Oct. 29–Nov. 5	6	5
PLAGUE—FOREIGN.			
Algeria, Oran	To Sept. 30	16	4
Australia, Cairns	Sept. 4–9	2	1
Egypt, Alexandria	Sept. 28–Oct. 14	7	5
Port Said	Sept. 26–Oct. 14	2	2
India, General	Sept. 8–14	0,754	7,080
Calcutta	Sept. 15–21	..	11
Rangoon	Sept. 22–28	17	.
Peru, Callao	Sept 27–Oct. 2	10	8
Lima	Sept. 27–Oct. 2	2	1
Mollendo	Sept. 27–Oct. 2	1	1
Paita	Sept 27–Oct. 2	6	6
Piura	Sept. 27–Oct. 2	4	..
San Pedro	Sept. 27–Oct. 2	3	..

Medical Record

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Original Articles.

ON PERIANAL AND PERIRECTAL ABSCESS.

By CHARLES B. KELSEY, A.M., M.D.,

NEW YORK.

Abscesses around the rectum are caused exactly as pathology teaches they are caused elsewhere, by the invasion of the cellular tissue by bacteria causing suppuration. Why this part should be so much more frequently attacked by these pathogenic germs than other parts has always been a matter of interest, and every possible explanation has been given. These may all be generalized under the fact that this part is peculiarly subject to injuries and diseases which create a favorable point of attack for bacteria, by lessening the normal resistance to such invasion upon which health depends.

In this view piles, fissures, erosions, ulcerations, proctitis, blows, foreign bodies, severe constipation with its attendant straining, cold, wet, contusions, anything in fact, which departs from perfect normality is a predisposing cause of abscess.

The exciting cause is the entrance into the tissues through the door thus opened of any pus-producing organism—the *Bacillus coli communis,* the *Streptococcus,* the *Staphylococcus,* or the tubercle bacillus.

It may surprise some to know that of all these the tubercle bacillus is most frequently found, sometimes alone, sometimes associated with others; for in former times the mere mention of a tubercular abscess or resulting tubercular fistula was about synonymous with incurable wasting disease. That this is by no means the case, and in fact that these abscesses and their fistulæ are curable, as are those caused by other germs, we shall hope to show.

It is also known that although this bacillus usually is carried along the bowel in the ingesta until it finds a nest in the rectum, and that this accounts for the frequency of abscess and fistula in tubercular patients; on the other hand, the abscess may be the first and for a time the only deposit of the germ; and that a cure of the local condition may prevent more general and pulmonary deposits.

For the production of an abscess here it is not necessary, as Gosselin taught, that there should be a previous penetration of the anorectal mucosa and extravasation of the contents of the bowel into the cellular tissue such as would follow an injury by a foreign body or a destructive ulceration, for in fact such causation is rare. For the real explanation we must look to the very profuse lymphatic supply around the sphincters and to the fact that even the most trifling abrasion of the skin or mucosa may give an entrance to it. Under this head come the abscesses which follow from fissures, from pruritus, or from simple herpetic vesicles.

One other fact in pathology should always be borne in mind. A lesion of the mucosa of the rectum or anus may be the cause, by lymphatic involvement, of an abscess at a considerable distance, as in the ischiorectal fossa; and conversely, what is of the greatest clinical importance, a lesion of the bones of the pelvis, the prostate, Cowper's glands, or of the broad ligaments and pelvic cellular tissue in women, may show itself as an abscess in the anorectal region by direct extension through the lymphatics.

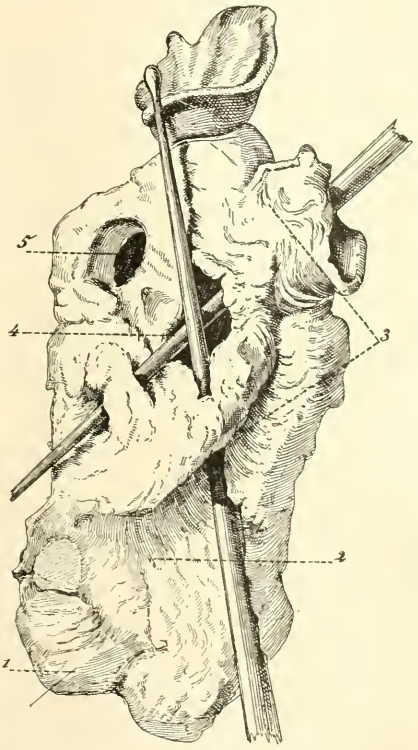

Fig. 1.—Pelvic abscess associated with stricture of the rectum. 1, anus; 2, rectum; 3, stricture laid open; 4, abscess in cellular tissue opening into rectum above and below stricture, as shown by probes; 5, abscess of ovary. From author's photograph.

Illustrating this same pathology, the following case has been one of great interest to me. The liability of stricture of the rectum to be complicated sooner or later by extensive pelvic abscess and resulting incurable fistula is known to all clinicians; but the course of such a case when left practically to nature has seldom been described.

Eleven years ago a young lady came under my care with a well-marked stricture of the rectum at

the usual level; and by stricture I do not mean any of the hypothetical muscular contractions now so popular and prolific with certain practitioners, but *real* stricture, which we all know without description. It had then existed for years, and the contraction from hypertrophic proctitis was such that

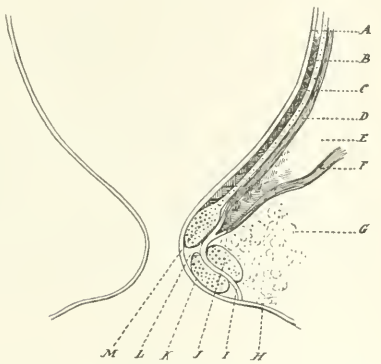

FIG. 2.—Diagram of lower rectum and anus. *A*, mucous membrane; *B*, submucosa; *C*, circular muscular layer; *D*, longitudinal muscular layer; *E*, superior pelvirectal space; *F*, levator ani; *G*, ischiorectal fossa; *H*, skin; *I*, tendinous insertion of longitudinal muscular fibers; *J*, deep portion of external sphincter; *K*, superficial portion of external sphincter; *L*, interval between external and internal sphincters; *M*, internal sphincter.

the finger could not be forced above it. The treatment began in the usual way by mild dilatation, which was both painful and useless, as it always is; and after explaining to her that eventually active surgical interference would be necessary practically all treatment was abandoned and the case left to its own course. I confess I wished to see what that course would be. For about ten years the condition remained almost unchanged. There was little if any increase in the constriction, the bowels moved astonishingly well considering the smallness of the canal, and the general health remained fair, though not up to normal. Then came the always-to-be-expected change, and an abscess and fistula formed on one side, the external orifice well out on the buttocks. From this time on the deterioration was rapid. For one year abscess followed abscess and each left its fistulous track; an opening finally formed between rectum and vagina below the stricture, and a huge abscess in the labium from suppuration of one of Bartholini's glands rendered her willing to submit to curative treatment. This, it is needless to say, consisted in the formation of a permanent artificial anus in the left groin. Three months after the operation she had gained twenty-five pounds; the rectovaginal opening had closed spontaneously, the other openings were closing one after another, and the artificial anus was causing no annoyance, the function of defecation going on normally once a day and attended by the natural premonition.

The case was to me very instructive from many points.

In the case shown in Fig. 1 the sequence of events was never quite clear, though it certainly comes under this class of direct formation of abscess by lymphatic extension from a remote focus; but whether that focus was within the rectum and the extension was to the cellular tissue of the broad ligaments, or *vice versa*, the reader may choose.

The patient was found by me to be in the following condition: A tight stricture of the rectum at the usual site; a fistula leading into the pelvis from the rectum below the point of greatest constriction; another from above the stricture leading in the same direction; a hard mass of old pelvic exudate filling the pelvis; and chronic intestinal obstruction. This was in the early days of my experience as a student of rectal conditions, before I had begun to advocate and practise colostomy; at the time when Senn said he did not believe any surgeon had ever practised the operation or any patient submitted to it who did not regret it; and I regret to say that after using all the futile means of avoiding such a result then known to surgery the woman died, under my care, of intestinal obstruction.

The cut, from a photograph of my own, shows the pathological conditions.

There was a firm, hard stricture of the rectum, which is divided in the illustration between the points marked by 3; 1 and 2 show the normal gut below the stricture, and 4 the normal gut above; 5 is the cavity of an abscess in the broad ligament, and 6 the cavity of another abscess in the ovary. The probes are passed from the fistulous openings in the rectum into the abscess in the pelvic cellular tissue, the one from above the stricture, the other from below.

In this case the focus of suppuration may have been in the pelvic cellular tissue and the stricture of the rectum merely due to the compression of exudate, or the primary condition may have been a chronic hypertrophic proctitis (stricture) and the pelvic suppuration and fistulæ a natural result. The patient could not make the point clear by her account of symptoms, and I was never able to decide.

There are several anatomical points to be borne in mind in considering these perirectal abscesses, as they have much to do in regulating the treatment as well as helping to a clear understanding of the pathology.

The first great distinction to be drawn is between deep and superficial phlegmons. Deep abscesses are arbitrarily described as those situated above the

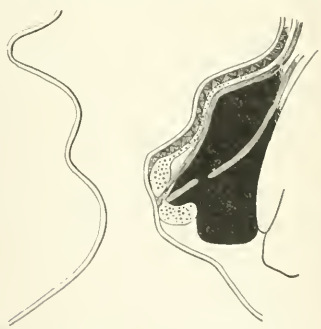

FIG. 3.—Abscess of pelvirectal space perforating levator, and extending into ischiorectal fossa.

levator ani muscle and the pelvic fascia which covers it. Superficial abscesses are those situated below this muscle, and often limited in their upward progress by it. The deep abscesses are often spoken of as abscesses of the superior pelvirectal space.

The superior pelvirectal space is bounded by the levator ani below and the peritoneum above. It is filled with connective tissue varying in amount in different subjects, and this tissue is directly con-

tinuous with that of the broad ligaments in women, and with that surrounding the prostate and neck of the bladder in men. It receives its vascular supply from the hypogastrics. Abscesses in this tissue may therefore be caused by a focus in the rectum, in the prostate or neck of the bladder, or in the uterus and adnexa, and they may assume vast proportions, pointing finally almost anywhere in or near the pelvis. The rectum, bladder or urethra, and the vagina furnish the most frequent outlets, though they may come to the surface over the trochanter or far down the thigh.

An abscess originating above the levator may perforate that barrier and involve the ischiorectal fossa, and *vice versa*. Such a perforation is shown in the cut.

These abscesses are not to be confounded with those in the cellular tissue behind the rectum in the hollow of the sacrum, the retrorectal space shown in Fig. 4. This tissue constitutes the meso rectum, and is supplied by the inferior mesenteric, and phlegmon here is generally due to a focus in the rectum itself or to disease of adjacent bone. Here the pus is in the median line and the cutaneous opening is also apt to be in the median line behind and not far from the anus.

Bearing these anatomical points in mind, we may now discuss each form of abscess in detail, beginning with the deeper and more serious varieties.

Diffuse Pelvic Cellulitis.—In this form of disease we have a diffuse inflammation of all the subperitoneal connective tissue of the pelvis. It is not as common as in former days, thanks to antiseptic methods; but the most careful precautions will not always prevent it, and it is still the most frequent cause of death after extensive operations upon the rectum, such as the removal of cancerous or non-malignant strictures, and I have seen it follow a simple operation for fistula. The only fatal result of excision of cancer in my own practice in the last three years was caused by this; and when I recognized my old enemy and told the nurses that no treatment made much difference, as the patient would certainly die, they were greatly surprised, for to them the man had only had a chill and a sharp rise in temperature, while he seemed to be progressing favorably.

I may say in passing that I have also once seen this unfortunate condition caused by the injection treatment of a pile, but not in my own practice. The substance injected was krameria, but that has never been a matter of any importance to my mind, though the lack of any attempt at asepsis in the operation may have been directly responsible. This infection always shows itself by a chill and high temperature (105° to 106°), and the chills are repeated at intervals. There is acute purulent edema infiltrating all the cellular tissue around the rectum and in the pelvis, and extending rapidly upwards until it may show itself on the abdominal wall, and sometimes extend as high as the axilla. There is also serous effusion into the peritoneum, and there may be acute fatty degeneration of the liver or kidneys. Unless the disease runs a longer course than usual, there will at no time be any distinct collection of pus, and free incisions into the infiltrated area will only cause a slight discharge of serum.

Usually the disease shows itself within the first three days after an operation, by a chill, pain around the site of operation, and a marked change in the appearance of the wound itself, which becomes grayish and begins to secrete fetid serum. There is often diarrhea, which is nature's attempt at eliminating the poison, and there may be pleurisy or bronchopneumonia, and metastatic abscesses. Death generally closes the history in a very few days; but though I have never seen a recovery I have known the case to drag on for a number of weeks, and have seen numerous fistulæ form, generally deep in the pelvis and opening anywhere above or below it. Twice I have seen vesicointestinal fistula result, and once I did colostomy for that condition, simply to relieve pain, though without hope of accomplishing more.

It is a dread disease, and a chill after any operation on the rectum, no matter how trivial, is a source of anxiety always until its cause is evident.

Gangrenous Periproctitis.—Another form of inflammation which is usually fatal in a short time is a diffuse gangrene of the perirectal tissues. Although I have unfortunately seen many cases of the disease last described, I have never but twice encountered this, and it is very rare. In the last case seen only a few weeks ago the patient was suffering from cancer of the rectum and chronic nephritis, which

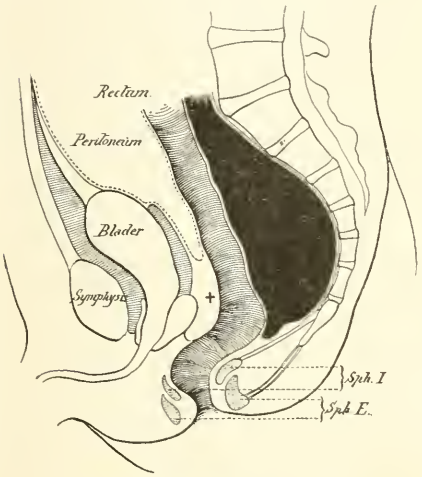

Fig. 4.—Retrorectal space, injected with wax. (Quénu.)

may have been of importance as showing lowered vitality and cachexia. His immediate reason for consulting me, however, was that he had been suffering for two days with severe pain near the anus, and at my first visit an abscess was found in one ischiorectal fossa. There was absolutely nothing to distinguish this from any other similar abscess. It was distinctly limited in area to the size of an egg, red, very painful, and hard; and I promised to see him the next day and operate under laughing gas. Imagine my surprise when in less than twenty-four hours I found the whole fossa and perineum black with gangrene, which was freely incised without causing the least sensation. There was also a distended bladder and retention. On the following day it was evident the process had extended into the pelvis and there was an infiltration above the symphysis. Death came the same night about four days from the onset.

But little is really known of this form of disease, and not much has been added to Jordan's first description in 1879. Sporadic cases have been reported by Gerster and myself in this country, and

it is said to be more common in the hot climates, Peru, Brazil, and Africa, but its etiology is unknown. The case of Quénu, given in full in his book, in which the gangrene extended to the axilla, shows that it is not necessarily fatal, however, as the man, after months of treatment, finally made a good recovery.

It is evidently due to some septic poison of intense virulence, but the exact character of the germ has not as yet been discovered.

Both these forms of phlegmon are marked by the same characteristic, the failure on the part of nature to set up any limiting barrier to the extension of the disease. There is seldom any distinct abscess cavity with its wall. Incisions allow only the escape of fetid serosanguinolent and purulent effusion from between the muscular places and the subcutaneous connective tissue, but they seldom evacuate healthy pus or limit the extension of the inflammation.

Passing now from these diffuse and generally fatal processes to the more ordinary and circumscribed forms, we may consider in detail some of the different causes and varieties.

Disease of the Urinary Organs.—Urinary infiltration from rupture of the urethra or bladder or from rough catheterization is not a very rare cause of severe pelvic suppuration, as may be readily understood by a glance at the anatomy. The sloughing frequently causes perforation into the rectum, and the resulting cutaneous openings, which may be numerous and a long way from the anus, often discharge both urine and fecal matter.

Prostatitis.—Acute inflammation of the prostate or of Cowper's glands, generally due to gonorrhea, is one of the most frequent of all causes of deep pelvic abscess. These tend in the great majority of cases to open spontaneously into the rectum; sometimes, however, they work their way into the urethra or bladder, and opening into both canals they are the most frequent cause of retrourethral fistula.

Necrosis of Pelvic Bones.—The abscesses due to this cause may be found in any part of the pelvis, or even the loin or thigh. They involve the rectum only secondarily, but their openings may exactly resemble those of deep and complicated rectal fistulæ, and even the probe will often fail to detect their real significance.

These abscesses are much more apt to be retrorectal than pelvirectal. The pus will usually be found in the median line behind, and the cutaneous opening, when it is present, also between the anus and the tip of the coccyx.

Disease of the Female Pelvic Organs.—Of this cause of perirectal abscess only a few words need be said. An infectious process starting in the endometrium traverses the tube, attacks its peritoneal investment, extends to the cellular tissue, and, depending upon the degree of infection, leaves only slight traces and subsides spontaneously or results in pyosalpinx and abscess of the superior pelvirectal space.

The abscess, once formed, differs in no essential respect from one in the same location due to an infection from the rectum, into which it not infrequently opens, with the result of establishing a permanent fistula high up in the bowel.

Abscesses Due to Stricture and Cancer of the Rectum.—The tendency to the formation of abscess in both these forms of disease, though well recognized clinically, is not easily explained. Cases of both forms of disease have been given above. In nonmalignant stricture and, in fact, in cancerous disease the point of origin may easily be a perforation of the rectal wall by ulceration and an extravasation of intestinal contents into the cellular tissue. In cases in which no such point of origin can be discovered we are forced to fall back upon a general loss of the power of resistance due to cachexia, and a slighter imperceptible lesion of the mucosa opening up the very profuse lymphatic chain around the bowel.

Superficial Abscess.—Referring to the arbitrary anatomical boundary already marked out which is formed by the pelvic fascia and the levator muscle, we come now to the superficial forms of disease, or those below that line. These may result merely in small subcutaneous tracks, or they may extend to the entire depth of one or both ischiorectal fossæ, but the distinction between them and those of the superior pelvirectal space is both practical and useful.

Abscess of the Ischiorectal Fossa.—These occupy an intermediate place both in location and gravity between the deep phlegmons already described and the superficial ones yet to be mentioned. They may be confined to one or both fossæ, as shown in

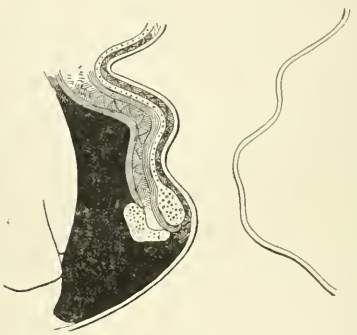

FIG. 5.—Abscess of ischiorectal fossa.

Fig. 5, or they may result from a focus of infection in the pelvirectal space, the pus from which has perforated the pelvic fascia and the levator on its way to the surface (Fig. 3).

This course may also be reversed and an abscess of the fossa resulting from a focus at the mucosa may extend upward and involve the pelvic connective tissue.

These abscesses are not very common, by no means as common as the myriads of more superficial ones which either break and heal spontaneously or are punctured by the family physician; and they are attended by a good deal of pain, fever, and general disturbance. These symptoms may be present for days before there is any superficial hardness or redness to attract attention, and during this stage the diagnosis is only to be made by rectal examination, preferably bimanual. I have known a man to die of unsuspected retention of urine during this stage; and the condition is not without danger to life from sepsis.

When once the inflammation has reached the surface the hard, brawny, painful swelling extending far out upon the buttocks can be mistaken for nothing else.

Left to their own course these abscesses usually burrow extensively, upwards into the superior pelvirectal space, downwards forming horseshoe tracks in front and behind the anus, and laterally. They

may evacuate themselves into the rectum, upon the skin, in fact anywhere, and it is seldom they are limited to one opening. Even when free incisions have been made the extension may go on, as in a case of my own where the patient had been operated upon and had convalesced sufficiently to leave

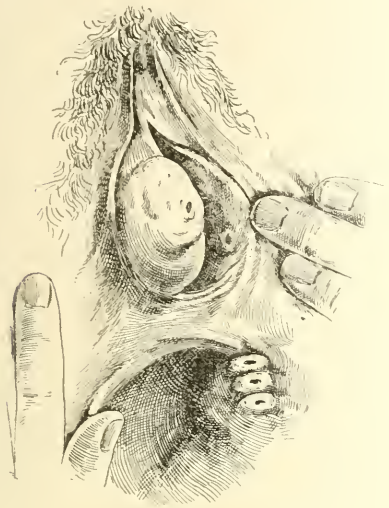

Fig. 6.—Rectolabial fistulæ. Author's photograph.

the hospital and come to my office. There was then, weeks after the incision, a chill, an involvement of the cellular tissues above the levator, and an opening high up in the rectum, which was never cured.

Abscess in Bartholin's Glands.—Inflammation of the glands or ducts of Bartholin is a not infrequent cause of a severe form of abscess which requires more than ordinary skill in its operative treatment to avoid serious damage to the parts. In the case shown in Fig 6 there were three distinct abscesses, one arising in each gland, and one near the anus, unconnected with each other, and only one of them communicating with the gut. Although generally tending to open upon the surface, they may extend deeply into the ischiorectal fossa and open well above the sphincters.

Submuco-Cutaneous Abscesses.—These, by far the most frequent, may be divided into several varieties, according to their location and pathology.

There is, first, the subcutaneous and submucous form, Fig. 7, in which although the pus may be entirely subcutaneous or entirely submucous, it generally extends to both localities.

These "marginal" abscesses, as they are often characterized, are due to infection from the anal canal. When left to their own course they open sometimes on the skin, sometimes on the mucosa just within the sphincter, often at both places; but seldom far above the sphincters. They are marked by severe pain and often some general disturbance. The pain is throbbing in character, defecation is attended by great suffering, the skin is red and swollen, the patient has fever, and takes to his couch to avoid pressure in sitting; and this history lasts till cut short by the surgeon or by spontaneous evacuation.

One peculiarity of these abscesses is their liability to an extension upwards within the wall of the gut, always between the mucosa and the muscularis. This has been described under a distinct name as the *intramural* abscess. It is this upward extension which gives rise to the ascending track, the cause of so much bad and ineffectual surgery in the treatment of fistulæ with internal opening low down, and a blind track running upwards from it under the mucosa.

Follicular Abscess.—This is a variety of subcutaneous abscess originating in the sebaceous follicles. Several follicles may be involved and there may be some little burrowing under the skin, but the disease is trivial.

Thrombotic Abscess is due to the suppuration of an extravasated blood clot at the margin of the anus, which is known as the thrombotic pile. Both of these last forms are attended by more or less pain, but seldom any constitutional disturbance. They break on the cutaneous surface or are punctured; there is seldom any tendency to spread, and they usually heal spontaneously without the formation of fistula.

Treatment.—From the descriptions already given of the extent and location of these phlegmons, it is evident that their treatment covers a wide range of surgery and some of it major surgery. With the deep pelvic abscesses, those of the broad ligaments, and the superior pelvirectal space, in women, laparotomy and removal of the affected organs with drainage through Douglas' pouch is the only cure. Where these collections of pus have opened into the rectum we all know the serious nature of this complication, otherwise the results are good.

The general rule in the treatment of all abscesses of this part is free and early incision. When once

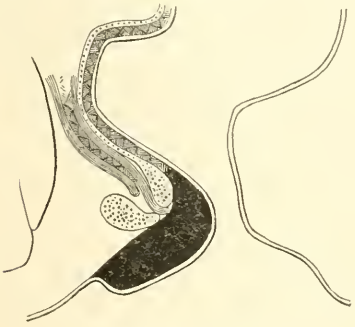

Fig. 7.—Submuco-cutaneous abscess.

the diagnosis of *commencing* abscess has been made incision should follow immediately and as a matter of course. There should be no delay in the hope of resolution and no waiting for fluctuation; the idea is to prevent the burrowing and the production of the fistulæ which constitute the greatest dangers.

To accomplish this most certainly the incision should be large, so that all sinuses and pockets may be opened up with knife or finger and free escape of all contents provided for. The incision shown in the cut has great advantages, the dotted line indicating the extent of the induration.

The long arm of the T should be as nearly parallel with the course of the external sphincter as possible. Slight punctures, which allow only the escape of a little pus, do not accomplish enough to pay for the pain of making them. The opening of any abscess here, except the little cutaneous follicular and

thrombotic ones, is a surgical procedure of no small importance and often of considerable magnitude, and it should be done under general anesthesia, so that it can be done properly and efficiently.

Another cardinal rule is that since abscesses are not actual fistulæ, but only the possible cause of them, they should be treated as abscesses and not as fistulæ and they should *not* be opened into the rectum. It is true that in spite of cutaneous incision many will subsequently perforate the bowel and form complete fistulæ, and thus make division of the wall of the gut and the sphincters a necessity for cure; still this does not constitute a reason for the surgeon doing the same thing with his knife. Often when an ischiorectal abscess has been freely incised on the skin and the finger is introduced to break down sloughing pockets, it will be found that the cavity has approached very near the rectal wall and only a little barrier intervenes between the two cavities. And it may seem as though it were as well to push through this barrier and divide the entire rectum and thus make the fistula and cure it at one sitting. This method of treatment has been advocated by good surgeons, but is not generally accepted, and to my mind is absolutely bad, simply

Fig. 8. Incision for large abscess.

because with free cutaneous opening and proper dressing many abscesses of the deeper variety, which have approached very near the bowels, will close as they do in other parts; and when this can be brought about all injury to the sphincters and all interference with function is avoided. My own rule, therefore, is to operate on abscesses as abscesses, and if fistulæ subsequently form to operate upon them in the usual way.

To make a more definite application of these general principles:

In abscesses of the superior pelvirectal space much good surgery may be shown in securing free evacuation without cutting into the bowel. If the pus is in the anterior portion of the perineum a curved incision in front of the anus will generally be efficient. More often the incision both for these and for the retrorectal variety will need to be posterior and should begin with a free division of the sphincters in the posterior median line. Through this by blunt dissection a way can be made between the levator and the rectum, and the pus cavity on either or both sides thoroughly drained.

Periprostatic abscesses should be opened by the incision for median lithotomy.

Unilateral ischiorectal abscesses should be opened when they are confined to one fossa only by the T incision. When they have spread to both fossæ, the first incision should be through the sphincters posteriorly, and from this free cutaneous incisions forming a V should be made into each fossa.

In subcutaneous or submucous abscesses the incision should be in line with the radiating folds of skin and should lay open the entire cavity whether it be chiefly on the skin, on the mucosa, or equally on both. In this way only will fistula be avoided.

Follicular and thrombotic abscesses do not often form fistula, but they should be incised freely for their entire extent.

44 East Twenty-ninth Street.

THE SURGICAL TREATMENT OF ULCER OF THE STOMACH.*

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Until very recently the impression prevailed that ulcers of the stomach warranted or necessitated surgical interference only when they had reached the "accident stage," so to speak, namely, in cases of acute perforation or for uncontrollable hemorrhage. This conception is utterly wrong, in two ways; there are, first, a number of conditions which allow of and necessitate surgical treatment, where the patients are not *in extremis;* and, secondly, the indication for operation in apparently uncontrollable hemorrhage is exceedingly doubtful.

There can, of course, be no question that ulcer of the stomach is a disease which belongs, in most cases, and at most times, entirely in the *rayon* of the medical treatment.

In figuring out the mortality of ulcers, if not operated upon, different authors have reached very different conclusions. Welch says that 3 to 5 per cent. die alone from hemorrhage; Gerhardt says as many die of perforation; Hauser finds that 5 to 6 per cent. become carcinomatous, while Leube gives a 2.4 per cent. mortality of the general death-rate.

Debove and Raymond claim that only 50 per cent. of the ulcers really heal. Mikulicz finds that the real mortality of non-operated ulcers varies between 25 and 39 per cent. This statistic of his includes all the possibilities of fatal ending in ulcers, as hemorrhage or perforation, inanition, the acute development or recurrence of phthisis, and the transition from ulcer into carcinoma.

I want to deal first with those cases which apparently need operation most, namely, those with perforation or hemorrhage. The acute free perforation of an ulcer into the peritoneal cavity, without any formation of adhesions, is extremely rare. The perforation is usually slow, and presents the clinical and anatomical picture of an inflammatory tumor, sometimes of quite large size, so that a differential diagnosis between malignant tumor and perforation would be extremely difficult. Therefore, operation for *indicatio vitalis* hardly ever becomes necessary. Finally, a larger or smaller abscess will form which, in the course of time, may lead to operation.

The question of operation for hemorrhage is an open one, for while it sounds only natural and rational to operate in a case where there is very severe hemorrhage from an ulcer, operation becomes really necessary very rarely, because, even in extreme cases where the hemorrhage is so severe that

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it seems as though it must unavoidably lead to death, the bleeding stops just before the crucial point, as soon as the patient passes into deep collapse. And, just in those cases where medication fails, and operation would become necessary and desirable, the surgical treatment fails, too, because the patients cannot stand the shock of the operation, and because quite frequently it is impossible to find the bleeding vessel, or get at it.

The other indications for the operative treatment of ulcer are uncontrollable, violent pain, inflammations with or without pus-forming adhesions, the formation of scar tissue with symptoms of stenosis, and a suspicion of malignant degeneration. The best observers in medical and surgical clinics have finally reached a conclusion that a patient with ulcer, who has been subjected to one or several systematic courses of rational medical treatment, with very little if any improvement, or who suffers from recurrences again and again, ought to be operated upon.

Before entering upon the question of results, prognosis, mortality, and so on, of the operation, I want to mention that the operation κατ'ἐξοχήν is *gastroenterostomy*. Although it does not come within my domain to speak of different methods of operation, and their intended effects, I have to explain briefly why gastroenterostomy is the operation for ulcer. All other forms of operation, as the pyloroplastic, excision, resection, and so on, endeavor to treat the ulcer *per se*, by removing it or otherwise. On the other hand, gastroenterostomy tries to form anatomical conditions which partly overcome mechanical difficulties, partly set the stomach at rest, and give the ulcer a chance to heal. The real *circulus vitiosus* of the ulcer is hyperacidity, dilatation of the stomach, motor insufficiency, pyloric stenosis or spasm, all working into each other's hands, and thus producing the unfortunate clinical picture of violent pain, vomiting, inability to empty the stomach of its contents, difficulty in feeding, inanition, and so on. All these conditions are changed immediately, or, at least, after a very short time, if gastroenterostomy is performed, for this permits of the propulsion of the contents of the stomach into the gut and prevents stagnation, fermentation, and stretching of the walls of the stomach by dilatation and spasm. Vomiting becomes unnecessary, and therefore ceases.

Recent operative experimental work on animals seems to have shown that if a gastroenterostomy is done on a normal stomach, the contents never enter the new way—although it is shorter—but always go through the pylorus. If this would hold true in our operations upon patients who need the operation, that is, in the case of a diseased stomach, no ulcer would be benefited by gastroenterostomy. But experience shows that the great majority of cases of ulcer of the stomach are benefited most strikingly by the above-named operation. Contrariwise, the reason why a number of ulcers are not benefited by the operation is explained by those above-named experiments.

To come now to the prognosis of gastroenterostomy, I have to mention the principal danger, which is *circulus vitiosus* and the peptic post-operative jejunal ulcer. How utterly without any value personal statistics are is shown by the fact that in all my gastroenterostomies (not only for ulcer), I have never seen a single case of the vicious circle. While it cannot be denied that the constant improvement of our methods and technique in the gastroenterostomy operations strives to avoid this calamity, I am convinced that it is greatly luck if a surgeon does not get it in any of his cases.

With regard to the death-rate of gastroenterostomy for ulcer, without going into details, it is safe to assume that the average rate of different operators within the last three years is not more than 3.5 per cent. I, personally, have not lost any patients, but my number is so small that it is of very little account. However, if we consider the fact that only the very worst cases of ulcer come to operation, the mortality of this type of ulcers, if not operated upon, is at least 30 per cent.

It is decidedly more difficult to get at accurate statistics as to the therapeutic result of gastroenterostomy. If the *circulus vitiosus* is avoidable, nearly all cases of ulcer thus operated upon are greatly benefited—usually at once, sometimes only after a while. It is a question if this satisfactory state continues in all cases permanently. It seems that in a number of cases the opening contracts so much that it becomes too small to answer the purpose fully. I personally had to reoperate in one case for this very reason.

This short paper would not be complete if I would not mention briefly two other forms of operation which have come into vogue, so to speak. One of them is resection of the stomach, which a few surgeons have taken up, induced by the marked recent decrease in the death-rate of this serious operation. But to me it seems about as rational to resect the stomach in all cases of ulcer as to amputate the leg for each ulcus cruris.

One of our leaders in surgery, Eiselsberg, advocates jejunostomy as the operation of selection. We all know what a fistula-life, with artificial feeding, means, a condition which I would try to force upon a patient only in especially selected cases. Aside from the great discomfort to the patients connected with this operation, it would seem only rational to set the stomach entirely at rest and at the same time feed the patient properly. But, unfortunately, the death-rate of this operation, in spite of the excellent technique of its advocate, is so appallingly high that the time has, in my opinion, not yet come to accept it.

It may not be entirely superfluous to mention that the diagnosis of ulcer of the stomach is by no means so easy, and in a number of cases is rather uncertain. In the differential diagnosis we have to consider tabes, diseases of the spine, as carcinoma and spondylitis, diseases of the gall-bladder, of the pancreas, aneurysms, epigastric hernia, floating kidney, neurosis, and chronic poisoning, as from lead.

In conclusion, I should like to say that we have seen that, in otherwise intractable cases of ulcer, gastroenterostomy is a safe operation, with generally excellent therapeutic results. It rests with the practitioner to find the indication for such interference, and to educate his clientèle to expect it. Practically the entire field of medicine belongs to-day, in certain phases, to the *Grenzgebiete* of medicine and surgery, and only the constant cooperation of the internist with the surgeon can produce those best results for which we are all striving.

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Professor Osler Still Pessimistic.—In a recent address to the students of St. Mary's Hospital, Professor Osler is reported as saying: "Be skeptical as to the pharmacopœia as a whole. He is the best doctor who knows the worthlessness of most medicines. Study your fellow-man and fellow-woman and learn to manage them. Remember above all things that you are in this profession as a calling, not as a business. Once get down to a purely business level and your influence is gone and the light of your life goes out."

THE NOSE IN ITS RELATION TO EPILEPSY.*

By W. SOHIER BRYANT, A.M., M.D.

NEW YORK.

CHANCE sent to me a year ago a patient suffering with epilepsy who had marked obstruction and pathological changes in the nose. This accident set me at working out what connection there might be between the nose and epileptic seizures.

I was fortunate enough to have access to a number of segregated cases of epileptic insanity at the Manhattan State Hospital. This group consisted of about sixty women. I made a careful rhinological examination, including the accessory sinuses, in forty-eight cases of this group. All were found to have extensive abnormalities of the nares of nearly every obstructive variety, and many had suppuration and sinusitis. The patients had been subjected to a great variety of treatment, both surgical and medical, in various institutions, extending over many years. Eighteen were selected from the number examined, for observation and treatment of the nasal defects. The cases whose mental deterioration had not rendered them unresponsive, and who had frequent epileptic seizures were chosen. The course of treatment was wholly operative, directed to the prevention of contact of intranasal structures. Five only of the eighteen cases were observed; two of the eighteen passed from observation. The remaining eleven were operated on from two to eight times each.

The rhinological work is not yet completed in any one case, but there is marked nasal improvement in all the patients operated upon thus far. The epileptic results are as yet very meager, but they show a slight decrease in the number of seizures, together with a slight improvement in the general mental and physical condition.

Case No.	Age	Years of Epileptic Seizures	No. of Months Observed Before Commencement of Treatment	No. of Months Observed After Commencement of Treatment	Average Monthly Seizures Before Treatment	Average Monthly Seizures After Treatment
1	27	12	11	2	9	9
2	49	3+	10	3	4	3
3	22	12	11	2	25	22
4	33	6+	11	2	30	26
5	22	3+	9	4	52	17
6	38	10	3	8	38	10
7	36	28	5	1	14	10
8	24	5+	8	2	19	15
9	47	28	7	4	18	9
10	20	5+	9	3	25	17
11	36	5+	8	5	11	7

I have observed at various times that blows upon the head and severe injuries to the upper spinal cord in man and animals often produce epileptiform convulsions. Also that a nasal cause of reflex epilepsy rarely exists in animals, among whom nasal obstruction and its consequences is practically unknown except in serious constitutional disease or where there is parasitic nasal disease.

During the year I made the following conclusions, namely, that the number of seizures increased with increased congestion and obstruction of the nose, and that they decreased when these symptoms diminished. I observed that colds in the head (nasal infection), lack of vasomotor tone, and diminution of out door exercise were often associated with an increased number of epileptic convulsions. I also noticed that the fits did not occur when the Schneiderian membrane was anemic and hard, but that when they occurred the membrane was always congested and more or less distended. The engorged condition of the mucosa was noticeable before the attacks as well as after them. I further noted that in some patients painful manipulation of the nose at once produced seizures, which would recur in rapid succession if the irritation was repeated (three cases). Cotton pledgets or crusts left in the nose increased the frequency of the attacks; nasal bleeding diminished the number of attacks. In a general way, whatever irritated the Schneiderian mucosa and made it congested and tumid was provocative of epileptic seizures; whatever tended to an anemia and contraction of this membrane tended to decrease the frequency of the seizures. The statistics of the Manhattan State Hospital show that epileptic seizures are slightly more frequent during the colder months.

From my observations I concluded that the stimulus for an epileptic seizure was apt to start in the nose. It seemed to me, too, that the epileptic seizures were reflex in character, and that the epileptic reflex was the exaggeration of a normal nerve reaction under certain extreme stimulations.

Literature gives us only fifty-two cases of epilepsy definitely associated with nasal defects or disease. The treatment of these cases was not sufficiently long to justify more than the assertion that it had been a deterrent to attacks; very few have been observed long enough to justify the name of cure. If we look over the literature of the etiology of epilepsy, we find that it is most common in the colder, densely populated countries, and least so in the warm, sparsely settled ones. I also gathered from the literature on epilepsy that overeating, indigestion, menstruation, and mental excitement were exciting causes of increased frequency of seizures, and that these conditions have an important bearing on the circulatory condition of the nose.

A perusal of the literature showed that a small proportion of the reflex epilepsies had their peripheral origin in various parts of the body, while most of the cases noted were due to reflex irritation in or about the cranium, chiefly from the nose through the fifth cranial nerve, and that reflex epilepsies occurred occasionally in animals from various causes, among them nasal disease. In experimental epileptic seizures of cortical origin, the resultant nervous activity appeared to spread over a much larger part of the central nervous system than the area of direct stimulation, which suggested something of a reflex nature.

Severe injuries of the head and spinal cord have caused epilepsies in previously healthy individuals. Literature shows that animals may succumb to epilepsy when the stimulus is excessive; that they may be rendered more susceptible by weakening their resistance through previous experiment, and that they become unprotected against spontaneous epilepsy by experimental nervous lesions. The analogy holds good in man; a normal man becomes epileptic under severe stimulation, and a previous pathological condition, predisposition, or lack of protection is all that is necessary for slight exciting stimuli to produce epileptic seizures. Our conclusion from the literature is that the chief cause of reflex epilepsy in man is nasal irritation; that epilepsies due to the irritation of the cortex, the lower centers, or the cord, are, to a considerable extent, all reflex; that there is no essential difference between reflex epilepsy and essential epilepsy, or idiopathic epilepsy, except that the exciting cause is not obvious in the latter; and, finally, that epileptic seizures represent the exaggerated normal nerve reaction to certain stimuli.

*Read before the American Academy of Ophthalmology and Oto Laryngology, Louisville, Ky., September, 1907.

The conclusions derived from my own observation and from the perusal of the literature are identical. A peculiar fact appears on consideration of the literature and after observation of the selected cases, namely, that epileptic seizures and the nasal condition fluctuate in unison. It appears, both from my own experience and from the clinical and experimental literature, that peripheral irritation of the fifth nerve—especially that portion supplying the nasal membrane—is more frequently the cause of epilepsy than the peripheral irritation of other nerves.

The nasal condition found in this series of cases of epileptic insanity—all long-standing cases of epilepsy, from five years to thirty years, all of whom had exhausted the known treatment of epilepsy—strengthens me in the supposition that in these cases the nasal cause of peripheral epileptic irritation was the most resistant exciting cause and at the same time the constantly acting one.

Reflex disturbances of the higher centers from irritation of the nasal branches of the fifth nerve are anamnesia, aprosexia, vertigo, migraine, hemicrania, and scotoma scintillans, not to mention epilepsy, and of the lower centers, chorea, coughing, sneezing, temporary arrest of the heart beat, asthma, and sexual reflexes. The great disturbances caused by comparatively slight nasal stimuli are worthy of note in this connection. The reason the fifth nerve, which supplies the Schneiderian membrane, is the most frequent conveyor of peripheral stimuli causing considerable central disturbances including epilepsy, is, in the first place, because it is a cranial nerve of large size, with very extensive peripheral and reflex connections—practically the only sensory nerve supplying a region of the body which is, as a rule, pathological in civilized man; secondly, because the central connections of the fifth nerve bring it into peculiarly close relation with the higher and lower centers; and, thirdly, because it is the sensory nerve of a large part of the brain and meninges.

The weight of evidence favors the hypothesis that epilepsy is a reflex nervous symptom. It can be compared to vertigo, nausea, or vomiting, which are caused by overstimulation of the peripheral space organs. These are normal nerve reactions to overstimulation of the peripheral space organ or of its central connection, but become pathological when excited by insufficient or trivial causes.

We explain the large number of cases having origin in intranasal irritation by the scientific hypothesis that, given a predisposition to epilepsy, the exciting peripheral irritation will probably first appear in the nose, not only because that organ is undergoing a retrograde change in civilized man—a condition rarely found in animals, but which, when it does occur, is fraught with the most dire consequences—but also because sensory stimulation of this organ has special effect on the central nervous system.

Epilepsy has always been a very resistant disease, or rather symptom, because its predisposing cause can rarely be removed, and its exciting cause, though occasionally found, is still less frequently removable. It has been overlooked where it most usually occurs and where it is most amenable to treatment, namely, in the nose, and here it has been most reprehensibly neglected.

If our view of epilepsy is correct, that it is a reflex symptom of central overstimulation, and that the cause rendering the patient abnormally susceptible is beyond reach, permanent cure may not follow the removal of the peripheral exciting irritant, because a disturbance in some other part may later again produce the exciting irritation.

I have essayed to treat this series of cases intranasally. I have obtained very slow results, which, however, have not been entirely discouraging, since slight improvement has followed my efforts, and since I have obtained additional proof of a peripheral cause of the seizures.

Conclusions.—1. Epilepsy is a normal symptom consequent on overstimulation of the higher centers of the cord and brain.

2. This overstimulation is largely reflex in its characteristics.

3. The normal nerve reaction may become pathological, even when it is irritated by a comparatively insignificant peripheral stimulation.

4. Epileptic seizures are more often due to reflexes from the Schneiderian membrane through the fifth nerve than to other causes.

5. Appropriate treatment of the intranasal defects may be expected to lessen greatly the number of attacks, and in favorable cases to remove wholly the peripheral irritating cause of the epilepsy, which will allow cessation of the seizures.

6. In the epileptic neurosis, predisposition or weakened resistance of the central nervous system is due to other causes than the slight exciting peripheral irritations which have previously lessened the self-protective power of the higher nerve centers.

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Consult also the following authors: Abramson, Allen, DeBuck, Donatts, Ferrier, Fritsch, François-Franck, Hitzig, Kolk, Leduc, Mansfeld, Nothnagel, Pitres de Bordeaux, Portal Sallinge, Sauvages, Schrötter, Westphal, White (Joseph A.).

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Reaction of Central Nervous Substance to Tetanus Toxin.—M. Almagia says that lecithin and cholesterin have the same physical properties toward tetanus toxin as the central nervous substance as a whole. They may be compared to receptors that in the nervous substance fix the tetanus toxins. The author considers these factors of immunity against the toxin for the organism, while antagonistic to the toxin when they are in the circulation, because they seize upon the toxins before they attack the sensitive cells. He experimented as to whether the injection of cholesterin would prevent tetanic intoxication in animals. From many experiments on guinea pigs he concluded that this procedure was valuable, since animals previously injected with cholesterin were not affected by tetanus toxin. He desires that experiments should be made in man.—*La Riforma Medica*

THE INDICATIONS FOR ERGOT ASIDE FROM ITS OBSTETRICAL USES.

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The general deductions that appear to be warranted, from my personal experience with the therapeutic application of ergot, are

First.—That its direct and specific effect is the contraction of unstriated muscular fiber, or other involuntary contractile tissue.*

Second.—That it does not markedly contract that which is normal in tone; but

Third.—That it is emphatic in its contraction of that which is lacking in tone, and

Fourth.—That it is prompt and striking in such effect, in proportion to the recency of occurrence of the atonic state in such fiber.

Fifth.—That its widest field of usefulness is its application to the muscular coat, or other contractile tissue, of weak and relaxed blood-vessels.

Sixth.—That it there tends to equalize vascular tension; to distribute the blood equably throughout the body; to restore or to promote functional activity of glands and organs generally, and vasomotor centers particularly; to promote sleep; to relieve pain, nervousness, and spasm; to prevent or modify the effects of autotoxins and bacteria; to promote assimilation, absorption of exudates, and elimination of waste; to relieve nausea; to prevent the ill and dangerous effects of anesthesia; to promote the healing of wounds; to prevent or modify inflammation; to arrest capillary hemorrhage; to relieve narcotic poisoning, and to make the work of the heart more easy, and so to prevent its exhaustion or paralysis.

Seventh.—That it is useful to restore tone in the unstriped fiber of the walls of the hollow viscera, stomach, bowels, bladder, uterus, etc.

Eighth.—That the prevalent, popular notion, existing even in the medical profession, that it is a dangerous drug, and likely to produce ergotism, is unfounded as regards the modern pharmacopial preparations, at least as regards such as I have used during the past thirty-four years.

Ninth.—That its local action upon the stomach is often offensive, especially if full doses are given; that its absorption from the stomach is uncertain, both as to promptness and degree, and, therefore,

Tenth.—That its administration should be limited as much as possible to hypodermic injection, which assures immediate effect, admits of exact regulation of dose, and avoids nausea and other ill effects of its administration per os.

The foregoing deductions are wholly founded upon my clinical experience, as I have made no experiments upon animals; but, while it may not be as exact in explaining the rationale of action, clinical experience is the only reliable guide as to the applicability of any therapy to disease.

The indications for ergot, aside from its obstetrical uses, are many, and in the partial relation of them which I shall make, some may appear contradictory to others, but a careful analysis of the ultimate conditions in any individual indication stated will demonstrate the existence of unstriped muscular fiber, or other involuntary contractile tissue, that is lacking in tone; and upon that single thread hang all the manifold indications for ergot, and upon the power of that drug to contract (stimulate and tone) such atonic fiber depends the myriad utilities of ergot in therapeutics.

In detailing indications for ergot I will not attempt to include every variety of condition to which I have applied it, nor can I, in the limit of this paper, enter into the rationale of its application to each of the conditions that will be mentioned; but I shall endeavor to make sufficiently clear the principles involved in the use of ergot that not only may what is left unsaid be implied, but the reader may be prepared to recognize, in his daily practice, many conditions not here mentioned that will be to him indications for the use of this drug.

I will endeavor to classify the indications which I mention, although this cannot be wholly successful because of the complexity of indications that often exists.

Disorders of the Circulation.—No other pathological condition can be mentioned that is more common than too much blood in one or more regions of the circulation, and, therefore, too little in the other regions; witness cold hands and feet, pallor or flushing, the frequency of "colds," the passive or active congestions associated with almost every ill of humanity. If passive it is called "poor circulation;" if active, it is the beginning of "inflammation." Whatever the type or extent of such disorder, the direct cause is a weakness of the contractile coat of some blood-vessels, and this is an indication for ergot.

Disorders of Blood-vessels.—When the walls of blood-vessels are unusually weak or greatly strained they may break, causing hemorrhage. If the vessels are minute (capillary hemorrhage), ergot will contract them and stop the hemorrhage. This applies especially to the various mucous tracts.

Veins, lymphatics, and arteries are subject to inflammation of their walls, and the congested vessels permeating them constitute an indication for ergot.

I have treated successfully with ergot several cases of inflammation of a limited area (or areas) of the abdominal aorta or its greater branches, the location varying from just below the diaphragm to the external iliacs. This inflammation only yielded to ergot with long-continued absolute rest. Besides its action on the congested area, ergot slowed the heart's pulsations and sensibly softened them, thus giving longer periods of rest to the inflamed surface and lessening the friction of the blood-current over it.

Dilatation of veins, as the hemorrhoidal, or the superficial varicosities, is modified by ergot, but it is important to associate gravity or pressure to secure some emptying of the veins, as ergot cannot overcome extreme active resistance to the shortening of the greatly and chronically stretched unstriped fiber.

Atony of the Hollow Viscera.—In this condition, affecting for example the stomach or bladder, it is also important to empty the organs to lessen resistance to the influence of ergot. While ergot seems sometimes marvelously powerful to contract relaxed unstriped fiber, I regard it as so gentle in its action that, to secure its best effect, physical repose should be maintained for half an hour or more after its administration.

Assimilation and Elimination are associated with the minuter circulation. The best performance of these important functions demands a certain caliber of the minute vessels, that the lymph spaces about them may be sufficiently free for the proper circula-

*The claim has been made that there is no unstriated muscular fiber in the vessels of the brain and that ergot, therefore, cannot influence congestive states in that organ. If it be true that there is no unstriated fiber in the cerebral vessels, there must be some other contractile tissue upon which ergot acts in like manner as upon the unstriated muscular fiber since no other effect of ergot has been more positively demonstrated than the relief of congested states in the brain. It is possible that other classes of defective tissue (in process of degeneration) are also normalized by ergot, as is claimed by so careful a student of ultimate pathology as Dr. Homer Wakefield.

tion of that fluid. The waste matter taken up by the lymphatics and passed into the general circulation is thrown out by the secretory glands as the blood passes through their capillary vessels, and this function is also best performed when the vessels are in good tone, not unduly dilated.

Indeed, I think I am warranted in asserting that the performance of function in general, of glands or other organs, including nerve centers, is interfered with by excess of blood, due to a relaxed state of their vascular walls. One indication, then, in *impaired functional activity*, is the contracting of relaxed blood-vessels, which ergot effects

The organ whose disturbed function is the most serious, because the most intimately associated with fatality, is the heart. The disturbance of the heart's function may be due to defects in its own vascular supply; to vascular defects elsewhere, as in the lungs or the kidneys, affecting the quality of the blood; to vascular defects in the nerve centers related to it, or to areas of vascular relaxation somewhere in the general circulation that obstruct the most free action of the heart as a pump.

The effect of these abnormal states is sometimes to diminish the force of the heart's action and sometimes to increase it. The remote defects that unfavorably affect the quality of the blood are also chiefly dependent upon abnormal states of the blood-vessels in those regions, so that the general indication in disturbances of the heart's function is the correcting of vascular relaxations somewhere in the round of the circulation. As prolonged functional disturbance develops organic changes, and as the restoring of normal organic conditions depends upon improvement of the circulation, the preceding statement applies even to organic disorders of the heart.

The above argument applies as well to disordered function of other organs, as the brain, lungs, kidneys, digestive tract, reproductive apparatus, and organs of special sense. I have repeatedly seen marked improvement of sight, hearing, and smell, even in chronic and extreme cases of such defective sense, result from the toning of the circulation.

Ergot is distinctly indicated in disturbances of the *menstrual function*, and in the preparation of subjects for *either climacteric*, a most important matter, generally neglected, such neglect often resulting seriously.

Nervous diseases form an extensive class of indications for ergot. They are too often treated with direct reference to a state of the nervous tissue, when the real cause of the altered function of that tissue is an altered state of the blood-vessels distributed to and about it, as demonstrated by the effective action of ergot in relieving many nervous disorders.

Insomnia is generally conceded to be due to an excess of blood in the vessels of the brain. I have many times recognized in my own person, and observed in my patients, the sleep-determining power of ergot. The sleep resulting from ergot is not a narcotic sleep, but natural in all its phases, having resulted from the same condition that develops natural sleep, a reduction of the amount of blood in the brain.

The state denominated *nervousness* is relieved by ergot, and doubtless in the same way, through vascular change. A patient to whom I have been giving ergot said to me a few minutes ago: "I used to feel that I must be rushing about something all the while; now I take things easy." A great many medical men would be benefited by ergot, since it tends to calmness, steadiness of hand, and clearness of thought. I have prepared, with ergot, the clergyman for his sermons and the lawyer for trying his cases, as well as the teacher for her perplexing and onerous duties. Intense nervousness is illustrated in alcoholic tremor and the reaction due to abstinence in the drug habitués. A further development of this state is manifested in hysteria and hysterical convulsions and the most intensely in hysteroepilepsy, all of which states are quickly dissipated by ergot.

Neurasthenia, the forerunner of insanity, presents a clear indication for ergot in several particulars: to promote calm, thus saving expenditure of force; to promote sleep, thus securing rest, and to promote assimilation, thus restoring vigor of the nerve centers. A recent extreme case, complicated with developing locomotor ataxia, was cured in a few weeks and returned to the duties of an arduous position. The treatment was ergot and electricity.

Spasmodic affections afford indications for ergot. Asthma, chorea, intestinal colic, and spasm of sphincters have all been cured by ergot, and epilepsy has been as much modified by it as I have seen accomplished by the bromides and without the depressant and enervating effects of the salts. Convulsions, due to uremic poisoning, have yielded to ergot.

Paralysis in many instances (hemiplegia, paraplegia, and bulbar) and aphasia have been relieved by ergot, and, in some instances with astonishing promptness.

Stupor or coma and also *delirium* are other indications for ergot; the serous apoplexies occurring in alcoholics are strikingly relieved by ergot, and that drug has in a few minutes dissipated a profound coma from three and a half grains of morphine that had been administered hypodermically to relieve pain.

Pain appears to be largely due to relaxed contractile fiber in blood-vessels, for most kinds of pain are relieved by ergot, and, when it is indicated, it should surely be used in preference to morphine. For many years I have never administered morphine except with ergot, to prevent its congestive effects. Angina pectoris is promptly relieved by ergot, notwithstanding the theory that it is contraindicated. Other nervous affections in which ergot has been effective in curing or modifying, and which are, therefore, indications for that drug, are insanity, general paresis, paralysis agitans, neuritis, neuralgia, inflammations of nervous tissues and of the meninges, including epidemic cerebrospinal meningitis.

Associated with the nervous system, directly or reflexly, but having the element of vacular disturbance in causation or condition, are many *skin diseases;* the vascular element in whatever way related, determining them indications for ergot. I would particularly mention erythema, urticaria, and acne rosacea. I have repeatedly observed a coarse, rough skin become fine-grained and soft after a prolonged use of ergot for some other purpose.

Zymotic, infectious, and *autotoxemic diseases* include an extensive class of indications for ergot, because of the serious and fatal elements which arise from relaxation of vascular walls, or of unstriped fiber elsewhere, as in the bowel.

I have entertained the theory for many years that a relaxed vascular state, general or local, in other words, a state of congestion, is necessary to the active development of bacteria and poisons that determine a febrile state. This was illustrated in a study of appendicitis by Dr. Zwalenburg, recently reported, who found that injecting bacteria into the appendix did not produce appendicitis, but, when a state of congestion of the appendix was produced by mechanically obstructing the circulation in that organ, typical appendicitis was promptly developed by the bacteria ordinarily present.

If a state of congestion is necessary to virulent activity of bacteria, a prompt application of ergot, by contracting the dilated vessels, ought to abort the disease. Ergot has unquestionably aborted appendicitis, pneumonia, and influenza, and I believe that its sufficiently early and thorough application will abort typhoid fever and other diseases of similar origin. I know that it has so markedly modified the course of typhoid fever that the continued high temperature became practically the only distinctive symptom, and when that finally yielded the patients were well, not having the usual prolonged stage of convalescence. Aside from aborting this class of diseases, the indications for ergot are to modify local inflammation; to prevent or modify hemorrhage; to prevent congestive complications; to prevent or modify tympanites or intestinal atony; to promote normal secretion and elimination; to prevent or relieve pain, delirium, or stupor, and to prevent exhaustion of the heart by securing an approximately equable circulation.

The indication for ergot in simple inflammatory affections is too apparent to need more than suggestion. The last class of indications for ergot which I will mention are those connected with

Surgical Cases.—I have positively demonstrated the efficacy of ergot to relieve traumatic shock; to prevent shock from anesthesia or operation; to prepare for prompt operation a subject already shocked; to prevent retching and vomiting from the influence of anesthetics; to relieve or prevent postoperative pain, and to promote the process of healing.

The multiplicity of indications for the application of ergot (which have really been but meagerly suggested in this limited paper) are not likely to be appreciated or credited by those who have been accustomed to regard the drug as applicable only in obstetrics and capillary hemorrhage, until they have developed a truer appreciation of the extent to which a relaxed state of the unstriated or other involuntary contractile fiber enters into the varied conditions of disease. It will then be realized that, after all, there is but a single indication for the use of ergot, the contracting of the weak and relaxed unstriated fiber, or other vital contractile tissue, and that one of the most important duties of the physician, in determining therapy, is considerately and thoroughly to apply this principle to the many indicating cases in his practice.

THE ACTION OF THE RADIANT LIGHT BATH IN NERVOUS DISEASES.*

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During a period of nearly ten years I have used the radiant light bath every day, sometimes giving as many as one hundred baths a week. While the special object sought was the sudorific effects, its tonic and medicinal influence exceeded all expectation.

The effort to make a study of its peculiar action as distinguished from other conditions appears to be difficult because of the character of the patients and the very complex disorders from which they suffered. The purpose of this paper is to indicate some of the clinical conclusions which have been apparent from its action on these persons, together with some possible suggestions for farther and more exact studies.

*Read at the annual meeting of the American Electro-Therapeutic Society at Boston, Mass., September 18, 1907.

The patients upon whom it has been used were all spirit and drug neurotics and psychopaths, suffering from sclerosis, fibrosis, local irritation, and subacute inflammatory states, with deranged metabolism and degenerative conditions. In addition to this there was always present neurosis or profound psychosis with organic and functional derangements. The effort to treat these conditions by any special means is always open to error from faulty observation and conclusions.

Exact measurements of the disability and degeneration present furnish a basis from which to judge the action and influence of remedial measures. The more accurate the studies of these conditions, the clearer the evidence of the effects of remedies; thus measurements of the sensorial conditions, the heart's action, and the arterial tension, give some idea of the present, and the application of means and measures changing these conditions indicate their remedial value. The error is always found in attributing special results to particular means of treatment. In all these drug and drink neurotics the simple withdrawal of the poison is followed by changes which often are ascribed to remedial measures alone. Thus elimination by cathartics and abstinence from food is followed by symptoms which a careless observer might think due to some special remedy.

The action of the radiant light bath is not only eliminative, but something more than that. It is a tonic and stimulant, and apparently has some specific influence on the cells and tissues which is yet to be discovered. For the present purpose I will consider, first, the bath as a powerful sudorific and eliminative; second, its special influence on metabolism, nutrition, and the cutaneous circulation; third, its psychical effects on the nervous system and its influence on the emotions and mind.

As a sudorific the radiant light has a very pronounced uniform action. It is far superior and more active than hot air in its profound influence on the organism. The light rays penetrate to the interior of the body, creating increased activity in both cell and tissue. The circulation on the surface is more intense and rapid, and the amount of water thrown off from the skin exceeds that when hot air is used. An effort made to estimate the perspiration induced by both hot air and radiant light indicated this. In most cases this sudorific action reaches its point of greatest intensity in from ten to fifteen minutes, but to reach that point with the use of hot air requires from twenty to forty minutes.

There is evidently some shock to the cutaneous nerves in the rapid, intense action of the capillaries that react beneficially on the nerve centers, particularly in persons who are suffering from degrees of palsy following the use of spirits and drugs. The rapidity of the sudorific stimulation varies largely in different persons at different times. In some instances six or seven minutes' exposure to the radiant light is followed by a free perspiration. In others double this time is required. In persons under the influence of spirits or drugs two conditions seem to be prominent. In some there is a slow and progressive relaxation culminating in profuse perspiration in a few minutes. In others a temporary blanching of the skin and oppressive feeling of dry heat, followed by a sudden relaxation and profound perspiration.

In many cases states of insomnia and continuous exhilaration for several hours follow the use of the bath. Then a profound sleep with the most restful feeling comes later. In other cases somnolence almost bordering on narcotism continues for a time,

followed by the same restful feeling. It is found by long experience that this condition is the most beneficial, and the efforts to produce sleep and somnolence by this means are usually successful.

Examination of the surface of the body is made before the bath. If the skin is found dry, and the circulation sluggish, warm showers are given with strong soap and brushing. Where the person is unaccustomed to bathe, and has cutaneous disturbances of sensation and a tendency to take on inflammatory action from any internal cause, it is quite necessary to prepare the skin by massage, showers, cold and hot douches, and dry rubbing to secure the best effect of the radiant light.

Persons under the influence of spirits and drugs, and persons suffering from high-tensioned arteries, always do better when the bath is preceded by a warm shower and rubbing. In other instances, after free perspiration of the bath, a shower with gentle massage, a distinct somnolent effect follows, and the patient who has been awake for a long time will fall into a most refreshing slumber.

In some instances in which the action of light on the surface produces a form of cutaneous palsy, blanching the surface for a few minutes, and later followed by intense redness and profuse perspiration, a prolonged shower is valuable to equalize the circulation. Where the stimulating effect is followed by exhilaration and wakefulness for some hours, a warm shower will prevent this. Patients should always recline after a bath for an hour or more in a well-ventilated room. The excellent effects of this light in the ordinary skin disease is a matter of daily observation. This is greatly increased by salines in small doses before the bath, and warm showers.

In drug-takers the effect of the radiant light is almost a specific in overcoming irritations, diminishing nervousness and removing internal states of congestion for the time being. In many instances a prolonged bath is followed by the best results; in others a gentle surface stimulation is all that is required. It has been observed that the free use of baths greatly diminishes the impulse to take spirits and drugs. The desire for relief, for which drugs and spirits are used, is less prominent and intense, and this has led some observers to believe that the Turkish and radiant light baths were capable of effectually removing the morbid impulse for drugs or spirits. A more careful study shows that the baths divert nervous energies and remove sources of irritation, and that it has some special action in restoring the disordered cell and tissue.

The radiant light bath has a marked physiological effect evident from the improvement of the function of the brain and nervous system that is unknown. The second effect of the radiant light bath on nutrition and cutaneous circulation has many unexplainable phenomena. Sometimes the appetite is immensely stimulated, and in nearly all cases the disordered digestion is improved. In some cases a craving for fats and sugars or acid foods is followed by a strong repulsion for other classes of foods.

In certain cases where the action of the light produces profound perspiration, an unusual thirst follows, and not unfrequently a general relaxation of the system is succeeded by great looseness of the bowels and intense renal activity.

In persons who have profound nutrient disturbances experiments have been made by massaging the body before the bath with soap, and then washing in a strong solution of salt and water, the latter not rubbed off. This was followed by a great improvement in indigestion and nutrition. There are many reasons for believing that the skin, saturated with salt water before the bath, becomes more sensitive to the action of light; probably the salt is absorbed, and in this way becomes more of a tonic. It is difficult to explain the marked improvement in neurotic dyspeptics treated by radiant light and the special value due to the salt or its influence on the skin.

Another experiment seemed to indicate the greater potency of drugs, particularly phosphate of sodium, and in other instances vegetable acids, which were given a short time before the baths. There seemed a marked improvement from both.

The same thing was apparent in persons suffering from great irritability and excessive nervousness who were always benefited by large doses of phosphate of sodium and pills of lupulin given a short time before the bath. In the insomnias following the withdrawal of narcotic drugs, the bath is a very valuable remedy given once a day, preceded by hot water douches, soda compounds, and occasionally sulphate of magnesia. The nerve relaxation and rest, with tendency to sleep, is very marked, and comparison in this respect with the hot air baths and the same drugs indicates great superiority of the radiant light. In alcoholics of the epileptic character, the action of the bromides seems to be greatly intensified by the bath. In many instances it was noticed that small doses produced extreme physiological effects when followed by the baths, and the supposition was that the salt was more thoroughly assimilated and distributed to the nerve centers by the action of the light

It has been suggested that the radiant light exercises not only a peculiar cell-stimulating power, but an influence over the mineral constituence of the body, increasing their assimilation and circulation or diminishing their irritative action. With a view to determine this, alkaloids of quinine and opium were given before the bath was taken, and, while the results are very striking, the data are insufficient to draw conclusions.

In morphinism and alcoholism the poison symptoms are always reduced after the bath. In Bright's disease and general dropsical conditions, the drainage of the water to the surface by the radiant light bath is more profound and less exhaustive. In chronic enteritis very marked results have been noted. These are no doubt mechanical as well as physiological effects.

The third effect of the radiant light on the brain and nervous system is one of still greater mystery, and the explanation of the startling changes produced must await future study and demonstration. The mental relief and satisfaction seen in the buoyancy of the mind and the sense of quiet and comfort is a very common condition. When massage is given before or after the bath a pleasing sense of fatigue and desire for sleep follows. States of despondency seem to pass away, and the patient acknowledges relief which before was not recognized.

One very marked effect is the diminution of the arterial tension from five degrees to twenty degrees noted on the Riva-Rocci sphygmomanometer. This may last a long time, and even be permanent. In most instances the tension is lowered by the effects of the bath, and with this the heart's action is steadied, and the disturbances of the senses are all diminished. It is possible to measure these effects with instruments of precision, and show the exact changes that are registered in the heart, arteries, and senses. Comparing this with the effect of the hot air baths, we find it very much greater and more

marked. It is evident that this is not all due to the drainage of the water from the blood, but to some other conditions not very clear. In the hot water bath often the tension is but little influenced, and other organic and functional disturbances are seldom changed.

The radiant light bath, preceded or followed by a static breeze, has a very pronounced effect on the tension of the arteries and the action of the heart. In some instances a marked narcotic action follows. In one case restlessness followed for a short time, then profound sleep for a long time. The static breeze following the bath seems to have a soothing effect, and the combination of the two in certain persons has an almost specific action. In the insomnia following the withdrawal of drugs the baths have a sedative effect in lowering also some psychical influence which antagonizes whatever delusions or derangements may be present.

The intensity of morbid impulses and hallucinations of the senses is changed for a short time at least. In delirium tremens the bath is marked in its effects, and should always be preceded by vigorous massage and showers, and large quantities of mineral water taken internally. This is usually followed by distinct sane intervals. The mind seems to recover its balance for a time, and with it the power of control returns. I have used mechanical massage and vibration before and after these baths with excellent results. In multiple neuritis and many of the local palsies the same results follow. In two cases in which malarious fever complicated the drug-taking, the bath had a very marked effect in cutting short the paroxysm.

The psychical effect of perspiration from light is a very powerful factor in many ways unknown, and should be classed as a distinct form of medication. A degree of confidence and buoyancy is created, which may be termed exhilaration, and yet it is more than this; it is a sense of relief and rest, freedom from pain, and other conditions which for the time have a powerful reaction on the higher brain centers. Nearly all persons who take these baths receive some half-conscious impulse of approach to ideal health that is most helpful, and this should be encouraged, as it is both a physical and a psychical force of the most powerful therapeutic value.

These are some of the daily experiences and suggestions which encourage further study and more exact observation. So far the ordinary incandescent and arc lights have been used. Other forms of light are more powerful and no doubt more pronounced in their effects. There have been no ill effects noted, and increasing experience shows that the best effects from the bath follow when given in surroundings and circumstances adapted to meet the special conditions of each case.

I conclude with the statement that the radiant light bath is a remedial measure of the widest application, and its possibilities as an agent in restoration of diseased cells and tissues is far greater than any present knowledge can explain. Its effects are undoubtedly physiological in draining off water from the system, chemical in its action on metabolism and the salts of the body, and physical in its sudden profound influence over nerve force and energy. The possibility of using it in private practice is more and more assured every year, and the methods of using it will become perfected with increase of knowledge of its influence.

City Children in England.—It appears that fewer children are being born or more are dying in English cities. In the year 1800 the number of children was 33 per cent. of the population. In the year 1900 they were only 23 per cent.

MOTOR PARALYSIS AS AN EARLY SIGN OF TABES DORSALIS.

WITH A REPORT OF TWO CASES.

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Under the heading, "Einige wenig beschriebene Formen der Tabes dorsalis," Lapinsky reports five cases of tabes in which the primary symptoms of the disease involved more the motor than the sensory sphere. A brief outline of these cases, sufficient to show their nature, is as follows:

1. A twenty-three-year-old girl of a neurotic heredity whose father had syphilis and whose two sisters had hystero-neurasthenia developed a paretic condition of the left foot and the right hand. Three months later the right foot also became affected, and an examination showed ataxic gait, Romberg's symptom, hyperesthesia, and hypalgesia of the legs, paresthesia of the feet, girdle sensation, incontinence of urine, inequality of the pupils with a slowing of the reaction to light, diminished knee-jerks, and Achilles-jerks diminished on the one side and lost on the other side. There was an absence of pain or tenderness in the legs.

2. A thirty-seven-year-old male first complained of a tired and weak feeling in the legs. Ten months later there was noted a loss of sexual power and a partial incontinence of urine, which was followed by difficulty in walking in the dark and diplopia. The weakness of the legs was progressive and examination showed that in the left leg all movements thought possible were weak, especially those involving the small muscles of the foot. The right leg was also paretic *in toto,* but the extensors of the foot and toes were paralyzed. Tactile, pain, temperature, and muscle sense were diminished in the legs. The skin reflexes were normal. The knee-jerks, Achilles-jerks, and biceps-jerks were lost on both sides. The right pupil was larger than the left, and neither one reacted to light stimulation. The electrical reactions were normal and the nerve trunks showed no especial tenderness on pressure.

The third, fourth, and fifth are similar cases of tabes dorsalis in which an early or initial symptom was the weakness.

Through the kindness of Dr. William G. Spiller I am enabled to report two cases of similar interest from his service at the Polyclinic Hospital.

Case I.—P. D., aged fifty-five years, and a stonecutter, on his admission to the hospital stated that he had had a chancre about thirty years before, and for the past two or three years had been taking two or three drinks of whisky daily. He had sharp pains in his legs for the past nine years, but had had no incontinence of urine or girdle sensation. Three days before, he had noticed that he could not raise the toes of the right foot from the ground and that the foot felt "dead." There was no pain in the legs. On examination it was found that there was a myosis of both pupils and that they did not react to light but reacted promptly in accommodation. The knee-jerks and Achilles-jerks were lost even on reinforcement. Sensation on the soles of the feet was lessened and plantar irritation caused no movement of the toes. His station was good with his eyes open, but he swayed markedly with them closed. Gait: with his eyes open, he lifted his right leg high with a decided toe-drop, *i.e.* he

had a unilateral steppage gait; with his eyes closed his gait was extremely ataxic and he would have fallen if unsupported. There was no disease of the fundus oculi.

In this case there were present the etiological factors of both tabes dorsalis and alcoholic multiple neuritis, but the first symptom, the sharp pain in the legs, began six or seven years before he began drinking, according to his own statement. As in the cases reported by Lapinsky, the first symptom which compelled him to seek medical advice was a unilateral paresis of the extensors of the foot. The loss of the knee-jerks and the Achilles-jerks, the sensory changes, Romberg's sign, and the myotic pupils with loss of reflex contraction to light point conclusively to the diagnosis of tabes dorsalis.

The absence of pain on pressure over the nerve trunks or muscle masses is against the diagnosis of neuritis as a complication.

Case II.—Geo. H. G. is aged sixty-five years and is a clerk. His family history is negative and his only severe illness was an attack of typhoid fever in 1863. He was a painter for eighteen years, but has not followed that occupation for the past twenty years. He denied ever having had sexual intercourse except with his wife, who has had six healthy children. He positively denied all venereal disease or alcoholism. In the summer of 1905 he first began to notice in both legs and both feet, but especially on the left side, a sensation in the nature of a tingling, heavy feeling, which was accompanied with shooting pains that radiated from the instep to the toes. About March, 1906, he began to notice an increasing weakness of the left ankle, associated with some slight pains in the calf muscles. On examination in June, 1906, it was noted that the loss of power was confined to the dorso-flexors of the left foot. His gait was ataxic and his station was poor. The knee-jerks and the Achilles-jerks were absent even on reinforcement. He had no incontinence of urine and no girdle sensation, but on walking there was a sensation in the soles of the feet as if walking on wool. The finger to nose test showed ataxia on each side. Dr. Wm. C. Posey examined the eyes at this time and reported as follows: "The pupils respond to light, accommodation, and convergence. His optic nerves show slight atrophy. There are numerous round spots of choroidal change about both discs, especially in the right eye, where below the disc there is a large spot of choroidal change. There are no fresh hemorrhages. Vision, O. D. 5/9, O. S. 5/12.

At an examination made September 19, 1906, the etiological factors of a multiple neuritis, as far as possible, were carefully eliminated. He described an illness occurring in 1898 in which he had pain in the bladder and a constant desire to urinate with no urethral discharge. Since then he has had several attacks of "dyspepsia," described as a very severe pain in the stomach, only relieved by morphine, and accompanied by intense nausea and vomiting of a green, acid liquid. There was no obvious cause for these attacks, and they lasted a variable length of time. His gait with his eyes open was a typical steppage; with his eyes closed there was an added ataxia and he would fall. His station was good with his eyes open, but he fell when they were closed. Foot-drop was complete on the left side and partial on the right. There was no atrophy, though both legs were thin below the knees. Pressure on the nerve trunks or on the muscle masses produced no pain. Sensation to touch appeared to be blunted on the soles of the feet, and though he felt a deep pin-prick acutely the sensation appeared to be delayed. With his eyes closed his toes could be moved passively in various directions without his knowledge; there was no loss of the sense of position of the legs. A strong faradic current produced no response in the muscles below the knees; above the knees the irritability was much diminished. There was no palsy of the arms.

In this second case there are none of the recognized etiological factors of either tabes dorsalis or multiple neuritis, for though at one time a painter he had not followed that occupation for twenty years previous to the onset of his symptoms. As in the first case, the first symptom was sharp, shooting pain, which was followed by weakness in the legs and a foot-drop which, in the early stages, was unilateral. The history of vesical and gastric crises, Westphal's symptom, Romberg's symptom, ataxia of all four extremities, sensory changes in the soles of the feet, and the optic atrophy lead to the diagnosis of tabes dorsalis with motor paralysis as an early symptom.

According to Lapinsky,[1] such cases are very rare and there are only a few reported. That the motor nerves of the eyes are very frequently affected in the beginning of a case of tabes is well known, but that other motor nerves, such as those of the legs, may be affected is not so well recognized, although Charcot refers to motor paralysis as present in "exceptional cases" of tabes. Eichorst says that muscular paralysis with tabes is in many patients an early symptom, in which case it is especially often a paralysis of the peroneal or radial nerve. Sometimes it comes on suddenly. Often, but not regularly, there is present the reaction of degeneration, electrically. Sensory changes are not present. Finkelnburg gives to Remak the credit of being the first to report a case of peroneal palsy, occurring in tabes; there was no history of lues or alcoholism; there was a diminution of faradic irritability of the affected muscles and the palsy was entirely recovered from. In a second observation of Remak's the patient had a degenerative paralysis of the tibialis anticus muscle and a year later the symptoms showed it to be undoubtedly a case of tabes. Cases are also reported by Müller (bilateral), Fischer, and Bernhardt. Finkelnburg reported two cases in which he attributed the palsy to traumatism, pressure on the nerve, in the first case from sitting with the legs crossed, and in the second from an arthropathy; in either case the etiology cannot be regarded as proved.

It is interesting and necessary to the understanding of these cases to determine the nature and location of the lesion causing the weakness, and in order to do this it is necessary to first consider the pathogenesis of tabes dorsalis. David Ferrier,[2] who has recently critically reviewed the various theories on this point, adopts finally the hypothesis of Thomas and Hauser, that "the essential lesion of tabes dorsalis is a dystrophy, similar to that induced by certain toxic agents, affecting the sensory protoneurone as a whole, and manifesting itself as a degeneration of both the central and peripheral terminations, of which the intramedullary are the more vulnerable and are usually the first to exhibit anatomical change. The process, however, is not confined to the spinal protoneurone, but may affect, among others, the optic, sympathetic, and certain motor neurones." This conclusion of Ferrier, it will be noted, contains the interesting statement, in this connection, that "certain motor neurones may be affected." Cole,[3] in a histological study of the nerves and spinal cords from three cases of alcoholic multiple neuritis, found a degeneration in

the posterior column similar to that of tabes dorsalis. He refers to Vierordt, Korsakow, Kojewnikow, Pal, Campbell, Soukhanoff, Heilbronner, Wright and Orange, Goldscheider and Moxter, and Marinesco as describing similar findings, and further says that he "could find no record of any case of multiple neuritis in which the spinal cord was examined by the Marchi method in which it is stated that the posterior columns were free from degeneration." Cole arrives at a conclusion concerning the effects of alcohol on the sensory nerves and the spinal cord peculiarly like the hypothesis advocated by Ferrier as to the pathogenesis of tabes dorsalis, viz., "The central and peripheral fiber degeneration are simultaneous manifestations of a single disorder of the whole sensory neurone." Therefore, according to the most recent theories, both alcohol and the hypothetical toxin which is the cause of tabes dorsalis produce a degeneration of the sensory neurone as a whole, while that of tabes affects only certain motor neurones, the effect of alcohol on the motor nerves is usually marked and extended. With such similarity in their effects of the causative toxic substances there is a strong probability that the one will at times produce symptoms usually produced by the other. It may be then that in these cases the tabes toxin has produced an effect, *i.e.* paresis of the dorso-flexors of the feet, such as is usually produced by alcohol.

Another point of interest in these cases is the location of the lesion causing the paralysis. From the foregoing study of the probable pathogenesis of these cases, the lesion would seem likely to be in the peripheral motor nerve, and a neuritis has been found on histological examination in cases of tabes in which there was an atrophy of the muscles (Dejerine,[4] Pitres and Viallard,[5] Oppenheim and Siemerling,[6] Kraus,[7] Jean,[8] Remak,[9] and others). At present, however, there is more evidence to show that the amyatrophy which sometimes occurs in tabes is due to a degeneration of the nerve cells of the anterior horns of the spinal cord. My own studies on this subject[10] confirm the findings of Shaffer[10] and others that such is the case. These changes in the anterior horn cells are regarded as consecutive to the lesion of the posterior roots, and are due to a default of the habitual excitations upon which the vitality of the cells depends. Similar changes in the anterior horn cells occur after experimental section of the posterior nerve roots (Lapinsky, Schaffer). It is well known that experimental section of the posterior nerve roots produces a paralysis or a paresis of the part of the body innervated by these roots, which is sometimes accompanied by atrophy (experiments of Claude Barnard, Mott and Sherrington, and others, quoted by Lapinsky).

The question of the location of the lesion in these cases of early paralysis in tabes dorsalis cannot be regarded as definitely settled. By some it will be held that the lesion is a motor neuritis due to the action of the mysterious toxin that causes tabes, but acting more extensively, and on the motor as well as on the sensory neurone. A second view is that the paralysis is due to an affection of the motor cells of the anterior horns of the spinal cord, not perhaps as severe as those causing the amyatrophies, and due to a propagation of the lesion across the posterior cornua to the motor cells. Whether the lesion were in the motor nerves or in the motor cells, if it were severe the paralysis would be followed by atrophy and changes in the electrical reactions such as occurred in the second case.

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THE MISUSE OF THE VOICE AND ITS CURE.

ARTICULATION.

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When we observe the articulation of the sufferer of the throat disease, described in my article published in the Medical Record of January 5, 1907, we will see that in this respect also many faults are committed, which by continuance have disastrous results for the speaker or singer.

Articulation is effected by the lower jaw, the lips, the tongue, and the soft palate. When we examine the movements of each of these parts when the patient is singing or speaking, we will notice what follows: The mouth is not opened sufficiently because of the laziness of the lower jaw and the inertness or the weakness of the lips. There is no distinct difference in the movements of the lips when pronouncing successively the vowels "ah," "ee," "oo," while the lip consonants are faint. The tip of the tongue fails to do its duty. When the "t" or "d" is pronounced the lower-jaw does more than half of the labor, where the tip of the tongue only should work. Consonants as k, g, j, r are formed with the back of the tongue leaning against the soft palate instead of being articulated in the foremost part of the mouth with the tip or the middle of the tongue against the alveolus or the hard palate. As a result of those faults the back of the tongue is too developed, and rises as a thick and heavy wall between the mouth and the pharynx, which hinders the sound from vibrating freely in the mouth.

With regard to the soft palate, we will see that the action of the palato-glossi and the palato-pharyngei, as well as that of the tensor and the elevator, is stemmed by the swelling of the mucous membrane, which covers the soft palate, and thereby the widening and narrowing of the isthmus of the fauces, and the rising and descending of the soft palate, which is of such great importance in singing more still than in speaking, is incomplete and sluggish.

To cure this imperfect state of the articulation, the patient mus begin by exercising each group of muscles separately.

A very effective exercise for the lips is the following: Project the lips as when saying "oo," then retract them as when saying "ee," repeat this movement in cadence some twenty times.

The exercises for the tongue must tend specially to develop and strengthen the tip of the tongue and to obtain a normal position of it. In a normal position the tongue is concave, the point leans against

the lower teeth and from the point to the back, the tongue inclines slightly downwards.

One of the best exercises for the point of the tongue is as follows: Open the mouth widely, stretch out the tongue and move the tip up and down, touching alternatively the upper and the under lip. The lower jaw remains motionless. The moving up and down must be rhythmical.

To flatten the back of the tongue the pupil may make the following exercise: Fix the tip of the tongue agains the lower teeth, bend the middle of the tongue forward and out of the mouth, then retract the tongue slowly till it has regained its position of rest. Repeat the same movement several times.

The exercises for the tongue must never be prolonged until fatigue ensues. Only after the position of the tongue is corrected, may the soft palate be exercised. The pupil may practise in the following way: Inhale, with open mouth, through the nostrils, exhale through the mouth; then inhale through the mouth and exhale through the nostrils, the mouth always opened widely.

When inhaling or exhaling through the nostrils with open mouth the opening between the mouth and the pharynx will be shut by the back of the tongue, which rises, and the soft palate, which descends. When inhaling or exhaling through the mouth, the contrary movement takes place, that is the soft palate rises and the tongue descends.

When the movement is normal the tongue rises as much as the palate descends. To prevent the back of the tongue from rising too much, which occurs when the action of the soft palate is weakened by catarrh, the pupil must be careful to keep the tip of the tongue fixed against the lower teeth.

Besides the above named exercise there are several other exercises which all tend to improve the movement of the soft palate and to widen the isthmus of the fauces.

When the different groups of articulating muscles have improved sufficiently the vowels and consonants can be practised; the pupil must therefore be told how the vowels and consonants are formed.

After the position of the lower jaw, the lips, the tongue, and the soft palate, the vowels or sounds are divided into three series. The vowels of the first series are front vowels, those of the second series are back vowels, while the vowels of the third series are called mixed vowels.

As the position of the articulating muscles for "ah" is more or less neutral, we use this vowel as the starting point for each series.

The first series comprises: ah, eh, a, ee;

The second series comprises: ah, oh, ow, oo;

The third series comprises: ah, œ (eu, u).

The eu and u do not apear in the English language. These twelve vowels form the following table:

	Ah	
eh	œ	oh
a	(eu)	ow
ee	(u)	oo

which sounds we hear in the words:

father (ah)

pet (eh) nut (œ) box (oh)

same (a) neutre (eu) French pole (ow)

feet (ee) pure (u) French pool (oo)

By "ah" the opening of the mouth is round, the tongue rests, the soft palate rises slightly.

For "eh" the corners of the lips are retracted a little, the cavity of the mouth is only just narrowed by the raising of the center of the tongue and the lower jaw (the pupil must be careful that the lower jaw does not rise too much, preventing by so doing the tongue from rising as much as it has to). The point of the tongue is fixed against the lower teeth; the soft palate is more elevated than by "ah."

When forming "a" the retraction of the lips increases, while at the same time the rising of the lower jaw and of the center of the tongue increases; the soft palate is more elevated.

"Ee" shows us the same position, but still more accentuated. The lips are drawn as far sideways as when we are laughing, the soft palate arches up to its highest position, the point of the tongue is always resting against the lower front teeth, the center of the tongue and the lower jaw, by their rising, still more narrow the cavity of the mouth.

For the second series: ah, oh, ow, oo, the movements of the articulating muscles are altogether different from those by which the first series are formed.

When we pronounce "ah," "oh" successively we observe that for "oh" the lips are projected forward, the root of the tongue descends, the point of the tongue is no more fixed against the lower teeth, but is drawn a little backward by the descending of the root of the tongue, the lower jaw is raised slightly, the soft palate is elevated a little.

By "ow" the labial aperture is more rounded than by "oh." The position of the root of the tongue is lower while that of the soft palate is higher than by the preceding sound.

For "oo" the descending of the root of the tongue, the rising of the lower jaw and of the soft palate is still augmented. However, the soft palate is not elevated as high as by the forming of "ee." The lips protrude as when whistling.

The vowels of the third series: ah, œ (eu, u) are mixed vowels. They are called so because of the lips, the tongue, and the soft palate being in a position relative to that for the first and the second series of vowels.

When we pronounce: ah, œ, eu, u, the lips are more and more protruded as they are when pronouncing ah, oh, ow, oo. On the other hand, we will see the center of the tongue rising as by ah, eh, a, ee. The point of the tongue also remains fixed against the lower front teeth. By ah, œ, eu, u likewise the soft palate gradually arches up, not so much as for the first series but higher than for the second.

To come to a clear understanding of the action of the articulating muscles, when forming the consonants, we classify the consonants in three different ways. By each classification we consider two or more groups of consonants.

1. Consonants are formed by the breath in the cavity of the mouth, which is closed or narrowed. When the cavity of the mouth is closed (by closing the lips or raising the tongue against the hard palate) the breath is stopped a moment and causes a little explosion at the instant that the passage is opened, when the consonant is pronounced. Those consonants are called "explosives."

When the cavity of the mouth is narrowed by the lips or tongue, the passage not being completely closed, the breath continues to issue during the time that the consonant is pronounced. These consonants are called "continuants." Thus in this first case we distinguish two groups:

Explosives: b, d, g, k, p, t.

Continuants: f, j, l, m, n, r, s, v, w, z, th.

2. The second classification is made according to the place where the cavity of the mouth is closed or narrowed by the tongue and the lips. This place or point is called the articulating point. We distinguish five articulating points, and thus this sec-

ond classification also comprises five groups of consonants, which are formed as follows:

(*a*) B. p. m. are formed by closing the lips.

(*b*) F. v. w. are formed by leaning the underlip against the upper teeth.

(*c*) S. z. are formed by closing the teeth; the tip of the tongue is fixed against the lower teeth, the center of the tongue is raised towards the hard palate, leaving but a small aperture in the middle for the breath to pass.

(*d*) L. t. d. n. r. are formed by leaning the tip of the tongue against the upper front alveolus. (Th is formed by leaning the tip of the tongue against the upper teeth.)

(*e*) K. g. j. are formed by raising the center of the tongue against or towards the hard palate.

3. Finally, in the third case, we distinguish two groups of consonants: the breath consonants and the voiced consonants.

Breath consonants are formed by the whistling of the breath in the cavity of the mouth; the vocal cords do not vibrate when we pronounce them, the breath passes the cords without making them sound.

When, on the contrary, we pronounce a voiced consonant the breath strikes the vocal cords and makes them vibrate. We easily can recognize the breath consonants from the voiced consonants when we pronounce them whilst the ears are stopped.

During the formation of a voiced consonant we hear a buzzing noise caused by the vibration of the vocal cords, which noise we do not perceive when forming a breath consonant.

Breath consonants are: p. f. s. t. k. th.

Voiced consonants are: b. m. v. w. z. l. d n. r. g. j. th.

As a rule the vowels offer no great difficulty to the pupil, especially when previously the position of the tongue has been corrected and the lips as well as the soft palate have been trained to work normally and actively. In my complete course of exercises the faults in the formation of the vowels will be amply discussed and exercises mentioned which have in view their correction.

In regard to the consonants we have seen that k, g and r are nearly without exception mispronounced.

The k and g are usually formed with the back of the tongue leaning against the soft palate, a soft and yielding part against which it is impossible to form a sharp and distinct "k" and "g." To correct this faulty formation of those consonants, the teacher will make the pupil see in his mouth, by means of a mirror, where the hard palate ends, which he may feel also with the finger. Then, always controlling himself by means of the mirror, he must press with force the center of the tongue against the hard palate (the tip of the tongue rests against the lower teeth), to relax it suddenly.

By this movement a normal "k" is produced. As the ee is formed with the center of the tongue raised towards the hard palate, this vowel will be of great help for the pupil in studying the k and g; also the first exercises are made in combination with ee, as: eekee, eeka, eekeh, eekah, eekoh, eekow, eekoo.

While by oh, ow, oo, as we have seen before the back of the tongue rises, the correct pronunciation of the k and g combined with one of these vowels offers the most difficulties and must be carefully exercised.

The g must be learnt in the same way as the k, the only difference between those two consonants being that the k is a breath consonant, the g a voiced consonant. As, however, for k the pressure of the center of the tongue against the hard palate is stronger than for g, it is better and easier to study first the k.

The studying of the correct r requires a good deal of patience and energy from the pupil as well as from the teacher. Especially in Germany France, and Holland the r is generally formed by the trilling of the uvula against the back of the tongue. After the wrongly directed breath the thus formed r is one of the principal causes of catarrh, and the correct pronunciation of the r, however difficult, must be learnt and must be especially attended to.

The normal r is pronounced with the point of the tongue, which, by the breath, is made to vibrate against the upper front-alveolus.

Most of the patients are unable to roll the r with the tip of the tongue and, as they have to avoid the r formed by the trilling of the uvula, they must begin by substituting the d for the r.

We use the d because its formation approaches very nearly that of the r. The point of the tongue strikes the root of the upper teeth exactly at the same spot as the r. The only difference between the d and the r is that by the d the point of the tongue strikes but once the root of the upper teeth, while by the *r* it strikes the same spot repeatedly, that means it trills.

To obtain the trilling of the point of the tongue the *d* also is used. Therefore the pupil must pronounce rapidly and as energetically as possible: *d*dddd with a strong accent on the first d and repeat this same *d*dddd till fatigue is felt. For some this exercise can be facilitated by another consonant, especially a plosive, preceding the ddddd. The pupil may pronounce *p*dddd, *b*dddd, *t*dddd, *k*dddd, etc., giving the accent on the preceding consonant. The exercises by which the r is directly studied must be supported by various other exercises, which have in view the strengthening and the flexibility of the point of the tongue. Exercises formed with the other consonants of the fourth articulating point, *l. t. d. n.*, are generally very effective in this case. As the faulty pronunciation of the *k, g,* and *r* is typical by the sufferers of the throat disease caused by the misuse of the voice, I only mentioned those consonants. Of course it occurs that more consonants are mispronounced and in regard to the articulation the patient has to go through a careful examination and when faults are found they must be corrected.

Separate from faults we generally find the articulation of the consonants too weak and sluggish. As this is a reason why the speaker or singer is so badly understood and a reason also why he overstrains his vocal cords, it is expedient to reform this condition and to exercise all the consonants separately and in combination with each other. In a normal state the articulating muscles must support the vocal muscles, instead of the articulation relying on the vocal cords, as is but too often the case.

An effective and at the same time amusing exercise is that which imitates the drumbeating, as:

la, la, la, *la, la,* la, la, la, *la, la,*
la, la, *la,* la, la, *la,* la, la, *la.*

The same exercise can be made with all the consonants and combinations of consonants.

In the very beginning it will be rather difficult for the pupil to remember his breathing when exercising the articulation, yet he must try to apply always the right way of breathing when practising in order to improve the cooperation of the breathing and articulating muscles.

Plaats 10A.

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ARTIFICIAL PNEUMOTHORAX IN PULMONARY TUBERCULOSIS.

IN 1894 Forlanini reported the history of several patients in whom he had tried to cure one-sided tuberculous processes of the lung by producing an artificial pneumothorax; since then other clinicians have tested the therapeutic value of this procedure, and from all their published results we may conclude that the chances of curing some patients by producing an artificial pneumothorax seem favorable. Recently Karl Lexer has reported four cases in the *Beiträge zur Klinik der Tuberkulose,* Vol. VIII, 1907. He applied the ordinary methods used in producing an artificial pneumothorax, sterile nitrogen being used to compress the lung. The gas passes from a tank into a graduated bottle filled with a one per cent. solution of bichloride of mercury, the latter gradually running into a second bottle as it is supplanted by the gas. A fairly good sized needle is inserted obliquely into the pleural cavity, if possible at a point where there are no pleural adhesions and where the lung is healthy, the gas passing through the needle at a pressure of 100 mm. of water. He considers it unnecessary to cut down upon the pleura before inserting the needle, as this requires an anesthetic, and injury of the lung can usually be avoided if the needle is inserted obliquely, and the gas is permitted to run through it constantly while it is being inserted, the lung thus being pushed away by gas as soon as the pleural cavity is entered. Not more than two to five hundred cubic centimeters of nitrogen is injected at one sitting as larger amounts cause a too rapid displacement of the heart, and as a very rapid compression of the lung is followed by too much coughing and expectoration, thus making an aspiration pneumonia of the other lung possible. A manometer is attached to the apparatus, so that the intrapleural pressure and that of the entering gas can be controlled. When there is an early high intrapleural pressure pleural adhesions probably prevent an increase in the size of the pneumothorax, and when this occurs the needle can be inserted at another point or one may hope to break up the adhesions gradually.

In one of his patients Lexer always penetrated the lung, even after cutting down upon the pleura, for dense adhesions prevented his getting into the pleural cavity. Two other patients were improving when a process in the other lung became active, and it was deemed advisable to stop treatment. His fourth patient, with a lesion at the left apex, and profuse expectoration containing tubercle bacilli, received thirteen injections in five weeks. During the treatment he showed all the physical signs of a pneumothorax, the respiratory sounds were practically absent, and the lung was compressed to one-half its original volume, mainly in the direction of the hilus. The direction of compression depends upon the location of the adhesions, if any are present. The left half of the chest was several centimeters larger in circumference than the right, the intercostal spaces were practically filled out, and the heart was pushed over to the right, all these physical signs being confirmed by the *x*-ray. His patients usually complained only of pain, which was caused by the breaking up of adhesions, and which he could control by morphine. Occasional dyspnea while the gas was being injected, and subcutaneous emphysema after coughing, were noticed, but were usually not marked enough to be of any account. After the thirteenth injection in the one patient marked dyspnea set in, and a physical examination revealed an extensive pneumothorax, while the heart was pushed well to the right and interfered with the function of the right lung; the dyspnea disappeared in a few days, and then injections of gas were necessary only every week or two in order to keep up an efficient pneumothorax.

As regards the good effects on the patient, Lexer's observations agree with those of others; they were immediate, the temperature came down to normal, the expectoration became less in amount and thinner, elastic fibers and tubercle bacilli diminished in number, or could no longer be found, and the general condition improved; all this improvement was undoubtedly caused by putting the lung partially or completely at rest, the degree of the latter depending upon the density of the adhesions. Active processes in both lungs, uncompensated heart lesions, tuberculosis in other parts of the body, causing a poor general condition, an acute tuberculous pneumonia, during which the other lung may suddenly become involved, are all contraindications to this mode of treatment. Lexer believes that the good results justify further trials of this treatment, with a hope of it becoming curative, especially since no harm can be done.

Forlanini reported a case in which the pneumothorax was kept up for four years, and which he considered cured, but neither in this nor in other cases regarded as absolute cures has sufficient time elapsed to confirm this favorable view. Post-mortem examinations in pyopneumothorax cases, however, often reveal extensive cavities in the retracted lung which are surrounded by dense connective tissue, or the lung shows other forms of healed tuberculous lesions, all of which would indicate that in a lung set at rest there is no further increase of a tuberculous process by way of aspiration or of the lymphatics, and that the treatment of tuberculosis of the lung by producing an artificial pneumothorax is therefore rational.

PRESERVATION OF THE PARATHYROIDS IN OPERATIONS UPON THE THYROID GLAND.

OPERATIVE tetany was at one time believed to be due to thyroid privation, and therefore the surgeon feared to remove both lateral lobes of the gland. At

times, however, total excision of the thyroid was survived, and this fact and experiments on dogs led to the belief that the absence of tetany was due to the fact that the parathyroids escaped destruction. This knowledge of the function of the parathyroids, scant as it is, points to the necessity of their preservation, and consequently our plan of operating for various forms of goiter should be modified in conformity with it. With this point in view, Halsted advises a bilateral operation in place of the unilateral operation heretofore practised in cases of colloid or other nonhypertrophic varieties of goiter, while in the hypertrophic varieties he believes the one lobe should be so operated upon that in case of need the other may be subsequently attacked without danger of parathyroid privation. The question then arises how the thyroid lobes may be removed without simultaneous removal of the parathyroids or without destroying the latter. Halsted undertakes to answer this question in the October number of the *Annals of Surgery,* pointing out the necessity of a thorough knowledge of the blood supply and of the location of these little bodies. He states that the glands are usually found near the posterior border of the lateral lobe of the thyroid, more or less in a line with the channel of anastomosis between the superior and inferior thyroid arteries. They are usually situated behind the thyroid, though the superior parathyroid body may be above the upper pole of the thyroid and the inferior in the bony thorax. Each parathyroid is supplied by a special artery, which usually arises from the inferior thyroid, but frequently takes its origin from the anastomosing channel between the inferior and superior thyroid vessels. Few if any direct vascular connections normally exist between the parathyroid glands and the connective tissue envelope of the thyroid.

The best method of removing the thyroid and saving the parathyroids is the operation of ultraligation beyond the origin of the parathyroid arteries. This is often very difficult, for between the point at which the branch giving off the parathyroid artery enters the thyroid lobe and the origin of the latter vessel, there may be hardly room for one fine-pointed artery forceps. If the blood supply must be sacrificed the parathyroid glandule may be transplanted into a remaining piece of thyroid gland. In other respects Halsted's technique does not vary much from that of other operators except that, contrary to the universal custom, he does not suddenly complete the full delivery of the entire gland when the latter is exposed, for fear of causing the rupture of some delicate blood-vessels and consequent staining of the field containing the parathyroid glandules. He prefers to draw the thyroid to the opposite side in order to make ultraligation of the vessels perfectly easy without tearing any of them. He claims that this method requires no more time than any other, and states that in eighty cases of exophthalmic goiter operated upon by him, in only seven instances was one parathyroid removed with the excised lobe.

THE BENZIDIN TEST FOR OCCULT BLOOD.

Since Boas, in 1903, directed the attention of the medical world to the significance of small hemorrhages from the gastrointestinal tract, many methods have been employed to detect the macroscopically invisible blood, among them the Teichmann hemin test, the spectroscopic examination, the guaiac and aloin tests. In 1904, O. and R. Adler described the benzidin test, which was, however, inapplicable for clinical purposes until several modifications were effected. The following method of Schlesinger and Holst seems most practical; feces are ground with distilled water and boiled. While this is cooling a concentrated solution of benzidin is made by using as much benzidin as will go on the end of a knife in about 2 c.c. of glacial acetic acid. About 1 c.c. is poured into a test tube, ten drops of the boiled feces solution added, and the two shaken. To this 1 to 3 c.c. of a 3 per cent. solution of hydrogen dioxide is added and shaken, when, in the presence of blood a green or deep blue color appears. In using this test several precautions must be borne in mind, the benzidin must be pure, and no excess of hydrogen dioxide should be used. Oxidizing ferments (destroyed by boiling), iron salts, potassium iodide, animal charcoal, have given a positive reaction, hence these substances are always previously eliminated before using the test.

In the October number of the *American Journal of the Medical Sciences,* E. H. Goodman publishes the results of a number of experiments made with the benzidin test in Musser's Philadelphia laboratory. In all, he studied 129 specimens of feces, the guaiac, aloin, and benzidin tests being applied to each. The three tests agreed 110 times out of 129. From his studies he concludes that a benzidin test of feces should be made first; if negative we may be sure of the absence of blood, and we need go no further. If, on the other hand, the test is positive, the aloin and guaiac tests should be made, and if these are negative occult blood may be regarded as being absent. A substantiation of the benzidin test is to be regarded as indicating the presence of blood. Hence, a positive benzidin test shows nothing unless corroborated by one or both of the other tests; a negative test, however, is proof of the absence of occult bleeding. In none of his cases was the benzidin test negative and the other tests positive.

After the feces show a positive reaction for blood we can determine whether this is pathological or not by not examining another stool until diet and medication have been regulated; only then can a fair idea of the clinical importance of the test be obtained. Goodman recommends the benzidin test for gastric and urine work as well. Owing to the sensitiveness and simplicity of this test it may well be adopted in every laboratory.

The Absence of the Patellar Reflex.

While one may find in the writings of the older neurologists the statement that the knee jerk may be absent in 1 per cent., or even more, of normal individuals, of late years the technique of eliciting the tendon reflexes by means of such devices as Jendrassik's method, has been so much improved that it is regarded as a matter of the greatest rarity for the knee jerk to be absent in a healthy person. Indeed, so careful an authority as Oppenheim goes so far as to say that the knee jerk is normally always present, and its absence is always of the greatest diagnostic significance. Particular interest attaches therefore to a case reported by Kölpin (*Deutsche*

medizinische Wochenschrift, October 31, 1907), which he describes as one in which this sign was absent in an individual having no organic nervous disease. The patient was a girl of sixteen years, whose heredity was good and whose physical examination was negative except for the fact that the left patellar reflex was absent at all times, while only at some examinations was it possible to get a suggestion of the reflex on the right side. The Achilles reflex, triceps reflex, and plantar reflex were absent, but the conjunctival, pharyngeal, and abdominal reflexes were present in full strength. After a cool bath the plantar reflex could be evoked, but the others remained as before. The patient was examined repeatedly, and every possible care was taken in making the tests to abrogate all inhibitory stimuli. Although she came under observation in order to have her sanity inquired into, as she was accused of incendiarism, no evidences of either nervous or mental disease or of chronic intoxication of any sort were discovered. Kölpin, accordingly, is of the opinion that in some exceedingly rare cases the patellar reflex may be absent without any attending organic disease.

Function of the Pacinian Bodies.

The sensory nerves have several modes of termination, among which are the Pacinian bodies, whose function is variously described in text-books. Some authors claim they are organs for the pressure sense; others deny this, and still others omit saying anything about their function, so that the subject seems to be uncertain. In the *Upsala Läkareförenings-Förhandlingar*, Volume XIII., No. 1, M. Ramström gives us some negative proofs as to their function. He first demonstrated the presence of Pacinian bodies and the course of the nerves in the human parietal peritoneum, and then examined patients on whom a laparotomy had been performed under local anesthesia. He found that the Pacinian bodies did not react to touch or to pressure, no matter whether the latter was light or heavy, whether of short or long duration, and no matter whether the instruments used were hot or cold. He was certain that the nerves leading to the bodies were neither severed nor anesthetized during the operation, and, as large areas were tested, these bodies were surely touched. The only proof that was ever offered of any relation between the pressure sense and the Pacinian bodies was the fact that the latter were found in areas which are sensitive to pressure, but this is certainly no absolute proof, as we experience sensations of pressure in regions of skin free from Pacinian bodies, and, furthermore, we can appreciate pressure by the cornea from which these bodies and dermic organs are absent. These facts and the anatomical findings of Ramström would tend to show that the Pacinian bodies are in no way essential to touch.

The Operative Treatment of Tuberculosis.

Some weeks ago we commented in these columns on a paper by Passler and Seidel, in which these authors discussed the influence of ossification of the cartilage of the upper ribs in the causation of emphysema, and reported several cases in which the operative division of this cartilage had been followed by very satisfactory results. At the same time they showed that the first rib itself was not so difficult of access surgically as had been supposed, and that the operation of dividing it was simple and short enough not to involve any considerable risk. In this connection the authors suggested the possibility of applying the operation to the treatment of early cases of apical tuberculosis, in the etiology of which, according to Freund, Hart, and others, the imperfect aeration due to congenital deformity of the first rib or to ossification of its cartilage plays a considerable part. Hart (*Münchener medizinische Wochenschrift*, October 29, 1907) elaborates this idea and warmly advocates a trial of the operation in suitable cases, even going so far as to suggest that it may be found a serviceable prophylactic measure, though he admits that at present there is considerable difficulty in determining beforehand whether or not the configuration of the first rib or the consistency of its cartilage is such as to predispose to tuberculous infection.

News of the Week.

The Use of the Red Cross Emblem.—Brigadier General Robert M. O'Reilly, Surgeon-General U. S. A., makes public the following resolutions adopted by the Executive Committee of the American National Red Cross at its meeting of October 18: *Whereas*, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this convention, and *Whereas*, The Treaty further provides (Art. 23) that "the emblem of the red cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this convention," and *Whereas*, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective governments," such recognition and authority having been conferred upon the American National Red Cross in the charter granted by Congress, January 5, 1905, Sec. 2, "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and, furthermore, *Whereas*, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross," be it *Resolved*, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments, and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the medical departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments, and like institutions, and, further, be it *Resolved*, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes kindly desist from such use, gradually withdrawing its employment

and substituting some other distinguishing mark. The suggestion is also made that in cases where the name and insignia are used as trademarks, their employment be gradually eliminated within the next three or four years in conformity with the provisions of the Treaty that the prohibition of the use of the emblem and name should be enforced not later than five years after the Treaty becomes effective.

Cigarettes in the Navy.—In his annual report, Surgeon-General of the Navy, Presley M. Rixey, recommends that an order be issued by the Navy Department forbidding the use of cigarettes by all persons in the navy under twenty-one years of age. It is stated that in three months the crew of the battleship *Missouri* (700 men) used 1,500 books of cigarette papers, 1,200 pounds of smoking tobacco, and 37,000 cigarettes. None the less, 48,000 cigarettes and 15,000 pounds of candy, together with 1,000 pounds of navy plug chewing tobacco and 30,000 cigars, have been loaded on the *Culgoa* in the Brooklyn Navy Yard as a part of the canteen supply.

Failure to Register Birth Not a Punitive Offence.—Under instructions from the presiding judge, a jury in the city of Wilkesbarre, Pa., returned a verdict of not guilty in the case of a physician charged with failure to report births under his observation. The defence contended that a busy doctor could not give his time to red tape observances, such as reporting the time of birth, the ancestry of a child, and its name. It was contended that several visits might be required to learn the name of the child, as this is sometimes not decided upon for some time after birth. Besides the act of Assembly provided for no compensation for the registration.

The Use of the Title Doctor.—The Attorney-General of Illinois rendered an opinion November 7, in which he states that an osteopath is not guilty of unprofessional conduct within the meaning of the statute by designating himself "Doctor," and that the Illinois State Board of Health cannot, on this account, revoke his license. The term "unprofessional conduct" is held to mean dishonorable conduct in the practice of one's profession.

A Proposed Cocaine Law in Illinois.—Mr. C. H. Avery of the State Board of Pharmacy of Illinois has introduced a bill in the Legislature to prevent the sale of cocaine to others than physicians. The bill proscribes the illegal sale of cocaine, and also alpha-eucaine and beta-eucaine, and any salt or compound containing any of the foregoing substances or any of their salts or compounds, or derivatives. The only legal sale is on the prescription of a registered physician, which must give the name and address of the person prescribed for and the date the prescription was filled. The prescription can be filled but once, and no copy can be made. Cocaine may be sold at wholesale on the written order of any registered druggist, physician, veterinary surgeon, or dentist, but the package must be plainly marked on the outside, showing what it contains, and the word "poison" must be printed on the package in red ink. The punishment for violation of the law is a fine of not more than one thousand dollars or imprisonment in jail for a term of one year, or both.

Attempted Prohibition in Finland.—The Finnish Legislature, which has nineteen women and eighty social democrats among its two hundred members, has just passed a drastic act for the total prohibition of spirits, wine, beer, and alcohol, which may be kept only for medical and technical purposes, and for the use of Russian troops. Even the use of wine for the communion service is forbidden. No one may keep alcoholic drinks in his house unless he can prove that they were in his possession before the act was passed. The police have full rights of search, and the penalties vary from $20 fine to penal servitude for three years. There is no provision for loss of capital in breweries, distilleries, or private houses. There is said to be no chance for the law to become operative, however, as the Czar's veto is regarded as certain.

An Alcohol Exposition in Munich.—In view of the undoubted value attaching to the tuberculosis exhibitions that are being held in this country, it is interesting to note that an exposition along somewhat similar lines is being conducted in Munich to call attention to the physical and social evils attending the misuse of alcoholic beverages. In addition to plaster casts and pathological specimens illustrating the damage to the internal organs resulting from chronic alcoholism, there are various graphic demonstrations of the alcohol content and relative injuriousness of the different spirituous beverages, as well as charts depicting all sorts of statistics relative to the alcohol question in its bearings on crime, insanity, poverty, disease, accidents, etc.

Reform in China.—On the 15th of the eighth moon there was a burning of opium pipes on the city hill of this city. Several months ago public-spirited citizens formed two societies to aid in suppressing opium smoking. They offered to buy pipes if given up before the seventh moon; offered medicine and services of physicians to those breaking off the habit; opened an industrial school to teach trades to waiters in opium dens; offered to lend four dollars to those who wanted capital for trade. Well, a large number of pipes and other utensils used in smoking were brought in and redeemed, so a day was set for the public burning of these trophies of reform, and a large crowd assembled to witness the sight. First an address was made to the assembly, then a piece of music was performed on an organ, then the fire was applied to the pile of five thousand opium pipes and other utensils, and the services were closed with another address.—Hangchow correspondent of the *Shanghai Mercury*.

Platinum Decomposed?—Dr. Theodore Grosse of Germany is reported as having succeeded, by a combination of heat and electrical discharges, in obtaining from platinum an unknown substance regarded as an element and having none of the properties of platinum.

To Commemorate Army Surgeons of the War of 1812.—Two cannons have been mounted on the site of the battle of Brownstown, near Detroit, occurring on August 5, 1812, and which is now part of the estate of Dr. Hal. C. Wyman. A tablet on the base of one of the cannons has been erected by the Wayne County Medical Society to commemorate Surgeons Roby and Allison, officers in Van Horn's command who were killed in the battle.

Doctor Milliken Honored.—A reception was given on November 8, in St. Louis, by his professional friends to Dr. Kenneth Milliken, former editor of the St. Louis *Medical Review*.

New York Charities Directory.—The seventieth annual issue of this publication shows that there are now in the city 3,500 institutions connected with charitable work. Attention is called to four needs in the field of charity for which it is said no adequate provision has been made as yet, namely,

neighborhood buildings, homes for the aged and infirm, day nurseries, and institutions for the care of consumptives.

Dissatisfaction Among Hawaiian Lepers.—The lepers in the settlement at Molokai and the natives of Honolulu are reported as being very indignant at the action of the health authorities in not permitting the trial of an alleged leprosy cure until its originator has proved his contentions. It is stated that the matter will become an issue between the races at the next election, and that the effort will be made to elect a purely native Legislature.

The Literature of Carcinoma.—The following figures in regard to publications on carcinoma have been prepared by Sticker: Since 1902, 3,395 papers on this subject have appeared. Of these, 1,960 are in German, 607 in English, 549 in French, 113 in Italian, 70 in Russian and Polish, 37 in Norwegian and Swedish, 22 in Spanish, 16 in Dutch, 9 in Hungarian, 7 in Portugese, 3 in Japanese, and 2 in Greek.

Philadelphia Hospital Celebration.—The Association of ex-Resident and Resident Physicians of the Philadelphia Hospital celebrated the twenty-first anniversary of its organization on November 12. In the afternoon the men met in the hospital and were shown over the buildings, and the improvements made in the course of recent years were pointed out. Subsequently an address was delivered in the clinical amphitheater by Dr. L. Chalmers Da Costa, who briefly outlined the history of the institution and related numerous personal reminiscences. This was followed by a reception and collation on the part of the resident staff. In the evening a smoker was held at the University Club.

Jewish Hospital of Brooklyn.—At the meeting of this organization held last week it was announced that since the opening of the hospital on December 17 of last year, there had been 1,544 applicants for admission and 1,112 patients had been admitted. Preparations are under way for the building of an additional wing for a nurses' training school.

St. John's Guild Convalescent Hospital to Close.—Owing to lack of funds, the managers of St. John's Guild have decided to discontinue the convalescent home at the Seaside Hospital, New Dorp, Staten Island.

Mount Maria Hospital.—The cornerstone of the new Mount Maria Hospital, at 138-140 Second street, was laid last week. The hospital will have a capacity of seventy regular beds and ten children's cots. It is expected to be ready to receive patients in a few months.

Medical Inspection of Chicago Schools.—During the months of September and October, 126,790 medical inspections of school children were made by the Chicago Health Department, and of this number 3,335 were excluded from schools; 341 bacterial examinations and 12,803 vaccinations were made.

Quiet Zones in Chicago.—The Chicago City Council recently passed an ordinance, similar to the one passed last spring in this city at the instance of Mrs. Rice, establishing "zones of quietude," extending 250 feet in all directions from each hospital. Within that area "the making, causing, or permiting to be made of any unnecessary noise, or the playing of itinerant musicians on the public streets, avenues, or alleys, that disturbs, or that may tend to disturb the peace or quiet of any of the inmates of the hospital," is declared to be a nuisance. For violation of this ordinance, a fine of from $2 to $50 is provided.

Officers of the Military Tract Medical Association.—The following officers were elected at the sixty-eighth annual session of this Illinois Association, held at Bushnell, October 17 and 18: *President,* Dr. Samuel C. Stremmel McComb; *Vice-President,* Dr. Ernest E. Davis, Avon, and *Secretary-Treasurer,* Dr. Ralph C. Matheny, Galesburg. Peoria was selected as the place of meeting in 1908.

Rolla (Mo.) District Medical Society.—At its meeting held in Rolla on November 9, this organization elected the following officers: *President,* Dr. G. A. Herzog of Cuba; *Vice-President,* Dr. E. L. Hume of Bourbon; *Secretary,* Dr. W. H. Brewer of St. James.

Holyoke (Mass.) Medical Association.—Officers as follows were elected at the meeting of this society held in Holyoke on November 6: *President,* Dr. R. E. Dickson; *Vice-President,* Dr. George L. Taylor; *Secretary and Treasurer,* Dr. H. R. Sackett.

Cheshire Co. (N. H.) Medical Society.—The annual meeting of this society was held in Keene on October 29, and officers for the coming year were elected as follows: *President,* Dr. A. H. Childs of Dublin; *Vice-President,* Dr. A. A. Pratt; *Secretary and Treasurer,* Dr. William Robb.

Obituary Notes.—Dr. Franklin Bonney of Hadley, Mass., died on November 9 at Ashmont, at the age of eighty-five years. Dr. Bonney was born in Hadley, and was sixth in descent from Thomas Bonney who settled in Duxbury in 1634. He received his medical education at Dartmouth College, from which he was graduated in 1847. He at once began to practice in Hadley, and had continued in active work until he retired three years ago on account of advancing years.

Dr. Thos. H. Holgate of this city died on November 14 of lobar pneumonia, in the seventy-seventh year of his age. Dr. Holgate was born in Leeds, England, in 1831, and came to the United States fifty-two years ago. He began the practice of medicine at Cairo, Greene County, N. Y., where he remained for several years, having built up a large country practice. He was licensed by the Greene County Medical Society in 1867. In the year of 1869 he was graduated from Bellevue Medical College and since that time practised his profession in this city. He was physician to the Out-Patient Department of Bellevue Hospital for twenty-three years. At the time of his death he was a member of the Academy of Medicine and of the State and County Medical Societies. One daughter survives him.

Dr. D. M. Parker of Dartmouth, N. S., died on November 5, at the age of eighty-five years. He was a graduate of Edinburgh University, and had practised in Nova Scotia for over fifty years. He was made a member of the Legislative Council in 1879, and continued to hold this office until failing health compelled him to give up his seat about ten years ago. He also occupied many public and professional offices, including the presidency of the Dominion Medical Association.

Dr. George H. McGeer of San Francisco died on October 31, at the age of thirty-three years. He was born in Auburn, N. Y., and after living for some time in Tacoma, Wash., received his medical degree from Cooper Medical College, and began practice in San Francisco.

Dr. Robert Disbrow of Boston died suddenly on November 9, at the age of sixty-five years. He was born in St. John, N. B., and was graduated from Harvard Medical School in 1865. He was assistant surgeon with the 109th U. S. Colored Infantry during the Civil War.

THE HARVEY SOCIETY LECTURE.

The second lecture of the present series given by the Harvey Society was delivered at the Academy of Medicine on Saturday, November 16. The speaker, Prof. James Ewing of this city, took for his subject "The Etiology of Tumors," discussing principally the etiology of cancer.

There were three principal views as to the etiology of malignant tumors, namely the parasitic, the view based on cell autonomy, and the modern biochemical one. He would discuss these in the order named. The advocates of the parasitic view had always spoken much of the contagiousness of cancer, and pointed to so-called cancer houses, to cancer in various members of the same family, etc. There were also the observations on the endemic occurrence of these tumors. It was known that a form of cancer was frequent in aged domestic animals. However, there was no evidence to show that these tumors were really contagious. Thus, working with transplantable mouse tumors, Bashford, who had observed over 30,000 mice, had seen nothing pointing to a cage infection. Attention had also been called to the peculiar tumors affecting fish. In trout, for example, a kind of cancer often affected large numbers of the fish in breeding pools and other ponds. However, it was probable that inbreeding and changes in the composition of the water were at the bottom of the trouble. Other authors had been positive that cancer was largely on the increase in cities, that the disease was water-borne, etc. But careful examination of all these statements had disclosed numerous fallacies. In order to determine whether cancer could be transferred by contact, some French surgeons had even gone to the extent of inoculating themselves with bits of cancer tissue, but with negative results. Inoculation from man to man, spontaneously, probably never occurred. Experiments made to determine whether human cancer was inoculable into lower animals had mostly had negative results. Most alleged successful results did not, as a rule, stand scientific criticism. However, in one or two instances, which the speaker described, there seemed to have been a successful transference from man to rats. The experiments which had been made to inoculate higher monkeys with human cancer had failed. However, it must be remembered that inoculability proved nothing as to etiology of the disease, *i.e.* as to the nature of the infecting agent.

Because of this, a number of observers had sought to demonstrate the cause of cancer directly. And this, the speaker said, was one of the most chaotic chapters of medical research. The number of "cancer bacilli" or other cancer germs, was something astounding. He had compiled a partial list of the various germs described; it began with the bacteria, took in coccidia, sporozoa, blastomyces, mycetozoa, and recently the spirochetes had also been charged with the origin of cancer. One thing stood out in studying these various "cancer germs," and that was the fact that most of the observers had substituted easy credulity for critical common sense. It was curious, too, that a number of the "discoverers" had found eminent biologists to back up their claims. Even Metchnikoff had favored one of the cancer germs. Most of the discoverers in recent years had fixed their attention on certain peculiar cell inclusions. These were of all shapes and sizes, and had long been known. In fact, Virchow had distinctly warned against certain of them being mistaken for parasites. Finally, the upholders of the parasitic nature of these inclusions had pinned their faith on a peculiar type of inclusion. This was the so-called "bird's-eye" form. But this, too, had not been able to withstand scientific criticism, and had been abandoned. Some of the forms of inclusions looked much like plasmodiophora, and attention was thereupon called to the peculiar swellings often found in certain plants. These swellings, which were associated with *Plasmodiophora brassica* were erroneously called tumors. As a matter of fact, there was not an increased number of cells, but merely a distention of certain cells. Hence there was no analogy with cancer. So far as the blastomyces were concerned, it would suffice to say that these were not present in all tumors by any means. Furthermore, the distribution and numbers, when present, did not bear out the belief that they had any causative part. Some years ago, Gaylord and Calkins had found one particular kind of spirochete in ten consecutive cancers in mice. Gaylord believed that the number of the organisms corresponded to the virulence of the tumors. Subsequently, however, the spirochetes were shown to have no etiological significance. Certain of the cancer germs had been found only in cancer and in smallpox. But these diseases were so dissimilar that it was difficult to think that the germs should be very similar. However, despite all the failures in the search for cancer germs, it was not necessary to drop all conceptions as to a connection between neoplasms and microorganisms. The relation, however, should then be regarded as a secondary one, cancer arising for example after an infection with *Spirochæta pallida* as was sometimes seen on the tongue.

The speaker then exhibited lantern pictures illustrating a large number of the "cancer germs." These included the Ruffer and Plimmer bodies, those of Pianese, of Cattle, and of Ross; the club root due to *Plasmodiophora brassica*, the vaccine bodies, measles bodies, and others.

The speaker next discussed the theory of cell autonomy as applied to the development of tumors. It was not a finished theory; not the product of one mind; nor was it popular. It had the great merit, however, of becoming more satisfactory the more it was studied. It was first clearly enunciated by Cohnheim in 1874, who referred tumor formation to misplacement of embryonal cells and their subsequent development. The whole question was one of the mechanics of development. The theory of Cohnheim had its deficiencies, among which was the fact that these misplaced embryonal cells could not be demonstrated. Ribbert modified the theory somewhat, and introduced the idea of tissue-tension. According to him it was not necessary that the cells be embryonal; disturbances of tissue tension sufficed to make the cells lose their restraint and grow wild. In discussing tissue tension, the lecturer said there were four principal forces, of which three were physical. They were (1) mechanical pressure, (2) distribution of nutriment, (3) demands for function, and (4) organization. Under the last named, the speaker gave various examples of regeneration, and also spoke of the interdependence of the tissues, or the "altruism of the tissues," as Councilman had termed it. Then briefly the evidence was reviewed, showing that in the study of tumors the question of the mechanics of growth was involved. To be sure, even if one accepted the theory of cell autonomy, the admission of an external stimulus as a cause for the altered tissue tension would still carry with it the necessity for admitting that this stimulus might come from a cancer parasite. However, this conclusion need not give much concern, for it meant a parasite

which, instead of destroying, stimulated the host cells to enormous growth—certainly a curious phenomenon. The speaker also pointed out a number of other difficulties in the way of acceptance of the parasitic theory.

The past five years had seen an enormous amount of work done on the biochemical study of tumors. The principal names associated with this line of research were Ware, Hanan, Loeb, Jensen, Borel, Ehrlich, Michaelis, and Gaylord. These studies were based largely on the transplantability of tumors in mice. Parenthetically, the speaker would remark that this was not an infection, but a transplantation, and could not therefore be brought forward as evidence of a parasite. In transplantation, initial success was the exception. After a time, however, the tumor seemed to become more virulent, *i.e.* there were more "takes." But this was relative. Ehrlich's highly infected tumors were so only for Berlin mice. Tested on Copenhagen mice, the number of takes was no greater than usual. When the Berlin mice were taken to Denmark and bred there, they became less susceptible to the tumor. This indicated that some factor, perhaps food, played a part in this susceptibility. In the case of mouse tumors some of the animals seemed to recover entirely, and this had been interpreted as an immunity. But the point was not entirely clear. This observation had also led to attempts to increase the immunity by means of "vaccination" treatment. In some of his mice, Ehrlich had observed what he spoke of as "panimmunity." This, however, was a very suspicious phenomenon. It was probable that other factors were here concerned. Michaelis had examined the serum of mice which were immune. Although it was found that the injection of such serum into another animal was followed by the regression of the tumors, the Bordet-Gengou test showed no amboceptors in the serum.

The speaker closed by saying that for the present he saw no reason to discard the theory of cell autonomy. Certainly the other theories offered nothing as a substitute at all comparable with it.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICAL SERVICE FOR THE TERRITORIAL ARMY—TUBERCULOSIS, MEETINGS AT EDINBURGH AND DUBLIN—THE ROYAL SOCIETY OF MEDICINE, ITS ORGANIZATION, ETC.—HOSPITALS—SANITARY DIFFICULTIES AT THE DOCKS.

London, November 1, 1907

The Director-General of the Army Medical Service, Sir Alfred Keogh, attended a conference in Manchester last Friday for the purpose of considering the medical arrangements for the new territorial army. It is intended to provide general and stationary hospitals with a staff of nurses and to invite the assistance of the staffs of our civil hospitals. Moreover, many medical and sanitary officers will be required for regimental and field work. Dealing with the defects of the present volunteer service, Sir Alfred said there was no provision for the sick, no field ambulances, and no field hospitals worth speaking about. He proposes to consolidate the corps in certain districts and appoint principal medical officers in each. In Manchester and Liverpool territorial army hospitals would be established to which the sick could be taken in case of invasion. He asked medical men to join these hospitals and sanitary officers of the county to join the sanitary department. The meeting approved of the scheme and promised Sir Alfred Keogh all possible support. The subject is also to be submitted to the profession in London, for Sir Alfred will attend a meeting of the Royal College of Physicians to which the staffs of hospitals and volunteer medical officers will be invited to discuss all questions in connection with the medical service of the new territorial force. The president of the college will take the chair, supported by the president of the College of Surgeons. The Director-General has also engaged to read a paper next week at the Society of Medical Officers of Health on disease prevention in the territorial army, when he will no doubt expound his scheme and its relation to these officers. Mr. Haldane, War Secretary, hopes to be present at this meeting.

Mr. Balfour went to Edinburgh on Friday and opened a new wing of the Victoria Hospital for Consumption there which was founded in 1887 as a memorial of the late Queen's jubilee. The professoriate of the universities and leading citizens were fully represented. Mr. Balfour said they could not withhold their wonder at the progress of medical science in this department. What was the essence of Koch's discovery? It showed that like many other diseases tuberculosis was the result of the invasion of a small organism. He supposed they might divide the methods of treatment into three: First, some form of inoculation as so long used against smallpox; second, diminishing the danger of infection; third, taking those attacked and restoring their power of resistance, so that they could shake off the disease. This last was the object of sanatorium treatment, and he thought they would never be able to deal adequately with the matter until they got into the popular mind the distinction between the methods of dealing with the disease, not attempting to do in a sanatorium what could only be done in a hospital, or in a hospital what could only be done in a sanatorium.

The movement in Ireland against tuberculosis is gathering strength and, as Mr. Balfour supported it in Scotland, the Chief Secretary, Mr. Birrell, received a deputation in Dublin from delegates of County Councils to urge that government should contribute towards the maintenance of inmates of a sanatorium and should make notification of the disease compulsory. Mr. Birrell was gratified to find the public bodies devoting attention to the matter. There were some workhouses in isolated healthy places which he thought could be utilized for sanatoria. He approved of notification. He was willing to represent the needs of the case to the treasury, not in the form of a demand on the ground of overtaxation in Ireland, but on the ground of humanity and the necessity of the case. The treasury could not by a stroke of the pen assume the responsibility of providing sanatoria, but would require the local authorities to contribute. He would endeavor to get an extension for the repayment of loans by municipal bodies. He hoped for the aid of all gentlemen of position in Ireland in waging the war begun against the shocking state of things that existed.

The Royal Society of Medicine being, with its sections, now in working order, it may interest your readers to have some particulars of the result of the amalgamation. The arrangements, as finally adopted, are a little complicated, and as many inquiries have been made an official statement has been prepared. The Royal Medical and Chirurgical Society, familiarly known as the Medico-Chi., was founded in 1805, and its "Transactions" are well known to serious students of the progress of medicine during the last century. It is that society which has now incorporated by royal charter (1907) fourteen others which were founded at various dates from 1846 to 1902. These fifteen societies then have united under the name of the "Royal Society of Medicine." It is almost a pity they did not take the name of academy instead of society, which would have brought them into line with so many foreign institutions. But that matter is settled with many others, and it only remains for all to pull together and forget the differences which have rendered the negotiations so protracted. The new society has established already thirteen sections, and it is intended in the near future to add to their number so that every department of medicine may have its separate section.

The thirteen sections, you will understand, represent separate societies which have joined in the amalgamation. These sections are: 1, clinical; 2, dermatological; 3, electrotherapeutical; 4, epidemiological; 5, laryngological; 6, medical; 7, neurological; 8, obstetrical and gynecological; 9, odontological; 10, otological; 11, pathological; 12, surgical; 13, therapeutical and pharmacological.

Each of these sections is autonomous and will hold meetings of its own, but in addition there will be from time to time joint meetings of various sections to discuss subjects which are of less specialized interest or which interest a certain number of sections only. One of these joint sectional meetings has already been held. The society as a whole will meet to discuss matters of general medical importance.

Fellows of the Royal can attend all the meetings of the society or any of the sections and take part in the discussions, but are not to vote in any section to which they have not been elected; they may be elected to any section without additional fee; they are entitled to the "Proceedings" of all sections as issued; they can vote on the busi-

ness of the society, and are eligible for election to the council. But perhaps the most highly prized privilege is the full use of the valuable library, which contains nearly 80,000 volumes and the Fellows can take out books to study at home, which is not the case at any other medical library. The privileges of a member of a section are, besides a full share in his special section, to receive the "Proceedings" of all sections and obtain the use of the library on payment of a guinea a year. The subscription to his section is one guinea and for any additional section half a guinea. The subscription of Fellows is three guineas per annum, including everything. That these arrangements will prove satisfactory on the whole is probable, though there are some misgivings and as you know the amalgamation does not include all our societies. There is a good prospect, however, that the Royal will maintain the premier place.

Dr. A., an enthusiast in favor of the organization, descanted at length to me on the advantage of concentration in a central position, enabling him to attend any meeting that interested him. But Dr. B. retorted, "That is very well for you, as you live within a few doors, but for one living at a distance it is bad, and it takes away the meetings I was able to attend." This is no doubt a reason why the distant societies will be able to hold their own, but it does not apply to two or three which are not far from Hanover Square.

The editors of the "Medical Directory" were at first in a quandary how to deal with the numerous changes necessitated by the amalgamation. They have notified that they will insert abbreviated entries as follows: Fell. Roy. Soc. Med., or Mem. Sect. Roy. Soc. Med. I should have thought further abbreviation or omission desirable, for the bulk of the Directory is always increasing and it has become a very unwieldy volume. But it appears many people think well to parade all their societies—I have noticed some put among their distinctions "Memb. Brit. Med. Ass." They might as well add subscriber to the *Lancet* or MEDICAL RECORD, or member, or better still, "Right Worshipful Master" of the "Odd Fellows," or "Ancient Friends."

Princess Christian presided yesterday at a meeting to promote the project of a new King Edward VII Hospital at Windsor to take the place of the present infirmary. The King will devote the Castle Apartment Fund of £400 and in addition subscribe £100 annually to the building fund. The supporters of the infirmary are in favor of a new hospital and the two committees are ready to amalgamate. It was resolved to proceed with the building forthwith.

Princess Henry of Battenberg opened on the 26th ult. the new children's block of the Rugby Hospital.

"Ye Olde Camberwell Fayre" is now being held in aid of the removal fund of King's College Hospital. It is a revival of the famous fairs held on Camberwell Green which were discontinued in 1855. Old English booths with lattice windows are placed against a background of scenes of the local rural beauty before the advent of trams and other modern enormities. The stall holders are in costume. Interesting relics of old times in the neighborhood have been brought together to stimulate the curiosity of the visitors, who can purchase memorials of a modern kind in "Ye Olde Fayre." The Duke of Connaught accompanied the Duchess to open the Fayre on Tuesday. His Royal Highness, as president of the hospital, declared he was very anxious to see the removal. The people of Southwark had that day sent £108 for the building fund—a happy omen of the spirit in which this effort to promote the fund was met. On Wednesday the Duchess of Somerset and on Thursday Mrs. Kleinworth performed opening ceremonies.

At an inquiry held in consequence of an application by the Port of London authorities for increased sanitary powers, the condition of the docks was referred to. The Medical Officer of Health for the port (Dr. Howard Williams) said he could not enforce necessary improvements at the Albert docks, where the sanitary arrangements were very bad, and the other docks were also in an unsanitary state. His powers were limited by overlapping with borough councils. As an example of his difficulties, he said that on one occasion he asked the master of a vessel to kill a pig which was a mass of sores. He refused to do so until he got out to sea, when he said the crew would have to eat it. Had the port authority possessed the powers now asked for that pig would have died a different death.

Trained Nurses for the Navy.—Surgeon-General Rixey is formulating a plan to improve the facilities for the care of sick sailors in the Navy by increasing the number of trained nurses in the service. Afloat the nurses will be men, but in the navy hospitals ashore these are to be women.

OUR PARIS LETTER.

[From Our Special Correspondent.]

PROSTATIC ABSCESS—URETHRAL POLYPS—COLLOIDAL SILVER—PROSTATECTOMY—ENDOVESICAL TREATMENT OF BLADDER TUMORS—RENAL TUBERCULOSIS—NEPHROLITHIASIS—BIER'S METHOD—AN IMPROVED CYSTOSCOPE.

PARIS, October 15, 1907.

THE eleventh session of the Urological Congress has been held in Paris under the presidency of Escat of Marseilles, owing to Professor Guyon's absence on account of a recent bereavement. The chief subject for discussion was the pathology and treatment of non-tuberculous abscesses of the prostate. The first speaker was Oraison of Bordeaux, who said that prostatic abscesses formed as the result of two principal factors, which were, first, circulatory disturbances, and, second, penetration by pathogenic agents which might effect an entrance into the organ either spontaneously or as the result of traumatism. The urethra was the most frequent source of infection, but this might also occur from the exterior as the result of an injury to the intestine or some other point of the body in consequence of a general infectious disease. The treatment of prostatic abscess should above all be prophylactic, which required an energetic treatment of acute or chronic urethritis, intestinal or bladder affections, and acute or chronic prostatitis. When suppuration had commenced three routes were open to the surgeon, the urethra, the rectum, and the perineum. Evacuation through the urethra deserved special mention; to effect this it was necessary only to massage the prostate and use irrigations once or twice daily. The procedures were simple and should be resorted to in all cases of moderate severity. The rectal route was excellent, as the abscess often pointed in this direction. A speculum should be introduced and the incision be made under ocular control. The perineal method was more difficult and demanded special anatomical knowledge. It involved the danger of perineal fistula and also jeopardized the ejaculatory ducts. The speaker, therefore, preferred the rectal operation and practised the latter only in long standing or complicated cases.

An animated discussion followed the reading of the paper. Albarran was an ardent advocate of the perineal operation as opposed to that through the rectum, preferring it both for the acute abscesses and in cases of less intensity. Hamonic, on the other hand, considered that the rectal operation was much superior.

Nogués then presented a paper on the symptomatology, prognosis, and treatment of urethral polyps. These, he said, might be simply fleshy outgrowths or true papillomas; that is, benign tumors.

Hamonic reported the results he had obtained by the use of colloidal silver in affections of the urinary passages. While these had not been very favorable on injecting the remedy into the urethra and bladder, he had met with much more success in disorders of the testicle, the epididymis, and the prostate. In these cases he injected the colloidal silver directly into the diseased tissue. He described the improvement produced in gonorrheal epididymitis and in tuberculosis of this structure and the prostate. In treating the prostate in this way he placed the patient in the knee-chest position, exposed the anterior wall of the rectum, and punctured the gland at its most diseased point.

Pauchet of Amiens reported on the results obtained by transvesical prostatectomy. He considered Frever's operation the method of choice. He enumerated the complications that might result from this operation; these were orchitis which could be avoided by resection of the vasa deferentia, and fatal general infection which occurred in operating on infected individuals and was best avoided by operating in two stages. This was done as follows: At the first stage cystotomy and resection of the vasa deferentia, and at the second, performed three or four weeks later, the actual prostatectomy could easily be effected.

Georges Luys described the results he had obtained in the treatment of tumors of the bladder by means of his direct vision cystoscope. After having set forth the indications for this method of treatment, which was especially suitable for small vesical papillomas, he pointed out its advantages, which were its freedom from danger and effectiveness. He cited two cases, one that of a man with recurring vesical papilloma and the other that of a woman with a malignant new growth, in both of which excellent results had been obtained by this method. He then pointed out the contraindications to the endovesical treatment of new growths and described in detail the method of carrying it out in suitable cases by means of the direct vision cystoscope of his invention.

Albarran reported the results of his experience with lesions of the kidney of the opposite side in unilateral

tuberculosis. He said that in these cases the disorder was nearly always the simple albuminuria of the tuberculous. It was a common observation to discover that the urine of the kidney on the side opposite to the tuberculous organ was heavily loaded with albumin. After the diseased organ had been removed the albuminuria usually disappeared within three or four months, provided that it had not been too pronounced before the operation. In some cases, however, severe albuminuria persisted for years. In spite of this the kidney had good functional capacity and the patients did well. In brief, the tuberculous kidney might influence the organ of the opposite side through reflex action, through the excessive amount of work it was called upon to do, through its microorganisms, and through its bacterial toxins. Simple albuminuria in the second kidney did not contraindicate nephrectomy. The prompt extirpation of the focus of renal infection was the best safeguard for the other kidney.

Legueu spoke on bilateral nephrolithiasis. He said that in nearly all of these cases the diagnosis was made by radiography. If the bilateral character of the affection had been established it was necessary to operate on both sides, but at different times. The better kidney should be treated first, in the first place because the operation protected it, and secondly, when operating on the second organ at a later date it was possible to carry out any procedure that might seem desirable, even nephrectomy.

Arcelin and Raffin of Lyons presented the results they had obtained in nephrolithiasis by means of radiography. The statistics obtained in cases operated on under *x*-ray control showed that the results were intimately connected with two conditions, the asepsis or infection of the kidney and the bilateral nature of the lesion.

Frank of Berlin spoke on Bier's method of treatment with suction cups and said that it gave excellent results in the treatment of inguinal adenitis. Very remarkable results had also been obtained in cases of genitourinary tuberculosis. He also described an ingenious improvement in the prism cystoscope. It is well known that the ordinary Nitze cystoscope has the drawback of inverting the image, but Frank has overcome this difficulty and with his instrument the picture is seen right side up. By improving the optical equipment he has also succeeded in increasing the field of vision and rendering it more brilliant.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 7, 1907.

Experience with Opsonins and Bacterial Vaccines in the Treatment of Tuberculous and Nontuberculous Arthritis.—The experience of C. F. Painter is based on nineteen cases, detailed in the paper, and selected from a larger number treated. The results of treatment were rather discouraging. He notes that it has not always been possible to carry out some of the conditions imposed by laboratory investigators. It may be that cases have been treated with vaccines made from organisms having no possible kinship to the organisms originally present in the patient, though the opsonic findings have pointed that way. Again it may be possible that some of the conditions treated were not originally caused by an infective agent. These and many other obstacles stand in the way of drawing conclusions from the results of the first year's clinical experience. A good many more cases were treated and tested than have been recorded here, but those selected for report were chosen because they covered the types of cases most satisfactorily. It would have been possible to select a group, perhaps an equally large one, where the conformity of the opsonic and clinical findings would have been entirely favorable to this new method of study. So in the matter of treatment, typical opsonic charts might have been exhibited corresponding to remarkable degrees of clinical improvement. The writer believes the danger of expecting too much from an untried method is greater than that of expecting too little, and is desirous of encouraging the continuance of trials now going on in the laboratory provided they can be checked by unbiased clinical observation.

Serum Treatment of Exophthalmic Goiter.—F. S. Bardeen gives a careful review of the literature of this subject and reports one personal case in which the serum gave very doubtful results. In this case, goiter slight or absent, tachycardia and tremor well marked, exophthalmos absent, and the other symptoms those usual in such cases. The thyroid was palpable and visible, but at the same time was no larger than is common in many healthy women. Thyroidectin was used in increasing doses. For a time it seemed to be of some benefit, but this effect was soon lost, in fact, it seemed to aggravate the symptoms. Later, Moebius' serum was tried with practically the same results. Quinine hydrobromate was used for about five months, in doses just under that necessary to produce cinchonism. It seemed to give positive results. The author notes that in the majority of reported cases not enough details are given to enable the reader to judge of the probability of cure or permanency of results. He sees no certainty of even the palliative action of the serum. The assertion has been made that the sera occupy the same relation to exophthalmic goiter that thyroid extract does to myxedema, but we can hardly accept this statement on the basis of the evidence furnished.

New York Medical Journal, November 9, 1907.

Modern Lithotrity.—In a series of paragraphs numbered from one to fifty-eight, J. W. S. Gonley reviews the literature of lithotrity and the development of the crushing operations for vesical stone. The indications for this operation are that the stone be free, frangible, and of small or medium size. Plurality of stones is no contraindication. Urethral stricture is no contraindication provided the canal can be freely dilated or even enlarged by internal incision. A narrow resilient stricture in the perineum, especially if of traumatic origin, demands external section. Lithotrity may be done in multiple short sittings, in one or two sittings, or one prolonged sitting. Each case must be decided on its own merits in this respect. The modern operation requires an irrigation apparatus, flat-bladed, fenestrated and spoon lithotrites, apparatus for detritus aspiration, special combined crusher, and evacuating catheter, and alligator-jawed forceps. The author details the various steps of the operation and calls special attention to the fact that the surgeon's work is not finished with the evacuation of the last fragment of the stone. The consequences of the operation must be remedied and such active measures taken as are required to prevent a recurrence of the calculous disease. In a general way the author has not employed any form of anesthesia in his operations. In children under ten years, perineal lithotomy is the safer operation. The various paragraphs of the paper contain many practical suggestions which cannot well be abstracted.

Tuberculotherapy in Tuberculosis.—F. W. Forbes-Ross presents as the main proposition of his paper the following: "To deliberately and wilfully procure and use as an article of diet for tuberculous persons the raw flesh (beef) of animals known to be affected by tuberculosis, with the object of bringing about artificially that which I firmly believe occurs unobserved in native and in actual daily life among healthy persons." In other words, on such a diet a patient manufactures in his own body those substances which so fortify his system as to oppose the ravages of tuberculous disease. Ross believes that raw or undercooked meat contains the toxins and antitoxins of the animal, in proportion as their blood serum has had the power, and the muscular tissue and blood serum of a tuberculous animal are the main sources of that animal's resistance, and so their flesh possesses immunizing qualities, hitherto not deliberately used to cure the disease. Under present circumstances of meat supply in England, says the author, most persons from time to time partake of meat from a tuberculous animal, and so the habitual meat eaters (underdone) obtain toxins and antitoxins, and so keep up their opsonic index for tubercle and remain immune to both bovine and human tubercle on the vaccinia principle. This is the analogue of feeding with raw thyroid gland for myxedema. The milk-consuming infant, on the other hand, does not obtain in milk anything else than milk, pus organisms, and their toxins, and tubercle bacilli galore. Milk is a secretory degenerative compound derived from mammary cells. Secreting glands have not been shown to produce or contain antitoxin. Milk feeding then confers no acquired immunity from bovine tubercle and so on to immunity from human tubercle. The raw, or partially cooked, meat eater obtains a maximum of stable nutrient nitrogenous food and antitoxin, protective bodies and a minimum of tubercle bacilli; but the milk consuming infant and old person obtains only a nitrogenous food of less nutritive value, together with a maximum of tubercle bacilli (that is, if both meat and milk are partaken and derived from a tuberculous animal), and no antitoxin or protective bodies. Healthy meat eating adults can (and do) with impunity, moreover, partake of unsterilized tuberculous milk from all sources carelessly; whereas infants run a great risk of tuberculous infection from the same milk. It is far better to feed a phthisical patient on raw meat from tuberculous cattle than on pure milk absolutely sterilized and free from tubercle bacilli.

Asphyxia Neonatorum.—A general description of this condition is given by I. L. Hill, who follows the procedure herewith laid down: As soon as the head is born, swab out the pharynx with the finger wrapped with gauze

and squeeze the contents from the nose. After delivery invert the child. Slap its buttocks and back briskly a few times, dash a little cold water upon it and blow into its face. Perform Prochownik's compression of the chest for a half minute. Suck out the mucus from the pharynx of the child with a catheter having a pipette. Blow into the child's mouth, compressing the trachea and pressing gently on the stomach. Now ligate or clamp the cord and cut it. Transfer the child at once to a large tub containing eight inches of water at 108° F. Listen to the heart beat so that improvement or retardation later may be estimated. Perform Byrd's method of artificial respiration without inverting the child at the end of expiration. From time to time mucus should be wiped from the nose and mouth as squeezed out from the air passages. While Byrd's method is being done an assistant if present should make rhythmic traction on the tongue. This can be done readily without interrupting the Byrd treatment. The operator can readily pass the index finger of the left hand into the rectum and from time to time this should be done. After four minutes, if previous injury does not contraindicate, remove the child from the tub and perform Schultze's method for a minute, giving ten swings in that time. By this time, unless the case is a very bad one, some signs of restoration of breathing are usually present. If the infant has improved in color and started breathing, however weakly, return it to the hot water, massaging its breasts, and watch the efforts at breathing. If this is shallow, plunge the child into a tub of cold water for a second. If the breathing improves, the case is doing well and Byrd's method in the tub with an occasional reflex stimulation by stretching of the anus will soon bring about satisfactory breathing. All the reflexes now being good, a dip into cold water and a few slaps will probably cause a genuine cry. Continue the Byrd method, however, timing the movements of inspiration and expiration with the child's until both sides of the chest expand well. Hypodermics of brandy may be necessary. Care must be taken to keep the child uniformly warm after it has once begun to breathe. If atalectasis is present, injury to the vasomotor or respiratory centers, intracranial hemorrhage, or anomalies of circulation due to persistent fetal features, death may result in spite of every care.

Treatment of Snake-Bites as Seen in the Jungle.—Speaking of his personal experience in Siam, C. S. Braddock, Jr., says that his usual course was to cut deep into the tissues, causing free bleeding. A tourniquet between the bite and the trunk of the body, some distance away from the bite, keeping it on tightly for an hour at least. Pure crystals of potassium permanganate were rubbed into the wound, and the wound packed with the same. A ring of punctures was made around the wound with a hypodermic needle and a strong solution of permanganate was forced into the tissues all around the wound at a distance of an inch or so, so as to make a dam to counteract any poison partly absorbed. Then the wound was washed out freely with a strong permanganate solution. Nitroglycerine and digitalis were given in heroic doses, as in a few minutes the pulse falls rapidly, also brandy and whisky in half pint doses and strychnine hypodermically in large doses. With these remedies close at hand, he was very successful in saving life.

Journal of the American Medical Association, November 16, 1907.

The Criminal Responsibility of the Insane.—Morton Prince discusses the subject of the criminal responsibility of the insane, pointing out that the law in this matter, as it exists in this country, is still largely the common law. He gives the history of the famous answers of the English judges which still form the basis of the law in this country and Great Britain, analyzes them and shows their incompleteness and defects. When the defense of insanity is set up, the most sensible procedure would be to commit the accused to an asylum, still under the control of the court, for observation. If found insane and there still remained a question as to his responsibility, he would have the full observations of those who have carefully followed the case in the asylum submitted to the jury and this should be allowed to determine the question for itself. Or the California plan of statutory exclusion or responsibility in proven insanity could be adopted. In the vast majority of cases, Prince holds, those who are found clinically insane will also be found morally irresponsible.

Alcoholic Insanities.—A. Gordon comes to the conclusion that the so-called alcoholic mania, melancholia, paranoia, etc., do not exist, and that even the delusions of marital infidelity, considered characteristic of a type of insanity due to alcoholism, were found by him in only a comparatively few cases. His conclusions are stated substantially as follows: Alcoholic insanity presents certain special characteristic features that usually distinguish it from other analogous conditions. Acute cerebral alcoholism presents three states: delirious, confusional, and stuporous, the intensity of which varies according as we have to deal with a subacute form or with delirium tremens. The chronic alcoholic insanity tends inevitably to dementia, and may or may not be attended in its course by delusions, hallucinations, and illusions. If the latter symptoms sometimes suggest other psychoses, the resemblance is only apparent, as will be demonstrated by closer observation. If the special symptoms of cerebral alcoholism occur in individuals affected with other psychoses who happen to commit excesses this must not mislead us to suppose their existing insanity is due to such excesses. The conception of alcoholic mania, melancholia, paranoia, or paresis is unscientific and not based on accurate observations.

Intravenous Treatment of Syphilis.—G. F. Lydston reports his experience in ten cases with the intravenous mercurial injections which give him a very favorable opinion of the method in the treatment of syphilis. While he does not claim that it should be used in a routine way, in all the cases in which he employed it, its action was superior to any other method in his experience. In malignant cases and those seriously menacing the integrity of the nervous system or viscera, its advantages, he thinks, are manifest. The speedy mercurialization of the blood and prompt systemic action, the relatively large doses permitted, the comparative freedom from pain, and, in general, the absence of gastrointestinal disturbances are special recommendations. Bowel disturbances seem to be exceptional and there was no apparent tendency to sudden severe salivation, though in some cases the mouth reacted promptly. With care, accidents should be infrequent and he is convinced that when the entire dose is put within the lumen of the vein no reaction will occur. The median basilic or median cephalic are suitable for the injections, but any prominent accessible vein will answer.

Prophylaxis in Epidemic Cerebrospinal Meningitis.—A. Seibert reports that he has used a solution of equal parts of resorcin and alcohol to disinfect the nasopharynx. The alcohol should be heated before adding the resorcin. A properly shaped applicator wound with a plug of absorbent cotton well soaked with the solution is introduced once for a couple of seconds on each side of the uvula. The stomach should be empty. The contractions of the soft palate press the fluid out of the cotton and into the folds of the mucous membrane, and the alcohol penetrates deep into the mucosa with the resorcin and destroys all organisms with which it comes in contact. The applications are best repeated every forty-eight hours and six treatments usually suffice for an ordinary chronic case of postnasal pharyngitis. He has also used this method with good results in destroying streptococci in scarlatinous pharyngitis, and also as a disinfectant after pneumonia, diphtheria, tonsillitis, influenza, and measles. Before proposing it as a prophylactic measure in cerebrospinal meningitis, he had some bacteriologic tests made which showed its efficacy against the meningococcus. In every test the number of bacteria in the nasopharynx was notably diminished and in some of the tests the sterilization was almost complete. He recommends it, therefore, to be used in the nasopharynx of the patient in cases of cerebrospinal meningitis to prevent absorption and expectoration of meningococci, and in all persons coming in contact with the patient, especially when postnasal catarrh exists.

Dermatitis Exfoliativa Neonatorum.—W. M. Brown reports seven cases of this rather rare affection (also known as Ritter's disease). It occurs in infants from one week to one month old, usually appearing first about the mouth as a diffuse erythema and spreading over the body, followed by separation of the epidermis, with intense irritation and more or less fever. After scaling there is a furuncular eruption of varying severity. The acute trouble lasts about ten days, leaving a papular eruption that may become eczematous. All the cases but one were in females, the mothers in every case were in single rooms, no cases occurring in the wards. Each case was under the care of a different physician. Five of the seven mothers had a definite puerperal infection of greater or less severity. At the same time forty-one children were born in the hospital, all in the same room and cared for by the

same nurses as the babies with the disease, but not one whose mother was in the ward became infected.

The Lancet, November 2, 1907.

Ruptured Bladder: Operation Forty-two Hours After the Accident: Recovery.—The patient of B. H. Lang was a male cook aged 49 years who after alcoholic indulgence was thrown out of a wagon. He had passed urine one hour before the accident. The immediate symptom from his fall was severe abdominal pain. The next morning he was unable to pass water in spite of frequent desire, and his pain was intense. It was necessary to transport him a long distance in a motor-car before he could reach a hospital. On admission he presented a very bad appearance, with frequent vomiting of a dark fluid, pale face, rapid and weak pulse, and distended abdomen with dullness in the flanks. Catheter drew off a few ounces of deeply blood-stained urine. Diagnosis was made of ruptured bladder and the usual median subumbilical incision was made. A large rent was found in the posterior wall of the bladder. This was closed with iodine catgut, the incision with silk-worm gut, and a large rubber drain left in the lower angle of the wound to drain the pelvis, while a strip of gauze was passed down beside the tube to the site of the sutured wound in the bladder. A catheter was passed and tied into the bladder. The patient's condition was desperately low, but on the fourth day he rallied and began to gain headway. Catheter was removed on the fourth day and the patient passed urine himself. The wound drained well and there was no leakage of urine till the seventh day when a urinary fistula developed. This finally closed, and in six weeks the man was perfectly well.

The Growth of Malignant Disease in Man and the Lower Animals.—E. Goldman considers this question with special reference to the vascular system. His first point concerns the responsibility of the system for the dissemination of malignant growths. This is a very large and important factor. The connective tissue and vasa vasorum of the vessel within the tumor area begin to proliferate and finally vein and artery alike are permeated by numerous vascular channels. Such vessels are naturally more likely to harbor tumor cells than are healthy ones. The author assumes the existence of an intimate relation between the blood and lymphatic channels. The lymphatic glands do not always serve as filters, but permit the transmission of infectious material. What are the general conditions of the circulation in malignant growths? The latter disturb the regular distribution of the vessels, but the new formation of vessels depends upon the general powers of the individual patient and the physiological condition of blood supply in the invaded tissues. The virulence of the cells in a given growth can be measured by the extent of the necrosis found in it. Finally, the new vascular formation serves not merely for nutrition of the morbid growth, but also as a means of defense against it. The body's first line of defense is established on the boundary of the invading growth. An operation in long-growing tumors is sometimes harmful, for the knife in removing the growth has removed the barrier which the body has carefully raised up during the long continuance of the growth.

British Medical Journal, November 2, 1907.

Clinical Observations on Spring Catarrh.—This paper is an analysis by H. Herbert of thirty nine cases seen by him in Bombay in the course of about two and a half years. Only seven of the patients were females. Cases were seen in adults up to forty years. The cases at the more advanced ages were mild and not very characteristic, and some of them gave only short histories. In one youth aged twenty one years vision had become much reduced through invasion of the cornea, the disease having begun in early childhood. The patients were of all races, including Europeans. Seasonal variation in Bombay is not marked. The patients had little information to give in this respect. But on looking up the dates on which the patients first applied for relief, May, the hottest month, was the only month without any cases, and most occurred in July, the wettest month. The author notes that many of these cases are liable to be mistaken for trachoma or chronic simple conjunctivitis. The tarsal conjunctiva may present only infection, fine papillary roughness, slight thickening or loss of translucency. Itching and rubbing of the lids are frequent. In spring catarrh there is usually no discharge to be seen, but if the upper lid be everted for a moment and then be released, there soon appears a scanty thin slimy exudate on the tarsal conjunctiva. Blood examinations were made in twenty-two of the cases, but there did not appear to be any general correspondence between any abnormality of the blood and the degree of conjunctival proliferation. Concerning treatment the author notes that a trial was given to salol, a saturated solution in almond oil, instilled six times a day. It was commonly used in one eye and adrenalin in the fellow eye. The results were not uniform. Sometimes one eye improved the faster, and sometimes the other, and in other cases neither medicament did any good. Failure is perhaps to be anticipated in the cases in which the eye affection was only part of a more diffused malady.

Treatment of Delayed Resolution after Pneumonia.—W. M. Crofton reports one case in which intramuscular injections of fibrolysin were given. This substance is a double compound of thiosinamin and salicylate of soda. The patient was a man of thirty-two years with the history of a pneumonia in the left lung two years previously and with an intermittent cough since. He was attacked with the typical seizure of a pneumonia in the left lower lobe and the crisis came on the ninth day. For the following month there was no change in the local condition. He was up and outdoors, but extremely weak. He had a distressing cough with scanty yellow viscid sputa. So he went on for ten weeks, appearing to be doomed to fibrosis of the lung. Knowing that thiosinamin had the power of dissolving pathological fibrous tissue, the author determined to use it in intramuscular injection in the form of fibrolysin. The morning after the first injection he brought up a large quantity of greenish-yellow sputum, and continued to do so during the treatment in gradually decreasing amount. He received an injection (2.3 c.c.) every second morning and had eighteen in all. His lung has completely cleared up; his cough has almost disappeared; the sputum is reduced to a small quantity in the morning, and he is steadily increasing in weight, as much as three pounds a week.

The Cancer Problem—A Suggestion.—F. B. Skerrett notes that the essential characteristic of the cancer cell is its apparently unlimited power of multiplication. The nucleus determines the division of the cells. Is it possible, asks the author, to so act upon the nucleus as to rob it of its abnormal power of proliferation? Chemically it consists of nuclein. Cancerous growths are particularly rich in this substance. Certain leucocytes may perhaps supply the stimulus and provide the nourishment for cancer cells. If the nuclein is so important for rapid mitosis, may this process not be considerably modified by its withdrawal from the food altogether or by such chemical action upon it as to alter its functional activity? From a chemical point of view, nuclein is remarkable among organic bodies for its high percentage of phosphorus. Can we substitute for phosphorus a chemical having somewhat similar affinities? The author suggests the substitution for phosphorus in the nuclein molecule, of the heavier metals of the group to which it belongs and advances the following propositions: 1. The action on carcinomatous tumors of a diet free from nuclein and its progenitor—nucleoproteid. Such a diet in the case of man would correspond somewhat with the purin-free diet suggested for gout and its manifestations—and by the way, any observed associations between this disease and cancer would be extremely interesting. Cancer has much greater incidence among those taking a mixed diet than among vegetarians, and a vegetarian as well as a restricted nitrogenous diet has been extolled as beneficial in both external and internal cancer. This plan, "the nuclein-free diet," could also be tried in conjunction with the internal administration of arsenic or other member of its periodic group. 2. The action of a "phosphorus-free diet" with or without the internal administration of arsenic, etc., might be tried. Seeing, however, that phosphorus is such an important element in the nervous system of vertebrates, it is doubtful whether the living organism could withstand its entire withdrawal from the food, and it is possible a cancerous growth might still draw its necessary phosphorus from the nervous system, thus producing mental depression or other nervous state. 3. The production artificially of extensive inflammatory conditions far away from a cancerous growth with a view to withdrawing the leucocytes thereto and noticing the effect, if any, might prove interesting if of no practical importance.

Berliner klinische Wochenschrift, October 28, 1907.

Congenital Occlusion of the Lower Part of the Ileum.—Kersten in discussing this subject says that mechanical, inflammatory, and developmental factors have been adduced in explanation of the abnormality. Among the mechanical factors are torsion of the intestine about its axis, incarceration of a loop of gut in openings of the mesentery, and compression by tumors or enlarged organs, for example, the liver. Fetal peritonitis, either general or circumscribed, may also give rise to adhesions or thickening or contraction of the mesentery, which may lead to

interference with the permeability of the intestine. Among the embryological theories that of Krenter, whose experiments have recently been verified by Forsener, seem most worthy of acceptance. As the result of his investigations on human and animal embryos he reaches the conclusion that during the fifth to the tenth week of development temporary obliterations of the intestinal lumen may occur, but are normally corrected through metaplasia of the proliferating epithelial cells. If this goes on to an incomplete degree stenosis results, or in pronounced cases, atresia. The author reports a case in which the intestine was found replaced by a connective tissue strand about 2 mm. in diameter and 1 cm. in length, about 2 cm. from the ileocecal valve. The diagnosis was made early and an artificial anus successfully formed, but the child died on the sixth day after birth. The pathological findings in this case, as recounted by the author, are thought by him to corroborate Krenter's theory.

The Guaiac Test for Blood.—Schroeder has made a series of tests with different modifications of the guaiac method and states that although previous authors have emphasized the fact that the oil of turpentine used should be old and the tincture of guaiac fresh, they have laid no stress on the strength of the latter. He finds that this factor is of considerable importance and that strong solutions of blood for an optimum reaction require strong solutions of the resin, and *vice versa*. If the blood solution is very weak a strong solution of the resin may completely obscure the reaction. He recommends that three test tubes of guaiac solution be used. The first contains 1 c.c. of absolute alcohol, with about 60 mg. of resin of guaiac; the second tube receives a drop or two from the first and 1 c.c. of absolute alcohol, and the third a drop or two from the second tube and 1 c.c. of absolute alcohol. Equal quantities of turpentine and the acetic acid ether extract (usually 1 c.c. of each) are added to each tube. In the presence of blood the characteristic blue color due to oxidation of the guaiac is produced.

Münchener medizinische Wochenschrift, October 20, 1907.

Delirium Tremens Following Abstinence from Alcohol.—Hosch says that although the question was long in doubt, it is now generally recognized that delirium tremens may be evoked by the sudden cessation of the use of alcohol. Most writers on the subject also state that the administration of alcohol after the delirium has once begun has little or no effect on the duration and course of the illness. While the alcohol has little or no value as a remedy, the fact that abstinence delirium occurs indicates that the use of the agent as a prophylactic, in the sense of a gradual reduction in its administration, rather than a sudden breaking off, is to be recommended. The author reports an instance in which delirium set in promptly on cutting off stimulants, though the case is somewhat complicated by the fact that the onset of the delirium was preceded by an epileptic convulsion. This, the author believes, was also predisposed to by the abrupt alteration in metabolism attending the sudden abstinence from alcohol.

Pulmonary Edema and Bronchial Asthma.—Hoesslin says that the most potent cause of edema of the lungs lies in a failure of cardiac power, particularly of the left ventricle. This produces undue pressure in the pulmonary circulation, since the right ventricle continues to force blood into the pulmonary vessels, while the left ventricle does not empty itself satisfactorily. The condition may also result from primary vascular lesions, such as those that accompany acute and chronic renal diseases. A third cause that has been suggested consists in a paralysis of the vasomotor nerves, inducing a condition similar to that of angioneurotic edema. Frequently it is difficult to determine whether the pulmonary edema depends on a pulmonary or a cardiac cause, and the two often work together in a vicious circle. The complication of bronchial asthma with pulmonary edema is rather rare and the author reports a case occurring in a woman of thirty-two years. In addition to the pulmonary manifestations marked albuminuria was observed and after the acute stage of the illness was over the patient developed a pneumonia. Hoesslin considers that the repeated attacks of asthma had already caused considerable damage to the lungs and that both the pulmonary vessels and the heart were already involved. In the attack in question the heart was unable to fulfill the demands put upon it by the increased pressure in the pulmonary circulation, and in consequence transudation took place through the capillary walls and the alveolar epithelium.

Deutsche medizinische Wochenschrift, October 31, 1907.

The Treatment of Syphilis with Suppositories of Mercury.—Hoehne says that the method of treatment of syphilis suggested by Audry, which consists in the administration of the mercury by rectum, has much to recommend it, particularly on the score of ease of application and the ability for the patient to keep his ailment secret from those about him, which is hardly possible when inunctions are used. The method is superior to the administration by injection, owing to the pain that the latter frequently causes, and seems to be less likely to give rise to stomatitis or enteritis than when the drug is given by mouth. Unfortunately, however, it does not appear that Audry's claims for the effectiveness of the method are justified by the facts. Hoehne tested the plan in twenty-two cases; the suppositories being made of cacao butter and 40 per cent. gray oil. Each suppository contained from 25 to 400 mg. of the oil. While no complications attended the treatment, which apparently possessed all the points of convenience claimed for it by its originator, the therapeutic effect was so inadequate and uncertain that the method was soon abandoned. Lesions already present were influenced very slowly or not at all and relapses appeared promptly on ceasing the treatment, so that the author considers that it is not suited for routine use and should be employed only when for one reason or another the usual plans of administration cannot be resorted to.

The Absence of Glycogen from the Leucocytes in Myelogenous Leukemia.—Wolff-Eisner says that whereas glycogen is normally present in the leucocytes and can be demonstrated by the use of iodine, in lymphatic leukemia the leucocytes do not give this reaction. They are therefore different in composition from normal leucocytes and this fact furnishes an argument against those who oppose the phagocytic theory of immunity. It is alleged that this theory cannot hold good, since in myelogenous leukemia, where the blood is flooded with granular cells, no particular resistance to infection is observed. By demonstrating the fact that the leucocytes in this disease differ in composition from those normally present, the author considers that the likelihood is shown that these cells also differ in function from the normal ones and are not necessarily to be looked upon as capable of resisting infection. Although he presents this argument, he is not an adherent of the phagocytic theory and points out that it has not yet been explained by the believers in this why it is that in lymphatic leukemia, when the body is very deficient in granular cells, infections do not always occur very early in the disease, and for the same reason why death does not regularly occur early in pernicious anemia, which also is usually accompanied by leucopenia.

French and Italian Journals.

Intestinal Autointoxication in Relation to Feeding of Infants.—Antonio Longo has experimented as to the fecal and urinary toxicity and the intestinal putrefaction in infants fed on milk alone, or on the commonly used farinaceous foods. Their ages varied from twenty-one to twenty-three months. He finds that a certain amount of incompletely assimilated proteids are in the circulation of these infants. There is also a large amount of albuminous material separated by the metabolism of tissues. The different grades of toxemia observed in different infants depending on the food they take, and not solely on a greater or less production of these poisons in the intestine, but also on the chemical activity of the cells. The children experimented on could sustain life without loss of weight on prepared infant foods, tapioca, etc., and without any bad effects. These foods produce a polyuria. There is very little intestinal putrefaction under this diet. Urinary toxicity is greatest on a milk diet, much less on a farinaceous diet.—*Rivista di Clinica Pediatrica*, September, 1907.

Dystocia by Progressive Deformity of the Pelvis in Mountainous Countries.—Dresch believes that in mountainous countries, where the women are obliged to mount steep inclines burdened with heavy loads there is a gradual progressive deformity of the pelvis that is not accompanied by any symptoms of osteomalacia. He draws this conclusion from the occurrence in his practice of a number of deliveries in contracted pelvis which he has observed in women who had not had any pregnancy for a number of years, and who had previously been delivered without operation of one or more normal sized children. There was no disease and no evidence of deformed metabolism to account for the narrowed pelvis. He believes that in these cases the pelvis was at first of normal diameter, and that it had gradually changed its shape and diameters as a result of altered physical relations.—*Gazette Médicale de Paris, August* 15, 1907.

Book Reviews.

A Dictionary of Medical Diagnosis. A Treatise on the Signs and Symptoms Observed in Diseased Conditions. For the use of medical practitioners and students. By Henry Lawrence McKisack, M.D., M.R.C.P. London, Physician to the Royal Victoria Hospital, Belfast. New York: William Wood & Company. 1897.

In this excellent work the author has placed before medical readers an invaluable adjunct to the modern treatises on the practice of medicine. The book is not intended as a text-book on medicine, but merely as a means of ready reference for the student and practitioner. Arranged as it is alphabetically, the signs and symptoms of disease as they present in physical examination can be conveniently and instantly referred to, and the author may be congratulated upon the ingenuity displayed in the plan of his work. The various clinical methods of examination are clearly described with sufficient minuteness to enable any intelligent student to put them into practice. The illustrations and diagrams are extremely instructive, and beside the alphabetical arrangement which itself permits of quick reference, the work is carefully and fully indexed. A number of comparative tables showing, for instance, comparative symptoms in diseases of the urinary organs, diseases of the stomach, etc., add greatly to the value of the work. In the preparation of the book the author has had the cooperation and assistance of a number of eminent colleagues.

Human Anatomy, Including Structure and Development and Practical Considerations. By Thomas Dwight, M.D., LL.D., Parkman Professor of Anatomy in Harvard University; Charles A. Hamann, M.D., Professor of Anatomy in Western Reserve University; J. Playfair McMurrich, Ph.D., Professor of Anatomy in the University of Michigan; George A. Piersol, M.D., Sc.D., Professor of Anatomy in the University of Pennsylvania, and J. William White, M.D., Ph.D., LL.D., John Rhea Barton Professor of Surgery in the University of Pennsylvania. With 1,734 illustrations, of which 1,522 are Original and Largely from Dissections by John C. Heisler, M.D., Professor of Anatomy in the Medico-Chirurgical College. Edited by George Piersol. Philadelphia and London: J. B. Lippincott Company.

Of all sciences that of anatomy, apart from histological details, would seem to be the most fixed and the one least calling for new treatises expounding it, yet within the past decade there have been eight or ten original works or translations from the German published in this country, not to mention numerous compends and dissection manuals. Without disparagement of any of these works, their multiplication does appear to be rather unnecessary. One is sufficient for the needs of the student, and none but the specialist would ever dream of burdening his library with more than one.

In the present work the limits of descriptive and topographical anatomy have been passed, and an attempt has been made, in the sections entitled "practical application," to point out the relation of anatomy to morbid conditions—those in the province of the internist as well as the surgeon. A special treatise, in which the practical application of the facts of anatomy to diagnosis and treatment were expounded at length, would be serviceable and cover a rather neglected field, but the wisdom of incorporating such in a work on anatomy for the student's use is questionable. Anatomy is one of the elementary branches in the medical curriculum, and the first year student has enough to do in mastering its details without burdening his mind with a study of its relations to disease of which he knows nothing, and should know nothing until a solid foundation of the elements is laid. To the third or fourth year student such information would be of service, but he could better get it from a monograph such as we have suggested than by picking out what he needs from a two thousand-page work on anatomy.

The book, partly because of the inclusion of the extraneous matter to which we have just referred, is too large for the student. It contains 2,088 pages and is far too bulky and unwieldy to be transported to the dissection room, or even to be held in the hands or the lap for study. The print is too fine for continuous study by artificial light, and the binding is not such as to insure a long life for the book, if used as a treatise on anatomy should be.

We have pointed out the defects of the work first, because they are the most striking. It is a pity that they exist, for they render the book unfit for the use of the student and bar the possessor from a utilization of the many and great excellencies which characterize it. The descriptive text is admirable—clear, well put, and not quickly to be forgotten. In reading it one practically sees the anatomical subject before him, and, with the aid of the beautifully executed illustrations, could almost dispense with dissection in acquiring a knowledge of the construction of the human body. One commendable feature is the retention of the familiar anatomical nomenclature, and a relegation of the terminology of the Berne Congress [BNA] to footnotes. The latter is far from perfect, and equally far from being euphonious, and we see no advantage in imposing it upon the student in place of the anglicized terms with which everyone is familiar and which one will always use in daily converse. If the publishers would issue this treatise in three or four substantially bound volumes, one of which would contain the "practical applications," the work would be really useful and one to be welcomed even to the already overcrowded ranks of anatomical text-books.

Lateral Curvature of the Spine and Round Shoulders. By Robert W. Lovett, M.D., Boston, Associate Surgeon to the Children's Hospital; Instructor in Orthopedic Surgery, Harvard Medical School, etc. With 154 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907.

It is only within the past two decades that any signal advances have been made in the corrective treatment of lateral curvature of the spine, and this is due to the fact that hitherto the therapeutic measures employed have been largely empirical and not sufficiently correlated to the pathology of the condition and the mechanism of the resulting displacements. The progress which has recently been made is based on experimental and clinical work, the records of which are scattered through the medical literature. Dr. Lovett has endeavored to bring together this literature in the book here noted and in addition has enriched it by his own views based on an extended experience. The result is to be commended. The book presents a clear account of the treatment of what was formerly regarded as a practically incurable condition, and this feature is emphasized because the majority of text-books fail in the particular mentioned. After several introductory chapters on the spinal anatomy and movements and the clinical features of scoliosis, the author takes up in great detail the examination of the patient, the etiology and the pathology of this deformity, so that the rationale of the treatment now advocated becomes evident. The importance of proper posture and proper exercise in school children is insisted on, and likewise the early recognition of the condition. The treatment depends on whether the deformity is postural or functional and organic or structural. The systems of exercises which have lately been worked out are carefully explained and this constitutes a feature of the book which is most valuable to the practitioner as showing what can be done with care and patience. The numerous forms of apparatus which have been devised are also illustrated and described. The text is concise and satisfactorily arranged for ready reference and the work may be ranked on an equally high plane with the author's previous contributions to the literature of orthopedic surgery.

Postoperative Treatment. By Nathan Clark Morse, A.B., M.D., Surgeon-in-Chief to "Emergency Hospital," Eldora, Indiana; District Surgeon, Chicago & Northwestern and Iowa Central Railways, etc. Second Edition, Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co., 1907.

It is a pleasure to repeat the good opinion of the first edition of Dr. Morse's book, on the occasion of the appearance of this revised and enlarged new edition, which contains an account of all the recent advances which are worthy of being incorporated in a work of this kind. The writer's purpose in bringing out his book has been to correct the lack of information on this important subject and particularly in such form that it is readily accessible to either the student or the practitioner. The modern text-books on surgery are lamentably deficient or conflicting and therefore of little assistance in elucidating the after-treatment of operative cases, the care of which is often left to others. Morse's book furnishes us with an epitome, not too condensed, of the various methods used by modern surgeons, together with comments by the author based on personal experience. The scope of the book is quite extensive; beginning with the preparation of the patient and the care of operative wounds, he takes up in detail the special points relating to the various operations. The after-treatment of fractures, amputations, arthrectomies, and the different bone diseases is also carefully considered and is very up to date. There is an excellent chapter on the use of the *x*-rays in post-operative treatment, which has its indications but should never, according to the writer, be subordinated to surgical treatment proper. The section on dietetics seems rather brief considering the detailed presentation of the subject-matter in the remainder of the book and could have with advantage received more consideration. Only seven pages are devoted to this most important subject, an imperfect knowledge of which works more havoc with patients than any other feature of post-operative technique. The book as a whole, however, can be commended as a most valuable addition to the practitioner's working library.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 7, 1907.

THE PRESIDENT, DR. JOHN A. WYETH, IN THE CHAIR.

Nomination of Officers.—The following officers were nominated: *Vice-President* to serve three years, Dr. Simon Flexner; *Trustee* to serve for five years, Dr. A. M. Jacobus; *Member of the Committee on Admissions* to serve for five years, Dr. Charles H. Richardson; *Member of the Committee on Library* to serve for five years, Dr. Haven Emerson.

Report on the Serum Treatment of Epidemic Cerebrospinal Meningitis.—Drs. SIMON FLEXNER and J. W. JOBLING presented this communication. It seemed desirable to recapitulate the salient points brought out by the different reports, it being understood that they did not represent conclusions, but only statements of observed facts or obvious deductions from them. The records of the cases used in the paper covered 47 cases of epidemic cerebrospinal meningitis treated with the antiserum, of which 34 (72.3 per cent.) recovered and 13 (27.6 per cent.) died. Of the 13 patients who died four were either fulminant cases in which death took place 24 or 36 hours after the first appearance of the meningeal symptoms, or the patients' conditions were such that death occurred within a few hours of the injection of the serum. If, therefore, they subtracted these, there would be a total of 43 cases, of which 34 recovered (79.9 per cent.) and 9 died (20.1 per cent.). Excluding the fulminant cases, those who were injected in the first three days of illness numbered 18, of which 16 recovered (88.9 per cent.) and 2 died (11.1 per cent.). In order that the figures might have any value they were obliged to know with what degree of severity the epidemic prevailed at the time and the place at which the serum was used. Eighteen cases of epidemic meningitis occurred at Castalia within a few weeks. Of these 12 patients died and six recovered. Of the six patients who recovered, three received the serum injections, and no patient receiving the serum died. The report from Akron covered 20 cases of epidemic meningitis. Of these patients nine were not treated with the serum; eight died and one recovered. The remaining 11 patients were treated with the serum; three died and eight recovered. Of the three fatal cases, two were of the fulminant type. The records of the cases that recovered had been full enough to enable them to make out the manner of termination of the disease, and they found that in 13 the disease terminated by lysis and in 12 by crisis. In a number of the cases the abrupt termination of the disease, after an acute and violent onset, within about forty-eight hours of the serum injection, was very striking and impressive. In several cases the serum was injected as early as twelve hours after the onset of severe symptoms with prompt arrest of the disease. Their choice of mode of introducing the antiserum into the body, namely, the spinal canal, should be justified. They were led to this manner of employment by two considerations: First, the theoretical advantage of bringing the serum in direct contact with the focus of infection and inflammation, to support which one possessed data based on experiments on animals; second, the consideration that the elimination of colloids, and even of crystalloids, into the cerebrospinal fluid was a slow and uncertain process in health and probably little better in inflamed states of the membranes. The cases reported in the paper were treated by intradural injection. They possessed evidence that the direct effect of the antiserum upon the diplococci present in the exudate in the spinal membranes was to bring about rapid degeneration and arrest of free multiplication. They had noted remarkable reductions in number and marked evidence of degeneration of the diplococci and loss of power of growth twenty-four hours after the first injection of the serum. Striking changes in the character of the exudate had also followed the serum injections; in twenty four hours they had seen a seropurulent exudate converted into a faintly turbid exudate. The cases in which the exudate was really purulent or fibrino-purulent would seem to be less favorable to the action of the serum. It was clear, once they accepted the abortive and abruptly terminating cases as being caused by the serum, that early injection of the serum was to be sedulously sought. The figures, small as they were, also pointed to better results in those cases which were injected during the first three days as compared to those injected at later periods of the disease. On the other hand, several favorable results had been recorded in cases treated in the fourth, fifth and eighth weeks of the disease. One might suppose that as long as living and multiplying diplococci remained in the membranes and their fluid, the serum might be of value. It was clearly of no avail in the treatment of symptoms resulting from chronic obstructive lesions of the membranes. They believed that the data at hand warranted a wider use of the serum, especially as no other and better means were at hand for combating the disease. It would, however, be calamitous just at present to use the serum indiscriminately and without proper and bacteriological control of the case.

Dr. HENRY HEIMAN reported his own experience with Dr. Flexner's serum. The first case was that of a child one year old, admitted on the twenty-second day of the disease. A lumbar puncture was performed on the day of admission, yielding a fluid in which meningococci were readily found in smears and on cultures. The next day, the twenty-third day of the disease, 32 c.c. of cerebrospinal fluid was withdrawn and 12 c.c. of serum injected, this being all that was available to him at that time. A puncture performed on the next day yielded only a few meningococci, which failed to grow on the usual media. During the next two days, 30 c.c. and 15 c.c. respectively of serum were injected after the withdrawal of only 10 c.c. of cerebrospinal fluid, previous to each injection. In these fluids meningococci could not be demonstrated in smears or on cultures. The child died on the thirty-first day of the disease with fuly developed symptoms of posterior basic meningitis. The second case was a patient one year old and was admitted to the hospital on the fifteenth day of the disease with a temperature of 104°. The next day 35 c.c. of cerebrospinal fluid was withdrawn and 35 c.c. of serum injected. Spreads and cultures yielded meningococci. No subsequent puncture was made, as it was not considered indicated. The temperature dropped to normal within twelve hours after the injection of the serum, at which level it remained during the subsequent course of the disease. The patient was discharged cured twenty-three days after admission. These cases were instructive from several points of view. First, the injection of antimeningitic serum was apparently followed by no harmful results. Second, the apparently bactericidal effect of the serum. Third, the harmlessness of injecting more serum than the cerebrospinal fluid withdrawn. As in the case of any curative serum early injections were desirable.

Dr. MORRIS MANGES said that there had been one case at the hospital which was of special interest and which he would report in full at some later meeting. The patient was a diabetic woman with typical cerebrospinal meningitis who made a complete recovery under the serum treatment.

The Recent Epidemic of Poliomyelitis.—Dr. V. P. GIBNEY and Dr. CARLETON WALLACE presented this communication. The occurrence of the epidemic during the summer months suggested a mode of infection through the intestinal tract. In getting the histories, it not uncommonly appeared that the paralyses were preceded by diarrhea or dysentery. They were able to get accurate data in 100 cases. It was found that diarrhea and vomiting occurred in 10, vomiting and constipation in 11, diarrhea

alone in 11, constipation alone in 11, and vomiting alone in 11, making 63 that were at least the objects of suspicion. At the Hospital for Ruptured and Crippled the cases were admitted during 1900 as follows: In June 4 cases, in July 3 cases, in August 7 cases, in September 11 cases, in October 14 cases, making a total of 39 cases. During 1907 there were admitted in June 17 cases; in July 24 cases, in August 86 cases, in September 138 cases, in October 122 cases, making a total of 387 cases, or nearly ten times the number that came under observation in the summer and fall of 1906. A point of interest was the comparative statement of the ages. For instance, during 1907 there were 36 cases that developed during the first year of life, while in 1906 there was only one. There were 105 during the second year this summer, and 14 last. Cases developing during during the third year numbered 97 in 1907, 12 in 1906. During the fourth year, 60 this summer, 5 last. Between five and eight years, 18 this summer, none last, and there were 4 who developed the disease after the twelfth year in this epidemic, while there were none last summer. This showed pretty conclusively that the present epidemic included children beyond the infantile period of life. Whether this had any bearing on milk as an etiological factor they were unable to say. Their treatment would be, so soon as the diagnosis was established, about as follows: Protect the limb or limbs from strain at the joints by means of a trough, either of wire or wood or light steel, well padded with cotton batting; the feet should be kept at right angles with the legs, and the knees should be kept in slight flexion or very nearly straight, and the thighs on a line with the long axis of the body. In other words, they should aim to prevent any deformities which would arise by the false positions into which the child placed the limb to prevent strain. The limb in these false positions became fixed sometimes by contractions and then contractures, and so long as the opposing muscles might be more or less completely palsied, deformity was easily induced. Massage or electricity or any excitants of the muscles or nerves should not be resorted to until one felt very sure that all inflammatory changes had undergone resolution in the cerebrospinal axis. They should avoid straining the capsule or ligaments of the joint because, when they were weakened, the muscles were called upon to still greater effort. As a further remedial measure in these early cases they recommended artificial hyperemia of the parts in the neighborhood of the cord, such as cupping in young children, the Paquelin cautery in older ones, iodine, and other forms of counterirritation, if more vigorous ones could not be employed. They had treated six or eight cases at the hospital over a period of six or eight weeks, and practically no treatment had been employed other than rest in bed.

Previous Epidemics of Poliomyelitis.—Dr. L. Emmett Holt said that twenty-nine epidemics of poliomyelitis had been reported prior to the present year, and these epidemics were widely separated as to time. The first one reported was in Louisiana in 1841, and they had been reported from all over the civilized world. The most extensive ones occurred in Norway and Sweden. During the decade ending in 1881 six epidemics were reported; during the present decade nine. In fifteen epidemics the number of cases was less than twenty; in seven, twenty-five; in only four were there over one hundred cases. In Australia in 1904, 168 cases were reported; in the epidemic at Rutland, Vt., 108 cases; in Norway, 268 cases. By comparison the present epidemic in New York City was much the largest on record. In the present epidemic cases occurred simultaneously or at short intervals in the same family. There were several instances in which two children in the same family were affected. There were two such instances in Elizabeth, N. J. The occurrence of the epidemic in the hot months, July, August, and September, was strikingly uniform; the epidemic terminated in October. With regard to its association with other diseases, the range was wide, and included whooping cough, measles, diarrheal diseases, etc., and no deductions could be drawn from the association of poliomyelitis with other diseases. In regard to the topographical location, area, and surroundings, it seemed to occur more during a small or little rainfall, when the streams were low. The sanitary surroundings were good in five, and bad in two epidemics, and the disease affected all classes of society. The majority of the patients were under four years of age. In the Rutland, Vt., epidemic one patient was seventy years old. The highest mortality was forty-one deaths among 210 cases. In the Norway epidemic of 1904, there were six deaths among 41 cases. In ten epidemics with 541 cases, there were 60 deaths. During 1905 and 1906 in Norway there were 1,053 cases and 145 deaths, a mortality of over 13 per cent. The question was raised whether this epidemic was likely to be followed by an increase in the number of sporadic cases. With regard to the etiology, no conclusions as yet were warrantable.

Dr. A. Jacobi said that the question of the existence of poliomyelitis had come up many, many years ago, and 100 years ago symptoms were described which undoubtedly pointed to this disease. Fifty years ago Dr. Jacobi had had the opportunity of seeing some cases in New York City and neighborhood. They were generally the chronic cases and gave a history something as follows: The child felt well, was put to bed, slept well, but was taken up the next morning paralyzed. Or a child was taken ill and it was thought it had pneumonia, scarlet fever, or acute rheumatism. When the child was moved it was noted that he was paralyzed on one side. Fifty years ago poliomyelitis was not considered a "feverish" disease at all. It was found that almost invariably the child would be taken suddenly sick, and became paralyzed in one or two limbs; if in two, one would recover soon, and the other would remain paralyzed. Sometimes an arm would become paralyzed on the fourth, fifth or sixth day. They might begin to improve on the fifth or sixth day; or they might improve for a few weeks and then come to a complete standstill with atrophies and deformities finally. In 1840 a large number of cases were reported and in 1860, 150 cases were reported by orthopedists; they saw these cases of a chronic character and, therefore, never saw a fatal issue. It had been shown that not only the spinal cord, but the brain and medulla were affected in a large number of the cases, and Clark's column particularly. A great deal of pain had been complained of by many showing that not only the anterior horns were involved but also other portions of the cord. There had also been noted a large number of isolated hemorrhages in the tissues of the cord, brain, and medulla. In some instances the first symptoms noted were, not the paralyses, but somnolence, mental apathy, etc., showing that they were dealing with not only a poliomyelitis but also a polioencephalitis. That was why the medulla reflexes were not extinct all at once, and it took longer for the paralyses to develop than if they had been cases of poliomyelitis exclusively. In the Stockholm epidemic thirteen years ago, 44 cases were reported; of these 44 cases there were three patients with paralysis of the facial nerve on one side only; there was one that began with facial paralysis only; and there were five that had facial paralysis together with a number of other symptoms. There were five other cases in which there was a paralysis of the abducens; and in some other cases paralysis of the hypoglossus. This proved that not only did the disease affect the spinal cord, but the brain as well. Most of the literature on the subject during the past few years came from Norway and Sweden. Anatomically they were understanding the disease, but pathologically little had been told. We knew a great deal about the anatomy which proved that they were beginning to learn something about the disease.

Dr. Henry Koplik said that poliomyelitis was a term covering a symptom complex; the composite picture of the

disease was something to-day that he had never seen before in New York. Clinically, he said he had been impressed with a few facts. One was that there were three distinct sets of cases in the present epidemic: First, those cases beginning with cerebral symptoms. For the first few days there would be a slight fever, a little rigidity, and symptoms of so-called meningism, but not a meningitis. The children would lie almost completely paralyzed. Some of these cases would awaken from a dream and after three or four days there would be a marked paralysis. There were cases which impressed him as being bulbar cases; cases in which a fatal issue resulted. In some the attack would begin with cerebral symptoms and paralysis of four extremities. In some cases the paralysis affected the muscles of respiration and the children passed away with bulbar symptoms. Second, the neuritic cases, cases that were taken for acute infectious neuritis. The pains in the joints would keep the child awake at night. Some of these would be accompanied by cerebral symptoms at first. Third, the typical classical cases of poliomyelitis. The child would go to bed and awake with paralysis of one or more extremities. In this epidemic there were some remarkable and striking recoveries, in some instances, recovery occurring in a few days. Another point of interest was the rapid atrophy of the muscles, as well as the rapid contractures. Some cases showed a paralysis of the facial muscles; some gave a history of tonsillitis; some came on with symptoms of what one saw following diphtheria, a paralysis of the facial, the ocular, or faucial muscles.

Dr. Henry Heiman said that during the recent epidemic he had had an opportunity to study forty cases of anterior poliomyelitis. There were 23 females and 17 males. The most common age was two years (11 cases). The youngest patient was seven weeks old, the oldest nine years old. The onset was sudden in 34 cases, and gradual in six cases. The two most prominent features of this epidemic were, the not infrequent onset of the disease with symptoms of meningeal irritation, and the occasional occurrence of bulbar symptoms. These cases resembled so closely cerebrospinal meningitis that in the early period of the epidemic an erroneous diagnosis of meningitis was occasionally made. Seven of the 40 cases presented bulbar symptoms. In some of these there were present dyspnea, stertorous breathing, cyanosis, inequality of the pupils, strabismus, tremor of the eyelids and tongue, facial paralysis, dysphagia, rigidity of the neck, and twitching of the extremities. Three types of these cases could be distinguished. First, those with bulbar symptoms alone. Second, those beginning with bulbar symptoms and followed by paralysis of the extremities. Third, those beginning with paralysis of the extremities followed by bulbar symptoms. Blood cultures were made in five cases with negative results. Lumbar puncture was performed in six cases. In one epidemic of cerebrospinal fluid 30 per cent. polynuclears were found: in another the sugar reaction was faint. In the remaining four nothing abnormal was found. White blood counts were made in nine cases. The minimum count was 5,000, the maximum, 23,000, the average being 13,000. Four of the seven bulbar cases ended fatally. Autopsies were obtained in three cases. The macroscopical appearance was as follows: There was marked congestion of the gray matter of the cord in certain places. In these areas small hemorrhages were also seen. The white matter was diffusely edematous.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting Held Monday, October 21, 1907.

The President, Dr. Thomas E. Satterthwaite, in the Chair.

Successful Operation for the Formation of a Nasal Septum.—Dr. Chas. J. Proben presented a man, 32 years old, who had apparently innocently contracted an initial lesion on the tongue from intercourse with a woman who had been infected four or five years ago. Any abnormal practice was denied, nor had there been any genital infection. There was no doubt as to the syphilitic character of the lesion, for secondaries rapidly followed, for which he received constant treatment. About four months ago the nasal septum began to ulcerate, and the cartilaginous portion completely disappeared, leaving a direct communication between the anterior nares. One large aperture where two normally should have been caused a rather striking deformity, in consequence of which the man lost his position. The case was referred to Dr. Proben for operation two months ago. A large broad flap was taken from the upper lip extending down to the vermilion border and without penetrating the mucous surface. After freshening a surface inside of the nose in the median line, the flap was turned up into it and anchored by through-and-through sutures. The flap was then covered with skin grafts, which were held in place by winding catgut around them, and the wound in the lip was closed. The wounds healed without trouble and a very satisfactory cosmetic effect was obtained. A good, thick septum, allowing a little for future shrinkage, was visible; the breathing capacity was normal and the pharyngeal irritation had been relieved. The result was eminently satisfactory and the appearance of the patient was practically normal at a distance.

The Origin and Destination of Hydrochloric Acid.—Dr. William H. Porter said that in working out a logical theory for the formation of hydrochloric acid in the stomach a few fundamental facts must be recognized. First, the proteid molecule left the body by a process of oxidation reduction. Second, it had been shown that the cells of the gastric mucous membrane could produce sulphuric acid. Third, the hydrochloric acid was generally admitted to depend upon or come from the decomposition of the sodium chloride of the food. Fourth, the intake and output of sodium chloride was always equal. Fifth, the output of sodium sulphate was always greater than the intake. Sixth, the food contained an abundance of alkaline sodium phosphate, and very little neutral sodium phosphate. Seventh, the blood contained a considerable amount of the neutral phosphate. Eighth, the urine was rendered acid by the acid phosphate of soda. With these facts before us, we could work out easily a theory that fitted all the known data. The proteid molecule was drawn with oxygen into the protoplasm of the gastric epithelial cells, and there, by a process of oxidation reduction, sulphur and hydrogen were split off with the formation of sulphuric acid, which was discharged into the cavity of the stomach from the free surface of the cells. The sulphuric acid here attacked the sodium chloride, forming hydrochloric acid and sodium sulphate, thus increasing the sodium sulphate to be eliminated from the system. After the hydrochloric acid had served its purpose in the digestive tract, it reacted upon the sodium phosphate in the intestinal tract, restoring the sodium chloride lost in the stomach and producing the neutral phosphate for the blood. The neutral phosphate, escaping from the blood through the Malpighian tufts, came in contact in the uriniferous lobules with the uric acid, thus forming the acid phosphate and a urate. Considered in this light, the complete utilization of 150 grams of proteid material daily, after deducting the amount of sulphur required to form the taurochloric acid, left sufficient sulphur to produce 5.78 grams of sulphuric acid. This amount of sulphuric acid, acting upon the requisite amount of sodium chloride, would yield 4.29 grams of hydrochloric acid and 8.37 grams of sodium sulphate. The utilization of a smaller or larger amount of proteid material would naturally decrease or increase the production of the acids. Dr. Porter said the practical deduction to be drawn from this method of forming the acids was that when there was an increased pro-

duction of hydrochloric acid the individual was utilizing more than the 150 grams of proteid material, or there was a decreased production of taurochloric acid, or, estimating the production for a short time, as was commonly done, it might indicate a temporary increased oxidation reduction. Until some method was devised by which the total daily output of the acids could be practically estimated, all deductions were largely speculative.

Lack of Gastric Mucus and Its Relation to Hyperacidity and Gastric Ulcer.—Dr. J. KAUFMANN said he wished to report some observations which showed that the secretion of gastric mucus was a necessary function, and that lack of mucus led to serious disturbances. The presence of mucus was recognized by its most characteristic quality, its coherency. The presence or absence of mucus should be corroborated by the microscopical findings, which were very characteristic. When no mucus was present, no myelin drops could be seen; the field was absolutely clear everywhere, and the different elements, such as starch globules, gluten, yeast, etc., instead of being bound together by the coherent mucus into smaller or larger clumps, appeared singly and sharply outlined. Under normal conditions a moderate amount of mucus was present in the test breakfast; under pathological conditions the mucus was either increased, decreased, or absent. The amount of mucus did not go hand in hand with the amount of gastric juice. Lack of mucus might be due to different causes. There was either insufficient secretion or the secreted mucus was digested or it was dissolved by the action of bacteria, as in cases of bronchoblenorrhea. A certain amount of mucus was possibly digested by an active gastric juice. No matter what the cause of the lack of mucus, we were justified in concluding that the lining of the stomach was not well covered with mucus when we found none in the gastric contents after a test breakfast. It was at once obvious what this meant. The mucus was the protective agent of the gastric mucosa. In cases where no gastric juice or gastric juice of low acidity was secreted, it might not be of great importance whether the mucosa was covered by a thick or a thin layer of mucus. This was altogether different in cases with an active gastric juice, especially when it was of high acidity, because it was the layer of mucus which protected the mucosa against the action of the acid secretion. We were all familiar with the various subjective symptoms which occurred in patients who suffered from hyperacidity. The speaker said an analysis of a great many histories had convinced him that these symptoms were most pronounced in those cases where the stomach contents were found entirely free from mucus. No treatment removed more quickly all the so-called hyperacidity symptoms than the application by lavage of solutions of silver nitrate. In such cases distinct quantities of mucus were found in the stomach contents after the treatment with silver nitrate, whereas the examination made before the treatment had revealed no mucus at all. The effect of insufficient covering of the mucosa might lead to more serious disturbances than mere discomfort and pain. Experiments had shown that the layer of mucus protected the mucosa against mechanical, thermic, and chemical insults, and we might also assume that it was the best protection of the gastric mucosa against the action and invasion of bacteria. When once injured, even though slightly, the damaged part became more prone to the invasion of bacteria and to the digestive action of the gastric juice. Thus we saw that the lack of mucus also played a rôle in bringing about the first lesion of the gastric mucous membrane. That in such cases the first superficial lesion might gradually grow and become deeper became clear when we considered the chronic nature of gastritis, which at the same time caused both the lack of mucus and the hyperacidity. The persistency of both of these disturbances explained the development of gastric ulcer and also its chronic character. Treatment which brought about an increase of gastric mucus helped to cure the ulcer. An increase of mucus, although apparently pathological, might often prove to be nothing but a more active manifestation of a useful function, which served to protect the mucous membrane. Lack of mucus, however, should be considered as an unfavorable symptom.

The Surgical Treatment of Gastric Ulcer.—By Dr. OTTO G. T. KILIANI. (See page 846.)

Modern Methods in the Treatment of Gastric Diseases.—Dr. A. ROSE said that a rational therapy in the treatment of affections of the stomach presupposed an exact diagnosis. In order to arrive at an exact diagnosis in gastric as well as other diseases, it was necessary to take the general conditions into consideration, notably of the circulatory and respiratory apparatus and the nervous system. Physical and dietetic methods of treatment had more and more asserted themselves in modern times, not only in therapeutic measures generally, but also in the treatment of gastric and intestinal disorders in particular. Physiologico-chemical exploration of the stomach and examination of its contents was indispensable in many cases, but the opinion entertained for some length of time that neither a correct diagnosis nor a rational therapy was possible without an examination of the contents of the stomach had proved an unfounded exaggeration. It was not so very long ago that almost every conceivable case of gastric disorder was irrigated. The conditions had now been exactly defined where irrigation of the stomach was indicated, where it was superfluous, and where it was harmful. In the treatment of affections of the digestive tract, diet, of course, played the most important part. In the two affections of hyperchlorhydria and achylia gastrica, dietetic measures formed in most cases the exclusive treatment. The palmy days of the manufacturers of all kinds of pepsin and pancreatin preparations, etc., would probably soon be over, as soon as the causes of the anomalies of gastric secretion had become better understood. The axiom was gaining ground that the replacement of deficient gastric juice by the artificial article could not constitute the scientific remedy. The fact that hyperchlorhydria depended on anomalous nervous conditions had been established by the experiments of Pawlow. The relaxation of the abdominal muscles might be the cause of many nervous disorders which in turn produced gastric symptoms or anomalies of gastric secretion, and if we did not consider this mechanical cause of the gastric affections and remove it first of all, our purely medicamental treatment would be unscientific. Atony and dilatation were identical, a relaxed muscle fiber being at the same time elongated. Modern gastrotherapy was to be based, so far as anomalies of gastric secretion were concerned, on the consideration of nervous and mechanical conditions.

Modern Methods in the Surgical Treatment of Gastric Diseases.—Dr. FRANZ TOREK said the technique of gastric surgery had come more prominently into the foreground since physicians had begun to understand that many cases diagnosticated as chronic gastritis were in reality cases of malignant tumor or of congestion due to mechanical obstruction by an open ulcer or its resulting cicatrix. Unless a distinct cause for gastritis could be traced, such as alcoholism, errors in diet, etc., the other possibilities should be kept in mind and proper measures should at once be taken for making a correct diagnosis. Many cases would then be found to be not chronic gastritis, but some malady requiring surgical treatment. Of the operations upon the stomach, the most important were gastroenterostomy and resection; the former for ulcer and for pyloric obstruction from whatever cause, the latter occasionally for ulcer, but more particularly for the removal of operable cancer. After describing in detail the various gastric operations, and demonstrating the steps in their technique by means of diagrams, Dr. Torek said that when we

looked over the progress that had been made in the surgery of the stomach during the past few years we found that it consisted mainly in an elaboration of certain details in the technique, including improvement in the construction of certain instruments. Improved technique helped us to guard our asepsis still more strictly, and also enabled us to employ the suture much more frequently, where formerly we preferred mechanical appliances, like the button. It was therefore in this branch of surgery, the same as in all other branches, the attention to minute details which was responsible for a great part of the progress made in the art and the improvement in the results achieved.

Dr. Willy Meyer referred to the great difficulty experienced by surgeons in getting cases with carcinoma of the stomach under their care early. He emphasized the importance of the fact that the earlier an exploratory operation was performed in a suspicious case of cancer of the stomach, the better. Unfortunately the virulence of carcinoma was extremely varying. A large malignant gastric tumor, diagnosed late and extirpated, might never return, whereas a small sized cancer of the pylorus, diagnosed by exploratory incision and operated at once, would take the patient's life by multiple metastasis within a very short time. Regarding benign troubles, he would only refer to neurosis of the stomach, a clinical entity, the diagnosis of which would usually be made from the history of the case and its wonderful obstinacy to all kinds of treatment offered by internal medicine. There were cases of pure gastric neurosis in which all the symptoms pointed to a gastric ulcer, and yet nothing whatever was found on operation. If the surgeon resorted to a gastroenterostomy in such a case, the result was usually disastrous, whereas a simple exploratory incision for thorough inspection and palpation effected a cure. The speaker urged that any case of neurosis of the stomach that resisted medical treatment should be submitted to an exploratory operation.

Dr. Robert T. Morris said that he not infrequently had cases referred to him for supposed ulcer of the stomach which were not proper cases for operation at all. Upon investigation they proved to be cases of neurosis of the stomach, due either to a neurotic inheritance or precipitated by some peripheral irritation, such as an eye strain. These cases must be eliminated at the outset. The speaker said he had recently operated on a case that gave all the typical symptoms of gastric ulcer, *i.e.* epigastric pain, with vomiting of blood and mucus. Upon opening the abdomen he found a band of adhesions extending from the stomach to the bile tract; there was no infiltration nor induration. Upon dividing the adhesions the vomiting and pain ceased, and the patient had since remained well. Dr. Rose had stated that atony and dilatation were synonymous, and the speaker said he could distinctly recall a few cases in which there was dilatation due to adhesions, with muscular hypertrophy of the walls of the stomach. In operating on the stomach Dr. Morris said he had discarded the various mechanical devices and had come back to the suture. He now favored a single suture with a large needle, for the reason that fine suture material frequently cut through the tissues. To save time he did not as a rule suture the mucosa unless there was a good deal of hemorrhage. He had also discarded the use of the various ingenious forceps, preferring to rely upon the fingers and the aid of a good assistant. He emphasized the fact that in the past surgeons had been too much afraid of sepsis in these operations, ignoring the fact that in the presence of an ulcer or a malignant lesion the local phagocytosis was such that it was almost impossible to get up a sepsis if we used a reasonable amount of care.

Dr. Richard Ward Westbrook of Brooklyn, N. Y., said he was particularly interested in Dr. Kaufmann's last contribution to the etiology of gastric ulcer. In regard to the surgical treatment of gastric ulcer, the speaker said he was in entire accord with the views expressed by Dr. Kiliani. He favored gastroenterostomy by the posterior method, and in a certain class of cases of ulcer, where one could not tell macroscopically whether he was dealing with ulcer or beginning malignant disease, he thought a resection was indicated. He had never seen a case of gastric hemorrhage, due either to ulcer or cancer, in which the bleeding did not cease spontaneously, and he was decidedly opposed to operating in the acute stage. In dealing with the complications of gastric ulcer, too much should not be expected from gastroenterostomy, and Dr. Westbrook said he could recall especially bad results in cases where there were widespread adhesions about the stomach. In dealing with such extensive adhesions, he did not think they could be relieved either by the operation of Mayo Robson (gastrolysis) or a gastroenterostomy. The speaker said he had never had the misfortune to open the abdomen for the relief of a neurosis, and he thought such an accident could be avoided by careful observation of the patient, combined with great care in the taking of the history. On the other hand, he had had excellent results with gastroenterostomy where a typical history of chronic ulcer could be elicited, but where no lesion could be demonstrated at operation.

Dr. Jonathan G. Wells said the lack of gastric mucus and its relation to hyperacidity and gastric ulcer, which Dr. Kaufmann had discussed in his paper, was a subject that had been scarcely touched upon in the literature. In cases of hyperchlorhydria he had been often struck by the fact that the gastric juice was very fluid and free from mucus. He had noticed an increase of mucus in ulcers which were healing. Although this is not a positive sign, we are getting good results, as it is possible to have an ulcer persist with large amounts of mucus. Dr. Kaufmann's theory that the lack of mucus, by not giving the mucous membrane its proper protection, makes it more subject to injury followed by ulcer, seems to be reasonable and will probably account for a large proportion of the ulcers. Among 30,000 deaths recorded by one of our large insurance companies there were only 135 deaths due to ulcer. This either shows that the general practitioner is poor at diagnosis or that deaths from ulcer are very rare. Dr. Kiliani's paper dealt with the surgical treatment of ulcer most admirably and much less radically than is the tendency at the present time.

Dr. Robert Coleman Kemp, in discussing Dr. Kiliani's paper on the surgical treatment of gastric ulcer, said that many physicians were inclined to keep these patients under their observation for too long a time before turning them over to the surgeon. After referring to the value of the rest cure in certain instances, the speaker said that his own point of view was that all cases of gastric ulcer, especially in patients who were self-supporting, that did not show improvement after a fair course of treatment, should be turned over to the surgeon. This particularly applied to cases in which there was constant hemorrhage and loss of weight, and especially where there was stenosis of the pylorus, as evidenced by the clinical symptoms.

Dr. Max Einhorn said he had frequently noted a lack of mucus secretion in achylia gastrica. There were a distinct class of cases of gastric ulcer that were amenable to surgical intervention, and those were the ones where the ulcer was near the pyloric orifice. The length of time during which a patient had been under treatment was no criterion as to whether he should or should not be operated upon; the important point was, how had he been treated? We could not always assure these patients that an operation would relieve them.

Urethral Growths.—Fungating tumors of the urethra are best removed with a sharp curette whose handle furnishes a continuous irrigation of a bactericide.—*American Journal of Dermatology.*

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held October 28, 1907.

THE PRESIDENT, DR. WALTER LESTER CARR, IN THE CHAIR.

Executive Session.—After the nomination of officers, censors, and delegates to be elected at the one hundred and second annual meeting to be held November 25, the scientific program was entered upon. This program was arranged by the Committee on Public Health.

The Prevention and Disposal of Dust.—Dr. WALTER BENSEL, Commissioner of Street Cleaning, made a report of the work of his department, of the difficulties encountered, and illustrated his remarks with lantern slides, showing pictures of various phases of the departmental work, of the working men, of their tools, their wagons, stables, sprinkling carts, flushing outfits, incinerators, etc.

Concerning the Effects of Dust on the Human Organism.—Dr. HARLOW BROOKS read this paper, in which he discussed certain of the more obvious problems. Dust entered the body through practically all its chief channels. Upon the skin it acted indirectly as a disease producer. It entered the digestive tract and was relatively important as bacterial and protozoal infections might be induced, and as early decomposition of food products was so favored. There was no doubt but that typhoid fever was largely disseminated in this manner. But except for certain of these intestinal diseases, among which might be included bacterial and amebic dysentery, dust played but a minor part in the production of infections by this route. Dust was an exciter of ophthalmic disease, especially during epidemics of conjunctivitis. The tract most frequently and seriously diseased as the result of dust was the respiratory, and the most serious lesions produced by the inhalation of dust occurred in the pulmonary parenchyma. Statistical data showed definitely that patients the subjects of pneumokoniosis were especially prone to attacks of acute bronchitis, to pneumonia, and all other forms of pulmonary infection, and especially to pulmonary tuberculosis, as stated by many observers, notable among whom was Merkel. Added to these changes in the lung tissue, which have at the same time decreased its functional possibilities and lowered its resistance against secondary processes, there were great deposits of dust in the lymph nodes. They found these nodes increased in size and black with the dust contained therein. When one considered the important rôle which these glands played in the protection of the body from pathogenic organism which entered through the respiratory tract, one could well appreciate the reason why in these cases lymphoid tuberculosis was the rule. He had found tuberculous lesions almost universally present when pneumokoniosis had brought about this condition in the lymph nodes, and in New York City they might be looked upon as constantly associated lesions. It seemed that the dangerous quality of inhaled dust lay chiefly in two characteristics, one on the physical character of the dust, the other on its organic nature. With very finely comminuted and light dust the resultant lesions of the lungs were much more innocent and secondary pulmonary diseases were much less frequent as a result. On the contrary, dust which contained sharp pointed and jagged particles, inflammatory and irritative changes were much more constant and diffuse and secondary infections, as with tuberculosis, were much more frequent. Dust which was chiefly injurious on account of its organic character was such as contained organisms or organic material which were prone to excite disease in the body, as the dried sputa of tuberculous subjects. Other infections so transmitted were those of anthrax, glanders, diphtheria, actinomycosis, and bubonic plague. Obviously the dust which was most detrimental of all to the human body was one which combined the characteristics of both classes. Pneumokoniosis was practically a universal condition in all adults who had lived in New York City for any considerable length of time; and associated with this was a pulmonary fibrosis of greater or less degree, with a practically constant more or less active bronchitis. In some 80 per cent. of instances tuberculous lesions, which were undoubtedly associated in origin with the primary lesions, were also found. More or less anthracosis, fibrosis, and necrosis of the adjacent lymph nodes was also persistently present. In practically every case the plexus of nodes at the tracheal bifurcation was chiefly involved, and in over 90 per cent. of these it was associated with tuberculous and fibrotic foci. Even a cursory microscopic examination of the composition of New York dust showed a truly wonderful array of pathogenic factors. Dr. Brooks offered the following conclusions: (1) Dust in itself was productive of serious disease conditions, particularly of the respiratory and digestive tracts. (2) These primary conditions predisposed to secondary lesions, particularly to pulmonary and lymphatic tuberculosis. (3) Many contagious and infectious diseases were transmitted through the agency of dust. (4) In a city the size of New York the production of large quantities of dust, often of a highly dangerous character, could not be prevented. (5) Dust could in most instances be relatively and economically collected and disposed of and the production of unnecessary dust could be and should be prevented by properly framed and enforced regulations.

The Mortality of Dusty Trades.—Mr. FREDERIC HOFFMAN, statistician of the Prudential Insurance Company, read this paper by invitation. His conclusions were that in its final analysis labor efficiency depended primarily upon the health, strength, and long life of the individual workman. As long as the present waste of health and life in industry continued our industrial efficiency as a nation must fall lamentably short of the attainable maximum. It was evident that dusty trades in particular exacted a heavy toll in human life at a period when such lives had their highest economic value. The loss to the nation could not be even approximately estimated upon the fragmentary data available, while the suffering and sorrow of the class affected was equally incalculable. Far-reaching changes and improvements were necessary in factory construction and in the sanitary conditions under which labor in dusty trades was carried on. Much had been done, it was true, but as yet the conditions as to air, ventilation, and light were very often far from satisfactory, and efforts tending in this direction were not as promising of good results as would be desirable. The danger of a dust-laden atmosphere required to be better understood and the facts brought home to the individual workman by a more rational system of education. The problem of effective ventilation in workshops required to be more scientifically studied, with a due regard to the best conditions under which industry could be carried on. Factory inspection should be made to rest upon a medical basis, and the periodical physical examination of persons employed in dusty and other health-injurious trades required to be provided for whether upon a voluntary basis or by statutory enactments. The vital statistics of different trades required to be collected with more care and their analysis demanded more qualified treatment. The education of students in medicine should be made to include a course in industrial hygiene, with special reference to the pathology of dust inhalation. The microscopy of the configuration of dust required to be more thoroughly investigated along with more qualified observations upon the medical aspects of the relation of dust disease. There was also need of a higher grade of microphotographs illustrating the different forms of dust to which working people in various trades were continuously exposed and in which an admirable beginning had been made in Dr. Migerkas' monograph on "Dust Varieties," with textual explanations. This work, published in Ger-

man, had not, so far as he knew, been reproduced in English, but many of the illustrations had been reproduced in Oliver's "Dangerous Trades." A more general recognition of dust as a cause of disease would gradually result in much needed improvements, including a more intelligent disposal of the dust and refuse of homes and municipalities. The most important fact disclosed by investigations into the mortality of men employed in dusty trades, however, was the extraordinary proportion of deaths from lung diseases at ages from twenty-five to forty-four. Only by a qualified, periodical medical examination of workmen engaged in such trades could the early symptoms of disease be recognized at a time when proper treatment would with practical certainty produce a cure. The best advice which could be given to workmen in such circumstances was the emphatic suggestion for an early and complete change of employment. Since fibroid phthisis was of much slower growth than the typical form of pulmonary tuberculosis the symptoms were less easily recognized, but the prognosis was more certain when the facts of occupation were taken into account. This suggested a repetition of the remark by Ramazzini more than two hundred years ago, that the physician should inquire into the trade followed by the patient, for, as he said, a just regard to the fact of employment "would be of greater service in facilitating the cure." Even the most radical factory legislation, resting upon a medical basis and carried out by medical inspectors, could not hope to reach a large number of persons individually employed under conditions of continuous exposure to a dust-laden atmosphere. The general practitioner in such cases was the only hope of the afflicted patient, and sensible advice resting upon a thorough knowledge of the facts of industrial diseases would no doubt, in many cases, be followed and prove productive of excellent results. The distinction between fibroid phthisis and ordinary tuberculous disease, whether acute or chronic, was vital. Fibroid phthisis was a specific trade disease affecting chiefly persons employed in dusty occupations. The workman should be made to realize the difference and the more hopeful outlook for relief and cure where the symptoms clearly indicated the case to be one of fibroid phthisis, and in such cases no better advice could be given than that of the Department Committee, that if the workman left the dusty employment for work in agriculture, or in some other occupation in air free from irritating particles, the disease might be practically arrested. No class of persons was entitled to more sympathetic consideration than those who, at the risk of life and health, ministered to the wants and needs of others, and whatever could be done to improve the conditions under which industry was carried on was the imperative duty of every employer of labor and the State. Not, however, until the facts of occupation, mortality, and in particular of dusty trades, were better understood and more intelligently used was there much hope for a material reduction in the waste of life and health in many industries and employments as carried on at the present time, and he could only hope that what he had said might contribute, however slightly, to this end.

Dr. William H. Park said it was difficult to find any bacteria in the dirt of the streets or houses. No pathogenic bacteria had been found, except when one went around the subway stairs, or elevated stations, or other places where people expectorated. The diseases caused were practically only those from street expectorations. If more care was taken only a moderate amount of bacteria would be cast off in this way. Bacteria in the sputum were protected by the mucus. On the higher places, as the high window sills or walls, no pathogenic bacteria would be found; they would be found at street crossings, but no higher up. Personally he did not think the street dirt was such a great factor in carrying infection, but if a child went out on the street on a dusty day one would expect him to be more likely to contract diphtheria or other contagious disease. Dust indirectly might be the cause. He thought that dust was, in a way, like sewer gas; it predisposed to disease. He related an experience he had some years ago in a small town in which a severe wind storm occurred. The day before there were but two cases of diphtheria; but two days following this wind storm thirty-two cases developed. While Dr. Park did not want to belittle the importance of what had been brought out, he could not believe that it was the dust which brought various diseases directly to us; it merely predisposed to them. He cautioned against laying too much or improper stress upon one side only; there were various agencies which together made up the causes of disease.

College of Physicians of Philadelphia.

At a stated meeting held November 6, Dr. John K. Mitchell exhibited "A Patient with Unusual Bony Growths." The patient was a young man who, following an attack of typhoid fever, presented tumorous excrescences upon a number of the long bones of the body which, while a source of inconvenience in movement, caused no discomfort. The condition exhibited a certain crude symmetry in distribution, and it was unyielding to all forms of treatment. Dr. Robert Le Conte presented a communication entitled "A Case of Retroperitoneal Undescended Testis Strangulated by a Twist." Successful removal was effected by surgical means, and the specimen was exhibited. A discussion was entered upon as to the causes of undescended testicle and the dangers arising from such a displacement, as well as the measures to be employed for their relief. Dr. Morris Jastrow, Jr., read a paper entitled "The Liver in Antiquity." He pointed out that the priests were the first physicians, but that gradually there came a separation of the two pursuits. Medicine is thus an offshoot of religion. In ancient times it was the practice to study the livers of sacrificial animals for divinations and auguries. The position of the gall-bladder and of the biliary ducts and the markings on the surface of the liver were accepted as indications of the outcome of various undertakings. The liver was thought to be the seat of the soul and the higher emotions, until the progress of anatomy demonstrated the importance of the heart as the center of circulation. At a later period a compromise was made by making the brain and the heart the seats of the nobler emotions and the liver the seat of the lower. Dr. Astley P. C. Ashhurst read a paper entitled "A Case of Perforation of the Gall-bladder During Typhoid Fever." He reported two cases, in one of which intestinal perforation was suspected, abdominal section was made, and, the patient dying, a perforation of the gall-bladder was found on post-mortem examination. In a second case a diagnosis of perforation of the gall-bladder was made and operation was undertaken within a few hours after the onset of the acute symptoms. The gall-bladder was removed and the patient made a perfect recovery and he was exhibited. Dr. G. E. de Schweinitz and Dr. T. D. Holloway presented a communication entitled "Pulsating Exophthalmos." They discussed the conditions of aneurysm and arteriovenous communication on which the affection commonly depends, and they considered at especial length the various methods of treatment. Traumatism is at times an etiological factor, the affection generally developing on the side injured, although occasionally it develops on the opposite side. Spontaneous recovery sometimes occurs. Compression has been employed, also ligation of the large arteries of the neck, but the best results have been secured from direct attack upon the vessels at fault in the orbit or back of the orbit. A man was exhibited who developed pulsating exophthalmos following a gunshot wound of the head and in whom temporary improvement only followed upon ligation first of the one and then of the other carotid artery. Permanent recovery, however, followed a blow over the eye.

Books Received.

The Medical Record *is pleased to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Diseases of the Skin. By Arthur Van Harlingen, Ph.B. (Yale), M.D. Large 8vo, 482 pages, muslin, illustrated, $3.00 net. P. Blakiston's Son & Co., Philadelphia.

Trypanosomes and Trypanosomiases. By A. Laveran and F. Mesnil. 4to, muslin, 540 pages, illustrated, $3.50 net. W. T. Keener & Co., Chicago.

Volume XVI, Nos. 401-61 and 459 Sammlung klinischer Vorträge. By O. Hildebrand, Friedrich Müller and Franz von Winckel. 4to, 96 pages and 104 pages, paper. Druck und Verlag von Breitkopf & Hartel in Leipzig.

Manual of Physiological and Clinical Chemistry. By Elias H. Bartley, B.S., M.D., Ph.G. 8vo, 202 pages, illustrated, $1.00 net, muslin. P. Blakiston's Son & Co., Philadelphia.

State of New York State Commission in Lunacy, Eighteenth Annual Report. Large 8vo, 1290 pages, half morocco. J. B. Lyon Company, Albany.

The Chemistry of Commerce. By Robert Kennedy Duncan. 293 pages, 8vo, half morocco, illustrated. Harper & Bros., New York.

Ueber das Tasten normaler Magenteile. By Dr. Theodor Hausman. Large 8vo, 38 pages, paper. Verlag Von S. Karger, Berlin.

The Quarterly Journal of Medicine. Edited by William Osler, J. Rose Bradford, R. Hutchison, A. E. Garrod, H. D. Rolleston, and W. Hale White. 4to, 106 pages, paper, illustrated. The Clarendon Press, Oxford.

Die Krankheiten des Verdauungskanals. By Dr. Paul Cohnheim. 4to, 252 pages, paper. Verlag Von S. Karger, Berlin.

Jahresbericht über die Verwaltung des Medizinal Wesens die Krankenanstalten und die öffentlichen Gesundheitsverhältnisse der Stadt Frankfurt A. M. Herausgegeben von dem Ärztlichen Verein. Mahlu and Waldschmidt, 1907.

Report on Advancements of Pharmaceutical Chemistry and Therapeutics. Vol. XX, 1906. E. Merck, Darmstadt, May, 1907.

The Pancreas, Its Surgery and Pathology. By A. W. Mayo Robson, D.Sc. (Leeds), F.R.C.S. (Eng.), and P. J. Cammidge, M.B. (Lond.), D.P.H. (Camb.). Large 8vo, 540 pages, illustrated, $5.00 net, cloth. W. B. Saunders Co., Philadelphia and London.

Proceedings of the American Medico-Psychological Association at the Sixty-second Annual Meeting. 8vo, 585 pages, ilustrated. American Medico-Psychological Association.

Practice of Medicine. By James Magoffin French, A.M., M.D. Large 8vo, 1252 pages, cloth, illustrated. William Wood & Company, New York.

Transactions of the American Otological Society. Large 8vo, 594 pages, paper, Mercury Pub. Co.

Transactions of the Maine Medical Association. 8vo, 176 pages, paper. Stephen Berry Co., Portland.

Tropical Diseases. By Sir Patrick Manson, K.C.M.G., LL.D. (Aberd.). 12mo, 876 pages, cloth, illustrated. William Wood & Company, New York.

Immunochemistry. By Svante Arrhenius. 12mo, 300 pages, cloth. The Macmillan Company, New York. $1.60 net

Primary Nursing Technique for First Year Pupil Nurses. By Isabel McIsaacs. 12mo, 107 pages, cloth, $1.25 net. The Macmillan Company, New York.

Clinical Therapeutics. By Alfred C. Croftan. 4to, 626 pages, muslin, $5.00. Cleveland Press, Chicago.

The Internal Secretions and the Principles of Medicine. By Charles E. de M. Sajous, M.D. 8vo, 1873 pages, illustrated, muslin. F. A. Davis Co., Philadelphia.

Diseases of Women. By Harry Sturgeon Crossen, M.D. Large 8vo, 800 pages, illustrated, muslin. C. V. Mosby Med. Book and Pub. Co., St. Louis.

Traite de l'Arthritisme. Par le Dr. D. Ds Grandmaison. 8vo, 496 pages, paper. A. Maloine, Paris.

Medical Ethics. By Robert Saundby, Edin. Large 8vo, 144 pages, muslin. J. B. Lippincott Co., Philadelphia.

Par l'Hyperemie. Par M. le Dr. Tuffier. 8vo, 46 pages, paper. Vigot Frères, Paris.

The Development of the Human Body. By J. Playfair McMurrich, A.M., Ph.D. 8vo, 528 pages, illustrated, $3 net. P. Blakiston's Son & Co., Philadelphia.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

Board of Medical Examiners of Maryland.

Baltimore, June 18-21, 1907.

ANATOMY.

1. Describe the frontal bone, including its articulations and sinus.
2. Name the branches and give the relations of the external carotid artery.
3. Give relations of liver. Name lobes of liver.
4. Name structures severed by amputation through middle of leg.
5. Name and locate ventricles of brain.
6. Name the forms of inguinal hernia and give the difference between them.

SURGERY.

1. Give the cause and treatment of external hemorrhoids—(a) palliative, (b) one operative method.
2. What are the indications for operative treatment in any form of hernia?
3. What are the signs and symptoms and what is the surgical treatment of a purulent effusion into the knee joint?
4. Give in detail the treatment of a recent compound fracture of the middle third of the tibia.
5. Give the differential diagnosis between acute inflammation of the middle ear and mastoiditis.
6. Give the evidences and treatment of a wound penetrating the bladder.

PATHOLOGY.

1. Name the organisms most frequently associated with each type of pleurisy and give in detail the method of staining of each organism.
2. Define thrombosis, embolism and infarction, and name the organs in which infarction most frequently occurs.
3. Define sarcoma and carcinoma. Give the various types and the chief avenues of extension of each, and name the sarcomata in the order of their malignancy.
4. Define the term general anasarca and give a gross pathological description of the lesion which usually gives rise to it.
5. Name the varieties of meningitis from a bacteriological standpoint and describe the elements you would expect to find in the fluid from a case of the epidemic variety.
6. Give the gross pathology of amebic dysentery. Describe the organism giving rise to it and name the pathological condition of the liver often associated with it.

OBSTETRICS AND GYNECOLOGY.

1. Give treatment for case of placenta previa
2. How would you manage a twin labor, one foot of each child presenting?
3. Diagnosis and treatment of ovarian cyst.
4. How would you treat a case of gonorrheal conjunctivitis in an infant?
5. What treatment would you adopt in a case of umbilical hernia in an infant?
6. How would you manage a posterior shoulder presentation?

PRACTICE.

1. Define (a) myxedema, (b) chlorosis, (c) tinea circinata, (d) enteritis, (e) tabes dorsalis.
2. Differential diagnosis between (a) hysteria and epilepsy, (b) cancer and ulcer of the stomach.
3. Give signs of arteriosclerosis.
4. Give symptoms of Graves' or Basedow's disease.
5. Give differential diagnosis between varicella and varioloid.
6. Give treatment of (a) uremia, (b) empyema, (c) pertussis.

CHEMISTRY.

1. Define the terms dialysis, osmosis, crystalloid and colloid.
2. Give the chemical name for cooking (baking) soda and washing soda, respectively, and state the general properties of each.
3. What, chemically, is glycerine? Give its chemical composition (formula). State its usual source and give its general properties.
4. Give in detail two reliable dissimilar tests for the detection of sugar in the urine.
5. Give the chemical composition (formula) of urea;

state the usual amount excreted in 24 hours, and give in detail a reliable method for its quantitative estimation.

6. Give in detail a reliable test for the estimation of the total acidity of a specimen of gastric contents.

MATERIA MEDICA.

1. Name the mineral acids and give the dose of each.
2. What are the preparations of the phosphates and their doses?
3. What are the official preparations and doses of iodine and the iodides?
4. What are the official preparations of ergot and their doses?
5. Give the official preparations and doses of nux vomica and its alkaloids.
6. What are the principal direct and indirect emmenagogues?

THERAPEUTICS.

1. What are the physiological effects and therapeutic uses of hyoscyamus and its alkaloids?
2. Give the physiological action of nitroglycerine, indications and contraindications for its use.
3. What do we understand by the term alterative, and name the principal drugs of this kind.
4. Describe in detail the treatment for tapeworm.
5. How do disinfectants act? Name the principal ones.
6. Define local and general anesthesia. Name means and method of producing and sources of danger.

PHYSIOLOGY.

1. What portion of the gastrointestinal tract accomplishes the greatest amount of absorption? (b) State what class of substances are absorbed in the stomach, small and large intestines.
2. What are the sources of oxygen and carbonic acid gas in the system? (b) What is the effect of each upon the blood? (c) What is the average quantity of oxygen in venous and arterial blood? (d) What are the symptoms of insufficient oxygen in the blood?
3. Explain the effect of muscular activity upon amount and character of metabolism of body, and the influence upon this metabolism of variation in the composition of the diet.
4. What are ptyalin, pepsin, and pancreatin, and in about what proportion are pepsin and pancreatin found?
5. Describe the condition known as apnea.
6. What becomes of the biliary salts which are constantly poured into the upper part of the intestinal canal? Give test for biliary salts.

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

BOARD OF MEDICAL EXAMINERS OF MARYLAND.

Baltimore, June 18-21, 1907.

ANATOMY.

4. The structures severed by amputation through the middle of the leg are: The skin; cutaneous vessels and nerves; aponeurosis; tibialis anticus, extensor longus digitorum, extensor proprius hallucis, peroneus brevis, peroneus longus, flexor longus hallucis, soleus, gastrocnemius, plantaris, flexor longus digitorum, and tibialis posticus muscles; anterior tibial artery veins and nerve; posterior tibial artery, veins and nerve; peroneal artery and veins; tibia, fibula, and interosseous membrane.

6. The forms of inguinal hernia are:
   (1) *The Direct*, in which the hernia does not occupy the inguinal canal, but leaves the abdomen to the inner side of the deep epigastric artery, through the space known as Hesselbach's triangle. There are two forms of this variety: (*a*) the hernia may escape between the epigastric artery and the obliterated hypogastric artery; (*b*) or it may escape between the obliterated hypogastric artery and the outer edge of the rectus muscle.
   (2) *The Indirect* or *Oblique*, in which the hernia occupies, wholly or in part, the inguinal canal. An *oblique inguinal* hernia may pass into the scrotum or labium majus, when it is called *complete;* or may be retained in the inguinal canal, when it is called *incomplete*, or a *bubonocele*. Other varieties are the *congenital*, *infantile*, and *encysted*.

SURGERY.

2. The indications for operative treatment in hernia are: In all forms of *femoral* hernia; in *inguinal* hernia when strangulated, irreducible, when a truss is unsatisfactory, or very painful, when obstruction occurs, or when taxis fails; in *umbilical* hernia, in the *infantile* form if persisting till puberty, and in *adults* if strangulated, and in other conditions if the patient is in a suitable condition for operation.

PATHOLOGY.

1. In *acute pleurisy* there may be found the tubercle bacillus, the pneumococcus, and the *Streptococcus pyogenes;* varieties of the *Staphylococcus pyogenes*, the typhoid bacillus, Friedlander's bacillus, and the diphtheria bacillus have also been found in cases of acute pleurisy.

In *purulent pleurisy* (*empyema*) there may be found the *Streptococcus pyogenes*, pneumococcus, tubercle bacillus, *Staphylococcus pyogenes, Micrococcus lanceolatus.*

In *tuberculous pleurisy* the tubercle bacillus may be found.

2. *Thrombosis* is the coagulation of the blood within the vessels during life.

Embolism is the plugging of a blood-vessel by a foreign body.

Infarction is the plugging of a terminal artery. It most frequently occurs in the kidneys, spleen, lungs, base of brain, retina, and heart.

3. A *sarcoma* is a malignant tumor of the connective tissue type, in which there is abundant cell formation with very scanty intercellular substance.

Sarcomata are classified:

I. According to the *form of the cell* which predominates, as Round-cell, Spindle-cell, and Mixed-cell Sarcomata.

II. According to the *stroma*, as Myxosarcoma, Chondrosarcoma, Fibrosarcoma, and Osteosarcoma.

III. According to the *secondary changes* which they may undergo, as Liposarcoma, Chloroma, Melanosarcoma, and Calcifying Sarcoma.

Sarcoma extends by the circulation.

The round-celled, the large spindle-celled, and the melanotic sarcomata are the most malignant; the giant-celled and the fibrosarcomata are among the least malignant.

A *carcinoma* is a tumor composed of epithelial cells with a tendency to proliferation and a stroma of connective tissue. The cells are atypical in their appearance, arrangement, division, and proliferation.

Carcinomata are classified as follows: I. Epithelial carcinoma or epithelioma, which may be (*a*) squamous, (*b*) cylindrical celled, (*c*) tubulated; II. glandular carcinoma, which may be (*a*) scirrhus, (*b*) encephaloid.

Carcinoma extends as a rule by the lymphatics, occasionally by the blood-vessels.

5. (1) *Cerebrospinal meningitis*, caused by the *Diplococcus intracellularis meningitidis.*

(2) *Tuberculous meningitis*, caused by the tubercle bacillus.

(3) *Pneumococcic meningitis*, caused by the pneumococcus.

(4) *Pyogenic meningitis*, caused by the *Streptococcus pyogenes*, and the *Staphylococcus pyogenes albus* and *aureus.*

(5) A meningitis may be associated with some of the acute infectious diseases; in such cases the typhoid bacillus, the bacillus of diphtheria, or the gonococcus may be present.

The fluid from a case of the epidemic variety might be expected to contain endothelial cells, leucocytes, some fibrinous material, and the *Diplococcus intracellularis meningitidis*, with some of the other bacteria mentioned above.

6. In amebic dysentery the mucosa of the large intestine is edematous and infiltrated, and finally ulcerated. These ulcers have undermined edges, and several of them may coalesce or connect by means of sinuses; the mouth of the ulcer is comparatively small. Much of the mucosa may be necrosed and slough, and the ulceration may extend down to the muscular coat or even to the serous coat of the intestine. Occasionally the lower portion of the ileum is involved as well as the large intestine. Perforation is rare.

The condition is due to the *Ameba dysenteriæ* or *Ameba coli*, an ameboid body, three or four times as large as a red blood corpuscle, granular in the center and clear at the margin, nucleated, and containing vacuoles, sometimes also containing pigment, bacteria, or other foreign matter.

Abscess of the liver is often associated with this condition.

OBSTETRICS AND GYNECOLOGY.

2. The foot of one child should be pushed up; and the foot of the other child should be pulled down, so as to secure a breech presentation.

3. An ovarian cyst is generally accompanied by menorrhagia or metrorrhagia, sterility, bearing down pain in the pelvis, which may radiate to the back or thighs, hemor-

rhoids or constipation, frequent micturition, and various other pressure symptoms of the digestive or respiratory apparatus if the cyst becomes sufficiently large. Later on there may be the *facies ovariana*, general impairment of health, and ascites. There are no pathognomonic symptoms. The diagnosis is made by bimanual palpation and (sometimes) exploratory incision. The condition is to be particularly differentiated from pregnancy and ascites.

The *treatment* is ovariotomy.

4. Treatment of gonorrheal conjunctivitis in an infant. Wash the eyes carefully every half hour with a saturated solution of boric acid; pus must not be allowed to accumulate. Two drops of a two per cent. solution of nitrate of silver must also be dropped on to the cornea every night and morning. The eyes must be covered with a light, cold, wet compress. The patient must be isolated, and all cloths and compresses used must be burnt.

5. Treatment of umbilical hernia in an infant: "A round disk of wood, a coin, or a button is wrapped in lint or some soft material, and kept in position over the umbilicus with a light elastic bandage or with strips of adhesive plaster, these appliances to be removed for cleansing purposes and replaced. Recovery occurs with subsequent closure of the ring. A much more serious form of umbilical hernia *rarely* occurs, with imperfect development of the abdominal wall, in which *large* protrusions of intestine and other abdominal organs take place. These require a plastic surgical operation." (King's *Manual of Obstetrics.*)

6. In cases of posterior shoulder presentation, if seen before labor, version should be performed to correct the malpresentation; in case of impaction a cesarean section is indicated; sometimes decapitation or embryotomy has been performed, but a cesarean section is preferable. Cases of shoulder presentation have been known to terminate spontaneously, but it is not advisable to rely on this possibility.

PRACTICE.

1. *Myxedema* is a condition characterized by atrophy of the thyroid gland, mental dullness, sluggish movements, and thick speech.

Chlorosis is a form of anemia characterized by a marked diminution in the amount of hemoglobin.

Tinea circinata is ringworm of the body.

Enteritis is a condition characterized by inflammation of the small intestine.

Tabes dorsalis is a condition in which the posterior columns and nerve roots of the spinal cord are degenerated; and which is characterized by incoordination, loss of deep reflexes, and various disturbances of sensation and nutrition.

2. (*a*) In *epilepsy* there will be a brief aura, sudden and complete loss of consciousness, pupils dilated and rigid, the tongue will be bitten (unless prevented), the sphincters may be relaxed, there may be a slight rise of temperature.

In *hysteria* there may be an aura of considerable duration, the onset is gradual, and consciousness is either retained or only partially lost, the pupils are generally mobile and active, the tongue is not apt to be bitten nor the sphincters relaxed, the temperature is generally normal. Hysteria is apt to be preceded by some emotional disturbance.

(*b*) *Cancer of the stomach* does not usually occur before forty years of age, is more common in males, the pain is localized and constant, vomiting is copious and occurs some time after eating; the vomitus contains "coffee ground" material; hemorrhages are common; a tumor may be palpated, and examination of the gastric contents shows absence of free HCl and presence of lactic acid; there is progressive emaciation; severe anemia and cachexia are also present.

Ulcer of the stomach is generally caused by injury or bacteria, is most apt to occur between the ages of twenty and forty five; after eating there is pain localized in the stomach, vomiting occurs soon after eating, hematemesis is common, there is localized tenderness over the stomach, and examination of the gastric contents shows an excess of free HCl.

3. The *signs of arteriosclerosis* are: A slow pulse of high tension, rigidity of the blood vessels, enlargement of the left ventricle, displacement of the apex beat to the left, the second sound of the heart is accentuated, harsh, and ringing.

4. In *Graves' or Basedow's disease*, the symptoms are: Rapid pulse, protrusion of the eyeballs, enlargement of the thyroid, and a fine muscular tremor.

5. In *varicella* the symptoms come on gradually; there is no prodromal fever; no pain in the back; the eruption appears on the first day, comes in crops, disappears on stretching the skin, and is not shotty.

In *variola* the symptoms come on very suddenly; there is fever; severe pain in the back, and headache; the eruption appears on the third or fourth day, as papules, becoming in turn vesicles and pustules.

CHEMISTRY.

1. *Dialysis* is the process of separating substances from a mixture by placing the latter in a vessel with porous walls and immersing it in water, when the more diffusible substance passes through the porous wall. This latter process is called *osmosis*. Substances which readily pass through this porous membrane are called *crystalloids;* those which do not are called *colloids*.

2. Cooking or baking soda is sodium bicarbonate, $NaHCO_3$.

Washing soda is sodium carbonate, Na_2Co_3+10 Aq.

The former is a white crystalline powder, with a slightly saline taste and a mildly alkaline reaction; it is anhydrous and quite soluble in water.

The latter forms large rhombic crystals, is decidedly alkaline, is efflorescent, and slightly soluble in water.

3. Chemically, glycerine is a triatomic alcohol. Its formula is:

$$\begin{array}{l} CH_2OH \\ \\ CHOH, \text{ or } C_3H_5(OH)_3 \\ \\ CH_2OH \end{array}$$

It is usually obtained as a by-product in the manufacture of soaps and of stearin candles.

Its *general properties* are: It is a colorless, odorless, syrupy liquid, with a sweetish taste; it is soluble in water and in alcohol, insoluble in ether and in chloroform; it is not ordinarily volatile; it is a good solvent for several substances.

4. Two reliable dissimilar tests for the detection of sugar in the urine: The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test*: Place in a test-tube a few c.c. of the liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presence of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Boettger's test*: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthaus' *Essentials of Chemistry.*)

5. The formula of urea is $CO(NH_2)_2$.

The usual amount excreted in twenty-four hours is from thirty to thirty five grams, or about an ounce to an ounce and a half.

A comparatively easy test is that of Fowler, based upon the loss of the specific gravity of the urine after the decomposition of the urea by hypochlorite. "To apply this method the specific gravity of the urine is carefully determined, as well as that of the liquor sodæ chlorinatæ (Squibb's). One volume of the urine is then mixed with exactly seven volumes of the liquor sodæ chlorinatæ, and, after the first violence of the reaction has subsided, the mixture is shaken from time to time during an hour, when the decomposition is complete; the specific gravity of the mixture is then determined. As the reaction begins instantaneously when the urine and reagent are mixed, the specific gravity of the mixture must be calculated by adding together once the specific gravity of the urine and seven times the specific gravity of the liquor sodæ chlorinatæ, and dividing the sum by eight. From the quotient so obtained the specific gravity of the mixture after decomposition is subtracted; every degree of loss in specific gravity indicates 0.7701 gram of urea in 100 c.c. of urine. The specific gravity determinations must all be made at the same temperature; and that of the mixture only when the evolution of gas has ceased entirely." (Witthaus' *Manual of Chemistry.*)

6. To estimate the total acidity of a specimen of gastric contents: Take 10 c.c. of the unfiltered gastric contents, obtained after a test-meal. Titrate this with a decinormal NaHO solution, using phenol phthalein as an indicator. As each c.c. of the NaHO solution corresponds to 0.00365 grams of HCl, the number of c.c. of the sodium hydroxide solution used, multiplied by 0.0365, gives the percentage of total acidity expressed in terms of HCl.

MATERIA MEDICA.

1. Mineral acids, with their doses: Dilute sulphuric acid, 30 minims; aromatic sulphuric acid, 15 minims; dilute nitric acid, 30 minims; nitrohydrochloric acid, 3 minims; dilute nitrohydrochloric acid, 15 minims; dilute hydrochloric acid, 15 minims; dilute phosphoric acid, 30 minims; sulphurous acid, 30 minims; boric acid, 7 grains.

2. The official preparations of the phosphates and their doses are: Codeine phosphate, one-half to two grains; soluble phosphate of iron, two to five grains; soluble pyrophosphate of iron, two to five grains; syrup of the phosphates of iron, quinine, and strychnine, one dram; elixir of the phosphates of iron, quinine, and strychnine, one dram; sodium phosphate, one-half to two drams; effervescing sodium phosphate, two to four drams; dried sodium phosphate, one-half to one dram; solution of sodium phosphate, one-half to two drams.

3. The official preparations and doses of iodine and the iodides are: Iodine, one-tenth of a grain; compound solution of iodine, three minims; tincture of iodine, one and a half minims; potassium iodide, seven and a half grains; sodium iodide, seven and a half grains; ammonium iodide, four grains; strontium iodide, seven and a half grains; zinc iodide, one grain; diluted hydriodic acid, fifteen minims; syrup of hydriodic acid, one dram.

4. The official preparations of ergot and their doses are: Ergot, thirty grains; extract of ergot, seven and a half grains; fluid extract of ergot, thirty minims; wine of ergot, two drams.

5. The official preparations and doses of nux vomica and its alkaloids are: Nux vomica, one grain; extract of nux vomica, one-quarter of a grain; fluid extract of nux vomica, one minim; tincture of nux vomica, ten minims; strychnine, one-sixty-fourth of a grain; strychnine sulphate, one-sixty-fourth of a grain; strychnine nitrate, one sixty-fourth of a grain.

6. The principal *direct emmenagogues* are: Apiol, cantharides, permanganate of potassium, ergot, rue, savine, tansy, pennyroyal, and guaiacum.

The principal *indirect emmenagogues* are: Iron, arsenic, manganese, quinine, strychnine, and aloes.

THERAPEUTICS.

2. *Nitroglycerin* causes a dilatation of the blood-vessels, fullness in the head, giddiness, buzzing in the ear, the heart beat increases in rate and force, arterial tension decreases; it is a cardiac and nerve depressant, respiration is first stimulated and then depressed, it produces frontal headache.

It is *indicated* in angina pectoris, cardiac dyspnea, chronic nephritis, with high tension pulse, vomiting, epilepsy, hiccough, sea-sickness, asthma, and other spasmodic disorders.

3. An *alterative* is a remedy which, in some way that is not understood, alters the course of morbid conditions

The principal alteratives are: Arsenic, mercury, iodine, sulphur, cod liver oil, phosphorus, colchicum.

4. The patient should be starved for from twelve to twenty-four hours, and early in the morning should take a capsule containing three or four grains of pelletierine, the active principle of pomegranate; in place of the pelletierine, one-half dram or one dram of the oleoresina aspidii may be given. This is to be followed by a calomel purge and Epsom salts. A rectal injection of salt and water will dislodge any segments of the tapeworm that may remain in the rectum after the purgative action of the calomel and saline.

5. *Disinfectants* act: (1) By destroying the bacteria and their products; (2) by acting as strong oxidizing or reducing agents; (3) by combining with the protoplasm of the bacteria and forming insoluble compounds; (4) by modifying the chemical reaction of the media in which the bacteria live.

The principal ones are: Heat, sulphur dioxide, chlorine, carbolic acid, formaldehyde, mercuric chloride, potassium permanganate, iodine, bromine, zinc chloride, creolin, hydrogen dioxide, chlorinated lime.

6. *Local anesthesia* is the condition in which there is loss of sensibility of the tissues over a limited area, due to the application of certain agents, such as cold, ethylene chloride, ether, cocaine, eucaine, or the infiltration of water, or a solution of salt, or of salt, cocaine, and morphine.

General anesthesia is a condition in which there is unconsciousness as well as abolition of sensation; it may be induced by the inhalation of ether, chloroform, nitrous oxide gas, chloride of ethyl, or a combination of certain of these agents.

PHYSIOLOGY.

1. (*a*) The small intestine is the portion of the gastro intestinal tract from which the greatest amount of absorption takes place.

(*b*) In *the stomach*, sugars and peptones are absorbed, fats, not at all; water, slightly or not at all; alcohol, readily; salts, slightly.

In the *small intestine*, sugars, proteoses, peptones, fats, water, and salts are all absorbed.

In the *large intestine*, water, salt, sugars, proteids, and fats are all absorbed.

2. (*a*) The *sources of oxygen* in the system are: (1) The oxygen inhaled in the atmospheric air; (2) the chemical decomposition substances in the body.

The *sources of carbonic acid gas* in the system are: (1) It is formed in the cells of the body; (2) the chemical decomposition or analysis of organic substances in the body.

(*b*) The *effect of oxygen on the blood* is to enter into loose chemical combination with the hemoglobin of the red corpuscles and to make the blood red in color.

The *effect of carbonic acid gas on the blood* is to enter into combination with sodium in the liquor sanguinis and in small quantities with the red corpuscles; it makes the blood of a purple color.

(*c*) The average quantity of oxygen in *venous* blood is from eight to twelve volumes in a hundred; in *arterial* blood, about twenty volumes in a hundred.

(*d*) The *symptoms of insufficient oxygen in the blood* are: The respirations are more frequent, and the inspiratory efforts are particularly vigorous; the dyspnea is severe, and lasts a long time before death ensues; the blood pressure is increased; there are various motor disturbances.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 7
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 6
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	Los Angeles	Dec. 3
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 10
Delaware	J. H. Wilson, Dover	Dover	Dec. 10
Dist. of Col'bia.	W. C. Woodward, Washington	Washington	Jan. 9
Florida*	J. D. Fernandez, Jacksonville	Jacksonville	
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	J. L. Conant, Jr., Genesee	Boise	April 7
Illinois	J. A. Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	May 26
Iowa	Louis A. Thomas, Des Moines	Des Moines	Dec. —
Kansas	T. E. Raines, Concordia	Topeka	Feb. 11
Kentucky*	J. N. McCormack, Bowling Green	Louisville	April 28
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 21
Maine	Wm J. Maybury, Saco	Portland	March 17
Maryland	J. McP. Scott, Hagerstown	Baltimore	Dec. 3
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Detroit	June 9
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 7
Mississippi	J. F. Hunter, Jackson	Jackson	May 12
Missouri	J. A. B. Adcock, Warrensburg	St. Louis	
Montana*	Wm. C. Riddell, Helena	Helena	April 7
Nebraska	J. E. Sward, Oakland	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Feb. 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Jan. 14
New Jersey	J. W. Bennett, Long Branch	Trenton	June 16
New Mexico	B. D. Black, Las Vegas	Santa Fe	Dec. 2
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York, Albany, Syracuse, Buffalo	Feb. 4
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May —
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 7
Ohio	Geo. H. Matson, Columbus	Columbus	Dec. 10
Oklahoma*	J. W. Baker, Enid	Guthrie	Dec. —
Oregon	B. E. Miller, Portland	Portland	Jan. 8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia, Pittsburg	Dec. 3
Rhode Island	G. T. Swartz, Providence	Providence	Jan. 2
S. Carolina	W. M. Lester, Columbia	Columbia	June 9
S. Dakota	H. E. McNutt, Aberdeen	Mitchell	Jan. 8
Tennessee*	T. J. Happel, Trenton	Memphis, Nashville, Knoxville	May —
Texas	G. B. Foscue, Waco	Waco	June 16
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City	Jan. 6
Vermont	W. Scott Nay, Underhill	Montpelier	Jan. 14
Virginia	R. S. Martin, Stuart	Staunton	Dec. 10
Washington*	C. W. Sharples, Seattle	Spokane	Jan. 7
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg	April 14
Wisconsin	J. V. Stevens, Jefferson	Milwaukee	Jan. 14
Wyoming	S. B. Miller, Laramie	Laramie	Feb. 12

* No Reciprocity recognized by these States

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Surgical Suggestions.

Anesthesia.—Johnston says that when there is obvious and extensive nasal obstruction, the mouth must be propped so that the patient may receive enough of the anesthetic, with proper admixture of air, to produce smooth anesthesia. In partial obstruction he uses small rectal tubes, cut six or seven inches long, passed through the nares to the nasopharynx. These, well vaselined, should be placed in position after the patient has been partially anesthetized, and joined with a safety-pin in front, so that they will not slip beyond reach. This is a most excellent method with stout patients, whose tongues swell or fall back.—*Canadian Practitioner and Review.*

Traumatic Gangrene.—Knott recommends the following method of procedure: A circular amputation is made of the soft parts and bones all of the same level, the arteries are ligated and a wet dressing is applied. Later, when the wound is seen to be clean and there is no extension of gangrenous process, a second operation will make a good stump. Reasons: Trimming flaps and suturing both tend to lessen circulation and tend to sloughing, also some infected material may be enclosed if sutured at time of operation. He reports nine cases with only one death. —*Journal of the American Medical Association.*

Ivy Poisoning.—Experiments have lately shown that permanganate of potassium solution (one per cent. and stronger, according to the delicacy of the skin) is the best antidote for ivy poisoning. It acts promptly and thoroughly, but must be freely and well applied and acts much better in a solution as hot as can be borne and kept hot for a half hour or so.—*Clinical Review.*

Eventration and Enucleation of the Eyeball Under Local Anesthesia.—Siegrist employs a glass syringe holding 2.0 gm. with a slightly bent needle. The conjunctiva is thoroughly anesthetized with 3 drops of a 2 per cent. cocain solution to which a few drops of adrenalin have been added. Now he grasps the conjunctiva, together with the capsule, by a forceps or the bent needle with the concavity directed towards the eyeball, and inserts the needle into the folds of mucous membrane; the point of the needle is then pushed between the orbital wall towards the entrance of the optic and ciliary nerves; 0.75 gr. of a 2 per cent. novocain solution, to which also some adrenalin has been added, is now injected into the upper, lower, temporal and nasal sides of the bulb. The enucleation or eventration may be commenced from one to two minutes after the injection, and the patient will experience absolutely no pain.—*Ophthalmology.*

Empyema.—Mann in discussing the treatment of empyema says of aspiration that: 1. Aspiration may be used for diagnostic purposes, but repeated aspiration as a means of treatment is time worse than wasted. 2. In large empyemas it may be used as a preliminary step a short time before operation to relieve the pressure on the lungs, heart, and blood-vessels, and so lessen the shock of the operation. 3. In double empyemas, after operation on one side, aspiration may be used on the second side as a preliminary step to a later operation, though the double operation has been successfully performed at one sitting. 4. It should be used as a palliative measure in empyema before the resolution of a pneumonia. 5. It may sometimes be used as a palliative treatment in cases with advanced tuberculosis, though most cases with accompanying tuberculosis improve, and many are cured by drainage. 6. A tentative aspiration is called for often in the pleurisies of children on account of the frequency and the obscurity of their empyemas; however, aspiration should not be used as a method of treatment even in the pneumococcus pneumonias of children, because, though some of them recover under this treatment, most of them do not. Practically all of them recover if properly drained before they are exhausted. The same statement is probably true of the more rare condition of typhoid empyema in the adult.—*Surgery, Gynecology, and Obstetrics.*

Rectal Diseases.—Patients who have trouble about the rectum should, as a rule, evacuate their bowels at night. Then they have eight to ten hours in the horizontal position, and the bowel has time to readjust itself by the time of rising. This is particularly applicable to those who have to leave home at a certain time every morning.—MR. CHRISTOPHER HEATH.

Paget's Disease, frequently diagnosed as eczema, would appear from the literature to attack not only the nipple, but almost any other part of the body. Clinically it runs a chronic slowly progressive course extending over many years. It appears as a "florid, intensely red, raw surface, very finely granular, as if nearly the whole thickness of the epidermis were removed."—*Southern Medicine and Surgery.*

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 16, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	364	145
Diphtheria	331	27
Measles	261	5
Scarlet Fever	252	15
Smallpox	1	..
Varicella	162	..
Typhoid Fever	123	20
Whooping Cough	14	1
Cerebrospinal Meningitis	4	5
Malarial Fever	..	..
Totals	1512	218

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending November 15, 1907:

SMALLPOX—UNITED STATES.

		CASES	DEATHS
California, Los Angeles	Oct. 20–26	1	..
Illinois, Chicago	Nov. 5–9	2	..
Rockford	Sept. 1–30	5	..
Quincy	Oct. 1–31	1	..
Indiana, Anderson	Oct. 1–31	16	..
Elkhart	Oct. 27–Nov. 2	3	..
Iowa, Cedar Rapids	Oct. 1–31	1	..
Kansas, nine counties	Sept. 1–30	23	..
Massachusetts, Somerville	Nov. 3–9	1	..
Missouri, St. Joseph	Oct. 27–Nov. 2	2	..
New Hampshire, Franklin	Oct. 1–31	1	..
New Jersey, Newark	Nov. 3–9	1	..
Oregon, Portland	Sept. 1–30	1	..
Tennessee, Nashville	Nov. 3–9	3	..
Washington, Spokane	Oct. 27–Nov. 2	1	..
Wisconsin, La Crosse	Oct. 27–Nov. 2	2	..

SMALLPOX—FOREIGN.

South Africa, Cape Town	Sept. 22–28	1	..
East London	Sept. 22–28	2	..
Brazil, Pernambuco	Aug. 15–31	..	96
Canada, Halifax	Oct. 30–Nov. 2	1	..
China, Shanghai	Sept. 23–29	..	5
Chile, Iquique	Oct. 6–12	..	Present
Columbia, Cartagena	Oct. 16–22	..	Present
Egypt, General	Sept. 1–16	24	6
France, Paris	Oct. 13–19	1	..
India, Bombay	Oct. 5–11	..	1
Italy, General	Sept. 13–24	37	..
Java, Batavia	Sept. 22–28	18	4
Mexico, Mexico City	Sept. 22–28	..	1
Peru, Lima	Oct. 12	..	Present
Portugal, Lisbon	Oct. 13–26	5	..
Philippine Islands, Manila	Sept. 8–21	2	..
Russia, Moscow	Oct. 6–12	1	..
Odessa	Oct. 6–12	2	..
Riga	Oct. 13–19	3	..
St. Petersburg	Sept. 29–Oct. 13	2	..
Warsaw	Oct. 1–7	..	9
Turkey in Asia, Bagdad	Sept. 22–28	..	Present

CHOLERA

China, Shanghai	Sept. 23–29	..	7
India, Madras	Oct. 5–11	..	61
Japan, Formosa	Sept. 30–Oct. 5	1	1
Kagawaken	Sept. 1–13	1	..
Sagaken	Sept. 1–13	1	..
Wakayamaken	Sept. 1–13	1	..
Yokahama	Oct. 6–12	13	..
Osaka	Sept. 22–28	63	46
Manchuria, Dalny	Sept. 22–28	6	3
Philippines	Sept. 8–28	40	40
Manila, Masbate Province, Mandaon	Sept. 21	..	Present
Straits Settlements, Singapore	Sept. 22–28	..	10
Penang	Sept. 30–Oct. 5	1	1

YELLOW FEVER

Cuba, Cubabana Province, Bainoa	Nov. 9	1	..
Palos	Nov. 6	1	..
Matansas Province, Cienfuegos	Nov. 8	4	..

2 cases in the city and 2 cases from the surrounding country

PLAGUE

Algeria, Oran	Oct. 1–7	2	..
Bacteriologically verified to Oct. 7, 5 cases and 4 deaths.			
Brazil, Pernambuco	Aug. 15–31	..	1
Rio de Janeiro	Oct. 1–13	10	2
Chile, Iquique	Jan. 1–June 30	154	53
Pisagua	Jan. 1–June 30	105	47
Taltal	Jan. 1–June 30	220	..
China, Hongkong	Sept. 1–17	5	5
India, Bombay	Oct. 9–15	..	29
Japan, Osaka	Sept. 22–28	7	7
Peru, Callao	Oct. 3–9	1	..
Lima	Oct. 3–9	1	..
Trujillo	Oct. 3–9	1	..

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Original Articles.

INFANTILE SPASTIC PARALYSIS, AND ITS TREATMENT.

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LONDON.

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THE clinical picture produced by the group of symptoms to which the above name has been given was first accurately described and attention called to its importance by the writer's father, the late Dr. W. J. Little of London. In his lectures on deformities which were delivered at the Royal Orthopedic Hospital and reported in *The Lancet* in the year 1843, and published in volume form in 1853, a clear description of the chief clinical characteristics of the affection was given, and in 1862 the details of fifty-two cases were published in a paper read before the Obstetrical Society of London in the previous year, entitled "On the Influence of Abnormal Parturition, Difficult Labors, Premature Birth and Asphyxia Neonatorum on the Mental and Physical Condition of the Child, Especially in Relation to Deformities."

It is no doubt owing to these publications that on the Continent of Europe the name of "Little's disease" was soon attached to the malady, as a short and convenient title. Its use is now generally restricted to those cases of congenital origin in which labor has been premature or difficult, and in which both lower limbs are affected, but not the upper, although Dr. Little himself did not specially mark out this group, but included in his fifty-two cases of spastic rigidity twenty-two in which the upper extremity was affected as well as the lower. From the point of view of treatment this inclusion has been amply justified, for the experience of half a century has not enabled surgeons to differentiate the principles of treatment of hemiplegic and diplegic from those of paraplegic cases. A wider knowledge of pathology, however, has shown that asphyxia neonatorum does not play as important a part in the causation of the disease as W. J. Little thought, but in justice to him it must be remembered that he used that term in a general sense, for he wrote: "It will be observed that I have in this paper often employed the term asphyxia neonatorum nosologically, in its widest sense, embracing in it all the conditions of suspended animation in the newborn infant, which have for their result to prevent the immediate establishment of proper respiration and circulation, whether or no the color of the infant be pale or dark." He described the pathological appearances, which at that time had been observed in cases of still birth after premature or difficult labor, such as capillary apoplexies and hemorrhages of other kinds, and to these attributed the symptoms. We know now that cicatricial lesions, the result of embolism or thrombosis or hemorrhage, may be found in the cord, along with secondary sclerotic changes, and that the lesion in the brain is often an enlargement of the lateral ventricles at the expense of the cerebral substance, a so-called porencephalus. Osler found in ninety brains some vascular lesion in sixteen, *i.e.* embolism in nine and hemorrhage in seven. The most certain pathological fact is the frequent existence of a lesion in, or of arrested development of, the pyramidal tracts, or of the parts of the encephalon directly connected with them. Despite all the researches that have so far been made, it is impossible in the present state of our knowledge to predicate from the clinical features of a case what is the anatomical lesion causing it, and the converse also holds good; therefore at present the pathology of infantile spastic paralysis has only an academic interest for the practical surgeon, whether he has to deal with the congenital or the acquired varieties of the disease. As was pointed out by W. J. Little in 1843, spastic rigidity or paralysis is often acquired, and Jendrassik, Strumpell, Lorrain, Apert, and others have brought forward evidence of the occurrence of a family form of the noncongenital variety. These and other authors have demonstrated the hereditary nature of some congenital cases. When the lower limbs are affected—and it is seldom that one or both of them escapes—the well-known spastic gait and appearance are seen. The feet are usually in the position of talipes equinus or equinovarus, the knees are flexed, and the thighs slightly flexed and adducted and rotated inwards, the knee jerks are exaggerated, and anxle clonus is generally present, if the contraction of the calf muscles is not too great to allow it to be elicited. The patient may not be able to walk, or may only be able to make his way from chair to chair or holding on to the edge of a table. If he is able to walk the characteristic jerky, half-running, spastic gait appears, the knees knock together or cross one another, and at every step a fall seems imminent. Epileptic seizures occur in a certain number of cases. The condition of the intelligence varies. It may be very low in a case of slight muscular contraction, or it may be high in a case of severe deformity of the limbs, but generally speaking, the mental ability varies directly as the physical. Defects of vision and nystagmus, squint, and motor defects of speech are not infrequently to be observed. Constipation is very commonly noted. If the contraction has not existed long enough for the development of secondary fibrous contracture in the muscles and tendons, the deformity will be found to disappear during sound sleep or deep anesthesia, and it may be overcome by strong, steady, and continued pressure. In the case of the ankle it will often be found that the varus has given place to valgus, the soles of the feet being flattened by the pressure which has to be applied to the ball of the foot. When the upper extremity is af-

fected it may be held down by the preponderating action of the pectoral and teres muscles and latissimus dorsi; the elbow is generally flexed, the wrist partially flexed and pronated, and the fingers incapable of perfect voluntary direction. Athetosis is often present in a greater or less degree. If the patient attempts to use the hand the flexion and pronation of the wrist persist, but the fingers may be extended fully and thus the well-known Z-form of hand is produced. This is

The Z-shaped hand.

well shown in the accompanying illustration, which is figure 50 of Little's Lectures on the Deformities of the Human Frame. Generally, the condition may be well summed up in the words of W. J. Little as "Impairment of volition, with tonic rigidity and ultimately structural shortening in varying degrees of a few or many of the muscles of the body." The bulk of the limbs is not obviously less than normal, marked atrophy not often occurring, but Hadden has described a class of cases in which with paraplegia of the lower limbs without atrophy, one upper limb is also affected with spasm and is much wasted. He attributed these cases to a lesion primarily unilateral in the brain, and thought that the paraplegic distribution of rigidity was due to an unusual decussation of the pyramidal tract fibers. Cases are classed as hemiplegic, paraplegic, or diplegic, according to the distribution of the spasm. The first named is the commonest. In some cases little change in the symptoms can be detected in the course of years. Many cases, on the other hand, improve spontaneously up to a certain point, the spasm diminishing or even disappearing and the power of coordination improving greatly. Other cases, unfortunately, get worse despite treatment of any kind. In making a prognosis it must be borne in mind that there is probably an irremediable defect in the brain or cord, and that improvement and not cure is the most that can be looked for. The effects of spasm may be reduced or removed by the excision of tendons, but the result cannot be the production of a normally balanced and coordinated musculature, but only a comparative cure. Although only one muscle or group of muscles may exhibit evident spasm, it must be remembered that the whole muscular system is probably abnormal in these cases, and in a condition of hypertonicity, which extends probably to involuntary muscular fiber. On this supposition the absence of serious bleeding in operations on the muscles can be explained.

It is most remarkable that after free division of vascular tissues, such as the adductor muscles, very little oozing occurs, and it is quite the exception for any vessel to need ligature. R. Jones and V. P. Gibney have noted the trivial amount of bleeding in such operations. We may suppose that the muscular coats of the blood vessels share in the general muscular hypertonicity and irritability.

Treatment.—Although during the sensational times of the promulgation of subcutaneous tenotomy a French orthopedic surgeon divided sixty or more muscles at one sitting, the result was not encouraging, and in 1843 and for many years afterwards the surgical treatment of this distressing disorder was limited to that described by W. J. Little in his lectures, namely, manipulations, instruments, and tenotomy as a *dernier ressort*. Under this treatment some striking results were recorded, chiefly in cases in which the contraction had existed many years and in which structural shortening of the muscles and tendons had supervened and the muscular fibrillæ had become more or less disorganized, so that while structural shortening had rendered tenotomy more necessary, the disorganization of fiber rendered reconstraction less probable. This continued to be the general rule of treatment among orthopedic surgeons until Listerism had made open operations on muscles and tendons as successful as only subcutaneous ones had been formerly, and Robert Jones of Liverpool and Lorenz of Vienna began to divide and excise portions of muscles and tendons which were not structurally shortened. Lorenz divided or excised ten tendons at one sitting in a patient of seventeen, and reported a good result. Many other surgeons have since reported good results from tenotomy, tenectomy, tenoplasty, etc. Lorenz has excised part of the anterior branch of the obturator nerve, with a view to paralyzing the adductor muscles.

Physicians, and especially neurologists, have generally discountenanced operation, Gowers' only reference to it being the following: "The tendo Achillis is sometimes divided for the contracture of the calf muscles, but the operation is useless and ought not to be performed." It is probable, and it is much to be regretted, that the opposition of such an authority as Sir William Gowers has hindered progress in the treatment of spastic palsy (in England, at least) considerably.

Among orthopedic surgeons there is a consensus of opinion, which is growing with increase of experience, that great benefits can be obtained by surgical measures. It is an established clinical fact that if a spastic muscle be prevented from active contraction for a time, either by keeping it stretched by apparatus, or abolishing one of its attachments by operation, the tendency to spasm is generally diminished, and it is a further well-attested fact that this sedative effect may extend to other muscles that are not directly interfered with. Orthopedic surgeons, however, are not all agreed as to the extent of the surgical interference justifiable or advisable. In this paper it is proposed to set forth some of the opinions held and to present briefly the writer's personal experience.

J. la Bonnardière, in the *Revue D'Orthopédie* (Paris) of November, 1896, after quoting Lorenz's case of multiple tenotomies, etc., and others which had been as much improved by less heroic measures, said that most authors limited tenotomies to cases in which fibrous retractions persisted under chloroform. Bocker in 1899 recommended tenotomies, massage, gymnastics, and redressement forcé. In the same year B. E. McKenzie of Toronto advocated the free practice of tenotomy and myotomy. As a result he claimed a great "lessening of reflex action, which is of exceeding benefit thereafter." In an interesting discussion which followed, Shaffer said that he had given up operating in such cases; he had often seen talipes calcaneus occur as a result of section of the tendo Achillis, and the operation was often unnecessary, as the spasm disappeared

spontaneously in many cases. Kidlon said that after dividing one tendon the spasm disappeared in other muscles. Therefore he would only divide the tendo Achillis at one sitting and wait two months before operating on the hamstrings and other tendons. He advocated early operation, repeated in case of relapse. In hemiplegia he had noted improvement in the upper extremity following on section of the tendon of Achilles. Bradford approved of tenotomy. Weigel referred to two cases of section of the hamstrings, the result of which still remained good, despite the mental defect. An improvement in the mental condition occurred after operation, and was marked before the patient left the hospital.

In 1899 Tubby, who had formerly found multiple tenotomies useless in the upper extremity, divided the flexor tendons of the wrist and fingers in a case of infantile hemiplegia and transplanted the tendon of the pronator radii teres from the front to the back of the radius, and reported a good result. He has since frequently performed this operation. In 1900 Codivilla published a paper on Transplantation of Tendons in Infantile Spastic Paralysis. He admits that in most cases the condition of the brain leaves no hope of the adaptation of the nervous system to the new action of the transplanted muscles, except in Little's disease, which term he limits to cases due simply to incomplete function of the pyramidal tracts. Despite this drawback he thinks transplantation beneficial to all sorts of cases. In Little's disease the new muscle fulfils a new rôle, and in patients with the extensive and profound lesions of spastic palsy, in whom we can only expect a passive result, it is nevertheless efficacious because the spastic force distributed (by the operation) uniformly around the joint can no longer oppose itself to voluntary muscular contraction. Then a slight muscular action is enough to produce the willed effect. The transplantation has further a good influence on the spasm besides improving the position and movements; this sedative effect has been before noted by Sonnenberg, Vulpius, and Hoffa. Codivilla notes a tendency to spontaneous improvement in Little's disease. He says that early operation before the muscles are damaged by long spasm has a good effect on the central nervous system, prevents the bad effects there of constant spasm, and favors the development of the antagonist muscles, which would otherwise waste from disuse. In 1903 Robert Jones of Liverpool, who has been a pioneer in the active surgical treatment of spastic palsy, in a paper in the *Medical Press and Circular*, based on a large experience, takes a very hopeful view of the subject, and deprecates pessimism. In mild cases he says that long continued fixation by apparatus will often effect a cure of the spasm. In the hand and arm tenotomy alone had proved somewhat disappointing, and should be confined to the flexors of the carpus. Tendon transplantation was more trustworthy than tendon lengthening. In the lower limbs excision of portions of the superficial adductors and, if necessary, division even of the adductor magnus and pectineus and subcutaneous tenotomy of the tendo Achillis and open-section of the hamstrings are recommended. He writes: "No opportunity should be lost of performing a tenotomy. Even in mild cases, where a spastic tendon is to be felt, let us ruthlessly divide it." Jones insists, however, on the necessity of after-treatment and training, lasting at least a year, and often much longer. Writing in 1903 Redard deprecates all surgical and orthopedic treatment as long as the myospasmodic element persists, but advocates it in permanent contractions. He recommends tendon transplantation and lengthening, massage, mobilizations and passive movements, and retentive apparatus between whiles. Lange in 1905 advised tenotomy and tendon transplantation. Hoffa in 1906 laid stress on the importance of schooling, massage, and exercises, especially in Little's disease; failing these, tenotomy and tenectomy. The adductors, the hamstrings, and the tendo Achillis should all be operated at one sitting and the limbs fixed in overcorrection by means of gypsum. Tendon lengthening and transplantation are of the greatest importance in the treatment. In the upper extremity he recommends Fraenkel-Leyden exercises and tendon transplantation.

In 1904 Bartow reported a case treated by transportation of hamstrings, also a case of elongation of hamstrings. Both were cases of diplegia, and the results were good.

Bradford in the same year advocated fasciotomy in the upper extremity, and after describing three cases of transfer of the pronator radii teres said: "The writer has not found as much benefit from tendon transplantation as has been mentioned by some writers. It must, however, be clearly understood that these operations are simply a basis for careful muscular development and muscular training by use and exercises carefully suited to the patient. If these are not attended to, the benefit from the operation will be slight." V. P. Gibney in 1904 reported a case in which after twice dividing the tendons of Achilles and once the adductors, he excised the whole of the tensor vaginæ femoris muscle, for the correction of internal rotation. In 1905 Glaessner gave some interesting statistics of infantile diplegia. He recommended subcutaneous section of the adductors, open section of the hamstrings and section, lengthening or transplantation of the tendo Achillis. Muscular reeducation was necessary, and much patience was required. In his opinion the school of Hoffa is too optimistic.

Young of Philadelphia in 1906 says: "Tenotomy and tenoplasty offer the greatest hope in these cases."

Royal Whitman in 1907 says that the treatment of paraplegia is more difficult than that of hemiplegia. He advises multiple tenotomies. He writes: "The advantage of tenotomy, aside from the simple correction of deformity, is that by elongation of the tendon the response to the exaggerated motor impulses is lessened, and an opportunity for more effective control is afforded." This beneficial effect is very marked in older patients. Referring to Lange's transfer of the hamstrings to the quadriceps, he says: "The good effect of the operation is to be ascribed in all probability in far greater degree to the removal of the deforming force than to the extending action of the flexor muscles."

At the Congress of Pediatry in Algiers in July, 1907, Froelich reported fifteen cases of Little's disease. He insisted on the importance of reeducation. He used tenotomy, forcible rupture of muscles, and immobilization. He operated as soon as a gleam of intelligence appeared. In the discussion Kirmisson said that German writers had made too much of tendon transplantation. He would not operate until the seventh year. He had never had occasion to divide the hamstrings

in Little's disease. At the same congress Soulié reported a case of spastic paralysis in which he had treated the talipes by arthrodesis of the ankle joint.

The authors quoted above, while they are by no means all those who have written on the subject during the last ten years, are sufficiently representative to give a fair idea of recent surgical opinion on it. They appear to be fairly unanimous in favor of surgical interference in most cases, excluding the idiotic, the microcephalic, the passionate, and those subject to frequent fits or general rigidity.

In the writer's opinion treatment should be begun early, but should at first take the form of fixation in the corrected position by means of splints, gypsum bandages, or instruments. These should be persisted in for six months or a year, during which in a few cases the spasm may disappear, or diminish to such an extent as to render operation unnecessary, as in the following case.

Case I.—Edith I., aged six years; spastic paraplegia. Was brought to the hospital in September, 1897. No history was obtainable. The mental condition was not markedly abnormal. She had talipes equinovalgus of both feet and walked with a spastic gait. The spasm could be overcome and the feet dorsiflexed by firm pressure. Right angled splints were ordered for night wear and boots with steel uprights extending to the calves, and springs to dorsiflex the ankle for use in the daytime. Sixteen months later the entry runs: Walks better, falls less, but the gait is still jerky and slightly tottering. The left tendo Achillis is contracted. No operation was performed and in October, 1899, the note was, "She can dorsiflex both ankles voluntarily, the right the best." The progress in this case was satisfactory and enough to contraindicate operation.

In one idiotic patient who was very fat and whose mental condition seemed to prohibit operation a marked improvement followed the administration of thyroid extract and was maintained for nearly a year and as long as the patient attended the hospital.

The following is typical of a class of case in which much benefit may be expected to follow operation:

Case II.—I. W. H., aged four years; spastic paraplegia. First seen in September, 1906. History, labor at term normal. Walked at one year, talked at two years. On first walking said to have turned the left foot in; afterwards walked on the toe. The mental condition is not much, if at all below normal. The knee jerks are lively. The lower limbs are equal in length and well nourished. The right leg is very slightly affected. The left foot is in a position of equinus; it can be forcibly dorsiflexed to about a right angle. The upper extremities are normal.

In May, 1907, the left tendo Achillis was lengthened by Anderson's method about one inch, and the leg and foot put up in gypsum in the corrected position. A month later, on removing the gypsum, there was no spasm. Two months after operation he walked well without spasm, but with a rather jerky gait. In this case tendon lengthening was preferred to simple tenotomy in order to avoid all risk of talipes calcaneus.

The next case, a not very satisfactory one, is cited as an instance of the varying condition of the spasm. It was observed for seven years.

Case III.—Edward C., aged four years; spastic paraplegia; first attended in October, 1898. He was born asphyxiated after delivery by forceps. The head was much squeezed. He talks, but is backward in intelligence. There is some spasm of the adductors of the thighs. The limbs are equal in length. There is talipes equinus. He cannot walk. Right ankled splints were ordered for the feet and ankles. A year later, in 1899, he could walk with a stamping gait, putting his heels well on the floor and extending the knees well. A year later still (1900) there was no spasm, except of the adductors of the feet (tibials, etc.). Four months later, however, talipes equinus in one foot was so marked as to necessitate division of the tendo Achillis. In 1903 one and a half inches of the adductors were removed in each thigh and the hamstrings were divided. He left the hospital wearing instruments, but in 1905, although the right limb was in fair condition, the left was rotated inwards, the knee bent and the foot in the position of equinus again, so that operations on the hamstrings and tendo Achillis were recommended again.

The following case illustrates the greater difficulty of restoring function in the upper extremity as compared with the lower, although correction of deformity may be fairly easily procurable.

Case IV.—Doris D., aged five years; spastic hemiplegia with atrophy of the lower limb. First seen in September, 1904. A very bright and lively child. She was well till she was fourteen months old; she walked before that time. She then had a "fit," followed by unconsciousness and left hemiplegia. The left elbow is flexed and the hand flexed and pronated. She cannot voluntarily extend the elbow or supinate or extend the wrist. There is spasm of the calf muscles and talipes equinus and the great toe is held in extension. The limb is half an inch shorter than its fellow. She walks well, however, with the heel on the ground.

The pronator radii teres was exposed and one inch of its tendinous end was excised and the tendon of the flexor carpi radialis was divided at the wrist. The forearm and hand were then fixed in the corrected position. Six months later, in May, 1905, the left wrist, fingers and thumb were still contracted and accordingly the tendons of the palmaris longus, flexor carpi radialis, and the flexor sublimis digitorum were divided by open operation at the wrist and the tendon of the flexor carpi ulnaris was lengthened. In April, 1906, there was no grasp with the left hand, but very little deformity.

The following case exemplifies the good effect of excision of tendon as compared with lengthening:

Case V.—Rose L., aged twenty; spastic hemiplegia. First seen in March, 1900. The condition was first noticed after pertussis, when the patient was five years old. "The left hand is pronated and it cannot be supinated either voluntarily or passively. The left foot is in equinovarus." The tendo Achillis was divided subcutaneously and a right angled splint applied.

In February, 1902, strong spasm of the left peroneus longus and contraction of the left knee were noted. In August, 1902, tendon transplantation. The tendon of the peroneus longus was divided and its end attached to that of the entire tibialis posticus. In September considerable power of adduction of the foot was observed. The tendon of the flexor carpi radialis, which was apparently the main obstacle to supination of the wrist, was exposed and lengthened enough to allow of complete supination and the tendon of the palmaris longus was divided. Three weeks later the tendon of the

biceps cruris was transferred to the front of knee, where it was sutured to the tendon of the quadriceps extensor.

Six weeks later the knee was straight and there was slight power of extension of the leg. Flexion, extension, pronation, and supination of the wrist could be well performed voluntarily, but the tendon of the flexor carpi radialis still felt rather tight.

A year later (in 1903) the wrist was again contracted and accordingly a portion one and a half inches long of the tendon of the flexor carpi radialis was excised, including the site of the previous lengthening, which was scarcely recognizable. The tendon of the palmaris longus was again divided. The result was excellent and seemed permanent four years after this operation.

In May, 1907, adductor spasm was giving trouble and portions of these muscles were excised and the limb abducted with satisfactory results. She can now extend the left wrist and fingers well and supinate the hand almost normally. The grasp of the hand is strong and she walks fairly well.

The following case is one which is published more as a warning than as an example to be followed. The general condition was too severe for much to be hoped for from operation, but after some years of observation the writer yielded to the wishes of the friends that something more should be done. As far as regards the mechanical condition of the feet, the operation of arthrodesis was quite successful, but the disability higher up was a bar to progress.

Case VI.—Lewis H. C., aged four and three-quarters; spastic paraplegia. First seen in September, 1894. "The condition is said to be congenital. There is talipes equinus of both feet, which is easily overcome, but the muscles all over the body become rigid upon a slight stimulus. There are signs of past rickets." He was ordered walking apparatus extending from the feet to the pelvis. In 1894 he did not walk properly in the instruments. In 1902 he could get about with the help of a chair, but there was strong spasm of the hamstrings and calf muscles and the adductors of the thighs. The feet were flat on forcible dorsiflexion. He walked with a typical spastic gait without assistance. Over one inch of each tendo Achillis was removed and arthrodesis of the tibio tarsal joints performed. Two months later portions one and a half inches long of the tendons of the biceps cruris, semitendinosus, and semimembranosus were removed and a little later portions of the spastic adductors of the thighs were excised and the limbs fixed in full adduction by means of gypsum bandages. Two months later, in February, 1903, when the plaster was removed, the limbs were found to be stiff in the abducted position. Under an anesthetic they were moved forcibly. There was about 10° of movement at the ankles. In April, 1903, adduction of the thighs having recurred, some bands were divided subcutaneously. When the patient left the hospital in May, 1903, after a seven months' stay, his powers of locomotion were but little improved, and there was still a tendency to recontraction at the hips and knees, despite the free removal of muscles and tendons.

In considering and estimating the value of the results which may be obtained, it should be borne in mind that, as already stated, a complete cure in the sense of restoration to the normal, cannot be hoped for. Nevertheless, any improvement, however small it may seem to onlookers, is to the patient and his or her friends worth having, especially when it can be got without serious risk to life or limb and with little danger of making the condition worse, instead of better. While, therefore, in the writer's opinion, some surgeons, notably in Germany take much too favorable a view of the prognosis after operation, the gloomy views of a few surgeons, and particularly of the neurologists, are still less justifiable.

In the lower extremity the functions to be performed are comparatively simple and do not involve an extremely delicate balance of muscular action, and there, therefore, we find, as we might expect, that the results of operative interference are better than in the forearm and hand. Beevor has shown how complex a seemingly simple movement of the hand may really be and how very seldom, if ever, a single muscle may be said to act alone and unaided by its neighbors. In the upper extremity we may succeed by division, excision, or transfer of tendons in abolishing the deformity, but if this was originally a complex one, in which many muscles were affected, it is not very likely that function will be restored to any great extent. Cases IV. and V. are illustrative of negative and good results, but even in the former the patient's hand was not less useful after the operation than before. Tenotomy, either subcutaneous or by the open method, is often enough in slight cases, and there is hardly any bad result which is liable to follow. In a few cases talipes calcaneus has been observed as a sequel, but if this is found to cause serious disability arthrodesis of the ankle joint can be performed and will give a firm and useful foot. Should recontraction follow on tenotomy, a portion of the offending tendon can be excised as in Case V.

Certain Continental surgeons have vaunted the merits of tendon transplantation as almost a panacea in the treatment of deformities of all kinds, but in the writer's experience the results of this procedure hardly justify the roseate tints with which they are often painted, for while there is no doubt that the transplanted muscle may be shown to contract and produce some feeble movements in its new position, the good effect is a negative one; that is to say it is due to the removal of the deforming muscle and its consequent inaction in its old position, more than to any positive action in its new position. In spastic paralysis the nonspastic muscle is not inactive; for instance, the quadriceps in the case of the knee, and were the hamstrings in their new rôle of extensors to act with anything like their former force the extensor action would be excessive. Their abolition as flexors is all that is necessary, and the writer has therefore of late abandoned tendon transplantation for spastic paralysis and prefers in cases in which simple tenotomy is not enough to excise a portion of tendon or muscle. This proceeding, which has given such excellent results in the case of the adductors of the thigh is simpler, takes less time, and involves less disturbance of the parts than transplantation.

In some of the foregoing cases will be found examples of its usefulness in various parts of the body. If little has here been said of the physical reeducation of the spastic child it is not because the writer does not consider it important, but because in hospital practice it is very difficult to carry it out. It involves the expenditure of much time, great perseverance, and special aptitude on the part of the teachers, and it is difficult even in an orthopedic hospital to secure these desiderata. After months of sojourn in the wards where some systematic training can be attempted, the patient is seldom so fortunate as to have it continued by the friends, who either are not able to go on with it or else think that with discharge from hospital

treatment should cease. Even with these imperfect arrangements, however, it is possible to do a good deal to lighten the burden of these distressing cases to the patients and their parents, but it is much to be desired that they should be systematically and perseveringly treated in institutions where they might remain for years instead of months.

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TEST OF THE STRING-CUTTING METHOD FOR IMPERMEABLE ESOPHAGEAL STRICTURES.*

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After a test of fifteen years I desire to offer a second report on a method which, with recent slight modifications, I demonstrated then for the first time as a novel and safe substitute for the surgical treatment of a previously hopeless condition—the impermeable esophageal stricture. It has been my privilege to watch, until now, the perfect health of the patient then reported.

In brief, the case was that of a young lady who had by mistake swallowed caustic, and produced a destructive inflammation of the esophagus, which was followed in less than a year by a tight stricture, which during three years allowed only fluids to pass. Her feebleness and rapid loss of weight brought her to despair, as she saw the amount of fluid she could swallow growing daily less. It was impossible to pass through the stricture even the very smallest filiform bougie.

In a similar case I recalled that Prof. Henry B. Sands, whose assistant I had been, had, with great trepidation, tried a small, cutting instrument within the esophagus. It was devised like a urethrotome. His great dread of any cutting instrument so near the aorta restrained his hand, so that he gained but little on the stricture, and that little at the expense of considerable hemorrhage. To relieve my patient I had therefore to choose between two methods—either *cutting* by such an instrument (in case I could insinuate a guide for it under ether) or *dilating* from below through an opening in the stomach.

It had already been demonstrated by Albert, Billroth, v. Bergman, Maydl, and others that an esophageal stricture which permits no bougie to enter from above will almost invariably permit it from below, because by reason of the long-persisting pressure of food in the esophagus trying to pass down, the canal becomes basin-shaped, while on the distant side the esophagus is funnel-shaped—and thus a small bougie is naturally guided upwards through the stricture.

Once having passed a fine bougie upward, the safe dilatation by Billroth's method is often accomplished. This consists in drawing a strong thread from the stomach to the mouth by the preceding guide, to which it has been tied. Then, to the lower end, are fastened in succession conical bougies whose tips are capped by a metal point into which the string is tied. From the smallest to larger and larger ones, these are thus safely drawn up, with no danger of perforating the very tender wall of the esophagus. This danger is by no means small—if no guiding string is used—and results in disastrous mediastinal abscess.

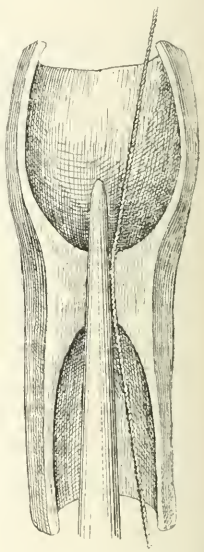

Fig. 1.—String-cutting method; usual shape of the esophagus above and below the stricture; dilating bougie and string in place.

A few such strictures can be cured by dilatation alone—persisted in for life—but a majority are so dense and tight that, like urethral strictures, they are best cured by first cutting and then maintaining the opening.

It happened, in the case narrated, that I was confronted by the worst type of case, and prepared myself with every kind of bougie. Under ether I opened the stomach and stitched it to the abdominal wall, so that I could slip two fingers into it without soiling the peritoneal cavity. On pressing my fingers against the upper wall of the stomach from within, I was impressed, as I have been on many other occasions, with my inability to immediately locate the esophageal opening. This has been extremely interesting to me from a physiological point of view. We ordinarily think of the stomach as pictured in anatomy, showing a funnel-shaped expansion of the esophagus where it joins the stomach wall. It has never been my experience to find this condition in the living stomach. As the finger passes back and forth over its upper interior aspect, one feels an even surface more like the interior of any dome-shaped cavity. This surface is maintained by the circular sphincteric muscle layers, and it is not until a moment's pressure of the finger at the right place causes them to yield that it slips upward into the esophagus. I have never seen this point stated in

*Read before the Practitioners' Society, October 11, 1907.

surgical work, and it has interested me as representing an always present physiological condition which prevents food regurgitation.

Once having yielded, the opening remains for the finger to find easily during the rest of the operation. Guided by the index finger, a long filiform whalebone bougie was passed from the stomach to the mouth, though impassable from above downward. To the end of this a string was tied and pulled up through the esophagus. To its lower end a Billroth dilating bougie was tied, which was drawn up until it engaged in the stricture. As it would not pass through, it was withdrawn temporarily, an extra string drawn up, and again the bougie pulled tightly into the stricture.

By pulling the second string back and forth, while the wedge-like end of the bougie was tightly crowded into the stricture, I was delighted to feel the bougie rapidly pass up. Larger ones were

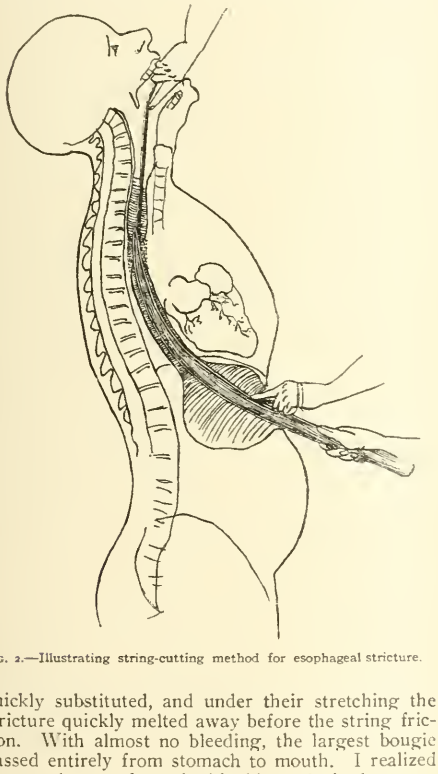

Fig. 2.—Illustrating string-cutting method for esophageal stricture.

quickly substituted, and under their stretching the stricture quickly melted away before the string friction. With almost no bleeding, the largest bougie passed entirely from stomach to mouth. I realized at once that a safe method had been devised to remedy this incorrigible condition, and that the principle of action was logical.

A few days after operation the patient was permitted oysters and semi-solid food. Two weeks later the gastric fistula was easily closed, from which moment the patient rapidly gained weight. The largest bougie was passed down every few days, then once a week, and monthly during the latter half year. Since then, once a year, I have tested the esophagus, and there has never been the least recurrence of stricture. Thus we have ample demonstration of permanency of the cure.

Since the publication of this so-called string-cutting method, it has been widely adopted by surgeons. Dr. Mixter of Boston has had a specially large experience with it, and recently wrote me in highest praise of it.

Some interesting modifications of technique have been made by Bryant Dunham and others, but the essential principle stands proved that the wearing away of the cicatrix by string, while it is made tense, is the safest and most enduring method of cure. One or two writers, however, in describing it have failed to emphasize the foundation principle, that the dilator must be pressed tightly into the channel in order that the string moving to and fro may eat its way through the stricture. No tissue will be affected by the string, except where it is on the stretch.

Let me now record a second admirable illustration of this method. In June, 1904, a child of three years, visiting in St. Louis, swallowed lye, producing immediate inflammation of the esophagus. Three months of anxious treatment followed, and she was brought to Philadelphia in an emaciated condition, only small quantities of fluid trickling into the stomach through the esophagus. Her physician, Dr. Ludwig Loeb, consulted Dr. Keen and Dr. Deaver. Two attempts under ether failed in passing even the smallest filiform into the stomach. One of the surgeons advised a permanent gastrostomy; the other advised her to be brought to me to try the string cutting. It is needless to say the feebleness of this puny child gave me much concern, and a very quick operation was planned. Under ether anesthesia, the stomach was opened and a whalebone probe passed up through the esophagus to the stricture. Only the finest filiform, however, could be passed up through it. A string was pulled up; then a small, conical, Billroth bougie; but it stuck tightly. The string-sawing with a second string, however, immediately relieved the obstruction, and in five minutes the largest bougie permitted by the normal child's esophagus passed stricture after stricture and appeared at the mouth. In this case more than half the length of the esophagus was densely cicatrized.

The operation was completed by inverting the stomach opening and tightly suturing it about a feeding catheter by three purse-string stitches, one over the other.

The child sucked ice by mouth and was fed hot nutritive fluid through the gastric tube until it was strong. Then the gastric fistula was easily closed and rapid convalescence followed.

Dilatation as usual was continued. In the course of months, however, omission to continue this faithfully led to partial closure, although swallowing of soft food continued.

We now faced a new problem. Knowing the denseness and length of the cicatrices, which would not now yield to the bougies, and not caring to reopen the stomach and repeat the string sawing, I devised a dilating metal guide which carried a string down to the face of the stricture and back again, so that working entirely from the patient's mouth the stricture could be worn through on the same principle.

Dr. Bryant has formerly devised a bougie à boule carrying such a string, but my modification after many changes following its use in this case at last was brought to a freedom in working that enabled me to say it had reached a practical working form. Its action is exceedingly quick. As soon as etherization is well established, an assistant holds the head back and the instrument is pushed gently down the straight esophagus—until the probe ending guide engages in the stricture, and the metal shoulder bears hard on it. While the operator forces the instrument onward, a third as-

sistant pulls the string back and forth in the tube, and wears away the cicatrix where the string presses against it. It is thus impossible for the instrument to go astray from the canal—which widens as it advances—and harmful perforation cannot occur. With better attention to frequent dilatation during the ensuing year no more trouble followed.

The child remains in robust health to-day and eats everything. Her physician writes this week that no one could be in better health, three and a half years after the accident.

These two cases are so typical of the utility of this safe and simple method, and so demonstrative of the permanence of the good results in this grave condition, as has been shown also in many other patients, that I am satisfied they can be repeated in all proper cases, and the test of time may now go on record.

Finally, I would note (1) that most of the obstructive cicatricial esophageal strictures can be dilated from above and should be so treated; (2) that those which are only permeable by a fine bougie offer great chance of serious perforation of the wall of the tube during dilatation where much force is needed to push it through; (3) that such as admit a probe of some size can be safely cut from above by the string-cutting esophagotome; (4) that very tight or impermeable ones can always be safely, quickly, and permanently cured by gastrostomy, followed by the string cutting.

It almost goes without saying that this method should never be applied to esophageal strictures resulting from other causes, such as are made by pressure of mediastinal tumors, aortic aneurysm, spasmodic strictures, or malignant stenosis.

For these no better relief can be found than a permanent gastric fistula, which can now be made free from leakage by any one of several methods.

With this late report, I feel that a small but definite contribution has been made to surgical technique.

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OPEN-AIR TREATMENT OF PNEUMONIA; MY TWENTY-NINE YEARS' EXPERIENCE.*

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Pardon a bit of personal history: While yet a youth my one desire was to be a doctor. I was ever on the alert for knowledge that would be of practical help to me in after life. One thing that I then learned has been of constant use to me—the value of open air. It was often mentioned in my hearing that the consumptive men who went into the army during the Civil War, and who survived its hardships, came out with health restored. It was hard to understand why this was so, but after much thought over the matter I came to the conclusion that it was due to the open air and its toning effect on the vital phenomena. Imbued with this idea, I began to direct tuberculous persons before I undertook the study of medicine. The diagnosis was not mine, to be sure, but that of reputable physicians. That was in 1871 and later. These persons were advised to live and sleep in the open air, to take exercise short of undue fatigue, and to eat plain, substantial diet, including a per cent. of hog fat up to the individual digestive capacity of each. I recall three persons, one with hemorrhages and hectic—these recovered and at least two are living to-day. I graduated in medicine in 1877 and began the active practice of my profession the same year. From that day on I have treated the tuberculous and those predisposed to tuberculosis on this same general plan and I have had no reason to regret it. We need open air in health. We must have open air to keep health. If open air is so important in health with good and ample chest space and movements, surely it is much more important when chest space is lessened and chest movements restricted. Viewing the matter in this way, I have invariably advised open air in every case of pneumonia coming under my observation. So much open air have I demanded for my pneumonia patients that my professional life for twenty-nine and more years has been a fight and a struggle against the protests and officiousness of friends and members of the family of the patient under treatment.

In the winter of 1881, I saw Miss L. B. of Fishersville, Va., age about eighteen years. Mother, father, and other members of her family tuberculous. She had not recovered from an attack of pneumonia the previous year. In her present attack she was attended by another physician, who had left the case on Saturday because "nothing more could be done." On Sunday another physician was called and he confirmed the previous opinion. On Monday, Dr. D. W. Hanger, an excellent retired physician and neighbor, was sent for. He came for me in person, as he had no medicines. I was then a young man and of course did not care to assume the responsibility of so grave a case, for Dr. Hanger agreed with her former physicians, and I could expect nothing short of a death on my hands. He finally prevailed on me to see her and upon purely humanitarian grounds. My first visit was at 10 o'clock at night. She could not retain even water and had not been able to do so for several days. Both lungs were involved. It seemed to me that she was as weak as a person could be and yet be alive. Every symptom pointed to a quick demise. I had a blister applied, administered morphine and atropine hypodermically and when this began well to affect her, I ordered a small quantity of liquid food. But I had her given plenty of open air—she needed air. The next day I saw her about 10 A.M., and again that night. The treatment of the first visit was continued. As I could not see her so often, I got Dr. Harris, a dentist, who lived in the village, to give her the night hypodermics. The nausea and vomiting continued, except when under the influence of the morphine compound, for about ten days. After the vomiting ceased, the nausea kept up for some time. Finally she could retain suitable food and some medicine. In six months I pronounced her well. It has been eight years perhaps since I heard from her. She was then well and weighed one hundred and sixty pounds. I can't help but think it was the open air that did most to cure her.

The importance of maturing observations and verifying them by the test of experience, before laying them before the public, is why I have not written on this subject before.

Why is pneumonia more fatal to-day than one hundred and more years ago? I see this claim made in the journals and I see it made in an article in the 1906 transactions of this society. It is denied by some and is a question in the minds of many. Of course we should consider the more exacting diagnosis of the present day, excluding bronchitis and other affections simulating croupous pneumonia. This would naturally cut down the number of cases of pneumonia and would apparently in-

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crease the death-rate. Personally I feel that the death-rate has increased. If it has not increased, the mortality in former years, under universal bloodletting must have been fearfully large. The text-books tell us that the mortality lessened with the shelving of the lancet. It is a well observed fact that much morbidity or much mortality calls forth much discussion in contemporaneous print. To-day we find paper after paper on the subject of pneumonia. This every one will concede. To get a better insight into this matter, I took the trouble to examine carefuly volume after volume of the *Medical Recorder,* the leading medical publication of ninety and more years ago, and there is scarcely a line—in fact, I may positively assert that there is not a line by domestic writers on the subject of either broncho or croupous pneumonia. This of itself, it seems to me, should merge argument into belief. Then if true, why was it?

The disease must have been frequent in those days, because the causes which our text-books lay down for us—exposure, deprivation, hardships, intemperance, etc., acted then in ten-fold strength. If we except blood-letting, the treatment of pneumonia at the present day varies but little in principle from the treatment eighty and one hundred years ago. Now, if it is a fact that the death-rate from pneumonia is greater to-day than it was one hundred years ago, why is it greater under a more conservative treatment, with better nursing and a more sustaining diet? It should be less. It is not because there is a greater per cent. of cases of pneumonia, for reasoning from the teaching of our text-books, exposure was greater one hundred years ago than it is to-day. Now, if we accept the dearth of literature on the subject as support of our claim, then we recognize the fact that when the death-rate was at a minimum exposure was at a maximum. Nor should we omit in making this estimate, the nutritional disturbances and consequent loss of resistance —the natural concomitant of one, two, and perhaps repeated venesections. So, then, it seems that a better etiology has not helped us; a later pathology has not helped us; a more exacting diagnosis has not helped us. With a dimmer knowledge and the overexposure of the past, a less death-rate. It's paradoxical, but it seems to be true.

When we read the mortuary reports, we are summarily forced to the conclusion that pneumonia is at the present day an alarmingly fatal disease. In fact, the profession in general, if we reason from the printed remarks on the subject, is of the opinion that deaths from tuberculosis are steadily decreasing while deaths from pneumonia are as steadily increasing and have done so gradually for the past one hundred and more years. The question naturally arises, why is this increase of death-rate from pneumonia? It can't be that the seed is stronger and the soil richer. The soil for tuberculosis is more favorable for the growth of the disease than it was one hundred years ago, and yet the disease is diminishing. The soil fit for tuberculosis should likewise be a soil fit for pneumonia, and pneumonia we are having, but why is the death-rate from pneumonia increasing while that from tuberculosis is decreasing? I speak now of tuberculosis of the lungs. Some say it is because of the enervating life we lead—the great mental and physical strain, without diversion that rests and gives time for mental and physical repair. But it is not worth while here to enumerate all the views on this subject. Perhaps each of us who studies the subject holds his own view as to the reason. You have yours, I have mine, and it is mine that I am here to give on this occasion. The reason, in my mind, for so great a death-rate from pneumonia as we have to-day is told in a few words—*lack of open air.* One hundred and more years ago, when pneumonia was an almost benign disease, our forefathers lived in rudely constructed habitations, the air came up through holes in the floor, down through openings in the roof, and poured in through cracks in the sides. They lived in the air during the day and slept in the air during the night. Pneumonia patients in those days were practically out-of-doors—they had fresh air pouring in from the outside through openings that were a part of the crude existence of early pioneer life. Pneumonia patients got well then simply because they had what pneumonia patients needed—open air. The exigence of early pioneer life furnished them what an enlightened civilization deprives them—open air. One hundred and more years ago the pneumonia patient got well, or the death of one was so infrequent that it did not even count as an item of professional interest. In the succeeding decades, as wealth and civilization advanced, we find somewhat better houses were built and with the better houses came an increase of death-rate from pneumonia, and so on with each succeeding decade up to the present time, when houses are almost hermetically sealed to exclude air, we find a corresponding increase in the death-rate from pneumonia. No more is it a fact that tuberculosis is a house disease, than that death from pneumonia is a house death. It is the lack of open air in both cases. Who would be so foolish as to turn on the gas to improve the breathing and yet we find pneumonia patients in rooms with the windows down, the doors shut, fires ablaze, and numerous friends and visitors sitting around the patient's bed, and this, too, in the open knowledge of the attending physician. Everything done that could be done is the verdict when the pneumonia patient passes to the great beyond, and yet the one thing that should be done is not done—letting in the open air. It is virtually asphyxia, and asphyxia kills whether it is from too much gas turned on or too much air kept out—it is the deprivation of oxygen in either case. All rational effort in the treatment of pneumonia is to prevent asphyxia, and of all the measures that conspire to kill the pneumonia patient no one thing so surely contributes to that end as artificially heated air. Give the open air, pure from the outside. It lowers the fever, calms the brain, slows the pulse, quiets the respiration, gives a livelier tinge to the blood. Under an abundance of open air the temperature is never a cause of alarm and delirium is scarcely ever observed.

Illustrative Cases.—Case II.—Was called to see Annie P., aged sixteen, in 1898, and as I thought in consultation, perhaps for serious heart trouble, as it was generally understood that her death was expected at any time from some such malady. When I got to her home, however, I found she had double pneumonia. The cyanosis, dyspnea, etc., at first glance showed her condition as being serious. My consultant (her former physician) gave a grave prognosis. I had her in a shed room, with large holes all around the roof where the air came in freely—the holes were large enough to run one's hand through. There was no need of begging for air here, as it was cold, blustery weather. The neighbors pleaded for fire and predicted her death, because I would have none. She got well.

Case III.—Miss S. H., centenarian. Her extreme age would at once proclaim her condition critical. Though the ice was nine inches in thickness, I would permit no fire. To keep warm, the

nurses wore extra wraps, and when the cold became unbearable they thawed out by the fire in a room across the hall. This patient, though so old and feeble, recovered.

Case IV.—J. S., aged eighteen years. A lingering case, unresolved pneumonia. Had had night-sweats every night for forty nights, when I was called to see him in a rather protracted absence of his family physician. He was terribly emaciated, weak, and pale. No appetite. Both lungs involved. One window was directly by the head of his bed and another opposite. I ordered the fire extinguished, heat to his feet, and the windows opened for one hour. He missed the usual night-sweat the first night and never had a return. The length of time of the "airing" was increased each day. He gained in weight, is full of energy, and is able to stand constant hard work.

Now, these were all bad cases, and it is with just such cases that open air is needed. In mild cases the patient will get well any way. I will not attempt to say what percentage of my pneumonia patients get well, but I will say that I look upon open air in the treatment of pneumonia with the same unbounded confidence that the surgeon looks upon the knife in the treatment of appendicitis—*it is the only hope for the bad cases and will certainly save ninety-eight in one hundred if used early and properly in all cases.*

Guided by a distinct perception of the needs of each patient, with open air and good nursing, one need not worry over the contingency of death from pneumonia. The air can't be too fresh, nor its temperature too low. There's no danger of "taking cold" while the fever is on. The younger the patient, the older the patient, and the more hopeless the case seems, just so much the more important it is to enforce open air and exclude artificial heat. Keep the patient's feet warm, but don't heat the air he breathes—don't.

In the house and hospital treatment of pneumonia, as formerly altogether and latterly mostly carried out, the walls are usually air-proof, the windows and doors are kept closed, and to this is added a heating system which admits of scarcely any ventilation. They call it ventilation with a window down an inch or two at the top, and occasionally some are even bold enough to have another window (if there's more than one to the room) up an inch or two. Allowing 2,000 cubic feet of air to the person in such a room, it is impossible to get in 2,000 cubic feet of fresh air to the person per hour and still more impossible to remove the vitiated air, so that as a natural consequence the vitiated air is gradually increasing and the pure air is all the while decreasing and with it the bad pneumonia patient grows worse and worse.

For want of time I shall pass over the etiology, pathology, and diagnosis of pneumonia, nor shall I consider to any great extent the symptoms. These can be better obtained from the text-books. But in order to bring out more clearly the value of open air in the treatment of pneumonia, I shall indicate as accurately as possible some of the factors that go to make its prognosis unfavorable.

The symptoms which usually demand attention are pain, cough, and dyspnea—the cyanosis will generally take care of itself. The pain and cough will also, as a rule, yield to rational therapeusis. The dyspnea may be substantive or vicarious. Substantive dyspnea has reference solely to the lung disturbance and is due in part to the pain and in part to the amount of lung tissue involved, and as these causes can be readily met, in most instances, by open air, topical applications, etc., the prognosis is, for this reason, altogether favorable. If called to a patient who affirms that the shortness of breath is of earlier date than the accompanying pneumonia, we may infer, with a certain degree of confidence, that a part of the dyspnea, at least, depends upon a pre-existing functional or degenerative weakness elsewhere in the system. Hence vicarious dyspnea, which antedates the lung trouble, is seen usually about the age of puberty and is perhaps an expression of a neurotic irritability. In adults, and notably in the old, vicarious dyspnea is associated with cardiac, renal, hepatic, etc., diseases, or to stasis caused by mechanical pressure of tumors, etc. It is well to take this contributing influence of difficult breathing into account, as it modifies both the prognosis and the treatment. Substantive added to vicarious dyspnea should excite our earnest solicitude.

For our immediate purpose, I may properly divide the respiratory process into mechanical and chemical, both being essential for the normal process of respiration. The mechanical disturbances may be varied and frequent and yet not seriously modify or threaten life, but once the chemical process is materially lowered, impeded, or yet rendered entirely passive, the ending is so ghastly certain that it needs no further comment. This normal chemical process primarily and essentially depends on fresh air—fresh air going in laden with the element upon which life hangs and coming out burdened with the elements inimical to life.

Cell integrity is not life. What life is we know not. But for all practical purposes, cell integrity—that is, cell functioning—is synonymous with life. Cell exaltation or cell inertia leads to cell alteration and, if prolonged, to cell exhaustion, disintegration, and death. Cell integrity depends on cell metabolism—the balance of waste and repair within physiological limits. The existence, development, and function of all other cells rests primarily in the blood cells or corpuscles. Weaken the blood cells and you weaken the tenure on life—destroy the blood cells and you destroy life. No single injurious factor is so potent for evil to the blood cells as is the exclusion of fresh air. Pneumonia limits the ingress and egress of the air in the lungs, and to some extent in proportion to the amount of lung tissue involved in this process of respiration affected. Lung involvement associated with complications makes the picture still more alarming. In my opinion, it is not the pneumonia that kills so much as the lack of oxygen and the pent-up waste products hastening asphyxia. Forced elimination and open air are essential in this disease—especially in the hopeless cases. Nothing can replace the oxygen of the atmosphere. Artificial oxygen may do at times and it is perhaps better than no oxygen, but it is expensive, fatiguing to the patient, and lacks many of the concurrent benefactions which are an inseparable part of fresh atmospheric air. It is a well understood physiological fact that an abnormally large proportion of artificial oxygen in the blood leads to diminished breathing movements, and if the proportion be large enough, to their temporary cessation. Now, in the generally lowered condition of vitality of all the tissues and organs of the body, as found in most of the bad cases of pneumonia, is it not at least possible that the pushing of artificial oxygen to the extent of saturation of the blood with the gas, might be the cause of death in not a few instances? Is its use always devoid of danger under an eager, anxious administration? The over-charging of the patient, the additional exhaustion consequent upon the fa-

tigue produced, is it not possible that these things may do irreparable harm? But it is not alone the constant and plentiful supply of fresh air taken into the lungs that does the good by the open air treatment—of greater importance is the constant and plentiful removal of that which is vitiated. This of itself is eminently a gain in favor of atmospheric over artificial oxygen. Then in addition to this, we have the soothing, quieting, bracing, and widely sanitive effect of atmospheric air, which cannot form a part of the good done by artificial oxygen.

Shade important. The good done by open air is not due to the cold alone, for the open air of summer, particularly in the shade, not only conserves but augments the vital phenomena. I find that my pneumonia patients do just as well in summer as in winter. This fact was seen but not recognized many years ago. The *Medical Recorder*, Vol. XV, 1827, gives the following report from La Charité Hospital, foreign. Total number of cases (of all kinds), 281; deaths, 39. "To show how uncertain is the ratio of mortality in the same disease at different periods, we may remark, that out of eighteen cases occurring in the spring quarter of the above period, six died, while in an equal number of cases occurring in the summer, there was not a single death." Had the profession recognized then that the open air made the lessened death-rate, there would be no need of paper after paper on the subject of pneumonia at the present time.

We tell the patient with bad headache to lie down in a quiet, cool, dark room. Why? Simply to give the disordered nervous system an opportunity to gather itself together and thus return to the equilibrium of normal function. Critical clinical observation has made it plain to my mind that heat and light, whether natural or artificial, if intense or continued, induces nervous instability, mental irritability, with restlessness, muttering, and insomnia—and so does the stimulation of drugs when carried beyond the individual requirement. Therefore, let in the open air and draw the blinds. The darkened room and the cooler atmosphere soothes the nerves and quiets the mind. Edge the building with the sunlight if you will, but keep down the glare and ward off the heat of its direct rays. These things are easy in winter, but not so in summer. In the summer months, put your patient in a large airy room, but amply protected by wide porches, or if this cannot be had, put up large awnings, the under surface of which is of some dark color. If you can't have porch or awning, improvise a canopy of brush. Any contrivance that will shade and yet will not obstruct the air, is better than no protection. This is not alone important in pneumonia; for twenty-eight years open air, elimination, a shaded room, and exclusion of milk has been my almost constant rule in typhoid and other fevers and my professional colleagues know with what success. Nor could I treat the puerperium without open air and the darkened room. With these and the collateral aids of individual prophylaxis, ergot, strychnine, and posture, I have had neither mortality nor morbidity.

This open air and shade treatment is nothing marvelous, nor is it new—it is as old as time. It is only a return to nature and nature's way. Death in pneumonia is for the most part due to a form of toxemia, the presence in the blood of an abnormal amount of the products of faulty metabolism—the want of open air, the most efficient factor, functional or structural disturbances of the liver, kidneys, etc., contributing coefficients. Whether the hepatic, renal, cardiac, vascular, etc., conditions are directly attributable to alcohol, the degeneration of old fibroids, uric acid, or other metabolic products, clinical experience warrants me in emphasizing the importance of elimination, first, by the lungs; second, by the liver; third, by the kidneys; fourth, by the skin. So that while open air is good for all cases of pneumonia and essential in the bad cases, it may not be out of place for me to mention some of its trustworthy aids.

We now come to what is styled the "expectant treatment." There's a weak girder in the bridge; we drive on it, the structure goes down. That's the expectant treatment. Far better to have forestalled the danger and avoided it, than to have waited and come face to face with it. While I hesitate to differ with the text-books, why should we remain idly expectant? The condition is nothing more nor less than a toxemia. The approved treatment of toxemia is by elimination. In pneumonia it begins and should end with the influx of open air, supplemented by every other means that can add a whit to the comfort or well-being of the patient.

When at all indicated, I prescribe ammonium chloride, which probably has no less a selective action in pneumonia than has quinine in malaria. It exalts excretion from the skin and kidneys and increases secretion from all the mucous surfaces. Increasing the secretion of the bronchi, it eases the cough and facilitates expectoration. This allows a freer ingress of air and lessens the tendency to dyspnea. Rarely have I observed gastric discomfort—occasionally some diarrhea, which is always beneficial, and even so is the slight nausea or vomiting it very infrequently seems to produce. It also increases buccal, faucial, and nasal secretion. If for no other reason, this is a gain in comfort to the patient; but it does more: by reason of this increased secretion, it limits the entrance of pathogenic organisms into the lungs, and as it is found unchanged in the secretions of the nose and adjacent cavities, it may not only weaken, but destroy the aggressive pneumococcus. If it prevents the entrance of, weakens, or destroys the pneumococcus, it cuts short the further extension of the disease.

It is of more or less value in removing the functional hepatic derangement almost invariably associated with pneumonia. Its diaphoretic and diuretic actions are influential in relieving the portal circulation and allaying pain. It is frequently a reliable remedy in intercostal neuralgia and should help in mitigating the pleuritic pains of pneumonia. Its great value in relieving hepatic congestion, would point to it as a rational help in the pneumonia of drunkards—in fact, its whole range of action on the economy makes it one of the accessory therapeutic aids we should welcome in our bad pneumonia cases. Besides, it seems to be a mild stimulant to both the circulatory and nervous systems. If not a stimulant, its action upon the system is so benign that it soothes the circulatory and nervous systems into a better repose. Used in conjunction with an abundance of open air, you can have nothing more dependable in the majority of bad cases. Should you stumble on an idiosyncrasy, or later on in the case, and when there is pronounced dyspnea, feeble circulation and great depression, especially in children and the very old, ammonium carbonate seems specially indicated. It is esteemed more certainly bracing than ammonium chloride. Once in a while it may be better practice to use ammonium carbonate from the beginning; again it seems preferable to administer the chloride preparation through to complete resolution. However, we must bear in mind that each case requires its own additions and subtractions.

Often before, but usually with the subsidence of

the morning temperature, I put my patients on petroleum. It lessens and loosens the cough, facilitates expectoration, assists digestion, retards intestinal fermentation, and, as its action is entirely local, must assist somewhat the intestinal function. Patients gain weight and strength more rapidly under its administration. The alkaline salts, especially when in combination with potassium bicarbonate, are often of the highest service in freeing the blood of pneumonia patients of the excess of waste, particularly of the urea compounds. Lastly, water, as simple as the air we breathe, and, in its way, no less important. Water should be used liberally. The lithia waters give the best results.

I must not omit a word on local applications. In the bad cases, with torturing pain, great dyspnea, etc., I am an advocate of turpentine plentifully applied. I have it rubbed over the affected area and well beyond, until it burns and burns briskly. The danger is in too little and not too much burning. When it becomes too annoying to the patient, a touch of cream will quickly soothe the irritation. Then, if necessary, I have the cotton jacket wrung out of boiling water, to which turpentine has been added, and I have this put on, and when it can be had, oiled silk for an outer covering.

About 10 P.M., January, 1879, I was called to see a boy, aged about fourteen years. Pleuritic pain severe, dyspnea distressing, cyanosis profound. Temperature, 106½° F., respirations panting, and pulse apparently gone. I ordered heat to his feet and legs and then opened the windows and door to let in the outside air. I hurriedly made a cotton jacket, wrung it out in boiling water, poured hot turpentine over it, and put it on the boy. It began to burn him in a very few minutes, and in less than a half hour the burning was so intense that he lost sight of the pleuritic pain. I took the jacket off simply because I could not stand to see him tortured longer. I ordered the jacket to be kept hot, using no turpentine, and kept on until my return. I then gave calomel and Dover's powder. Saw him the next morning about 11 o'clock. The cyanosis had disappeared, the dyspnea was almost gone, temperature 102°, and respiration and pulse down in like ratio. The treatment was perhaps severe, but the condition was grave—the result was satisfactory. If the turpentine and open air didn't save this boy, what did? After a considerable experience with the various external means recommended from time to time, I must say that there is nothing like the cotton jacket, boiling water, and turpentine—applied to the maximum of irritation; then gently lessened. Turpentine stimulates capillary and lymphatic circulation better than any other local application. The kaolin preparations do very well under the moist heat of the cotton jacket in infants, but, used alternately with turpentine, adults will learn to call for the latter. While the turpentine is not so agreeable in the beginning, it yields greatly more comfort, and comfort in all cases of pneumonia represents substantial benefit. To get the best results, kaolin should carry at least 60 per cent. of glycerin.

Hygiene of the nose, mouth, and throat has a distinctly beneficial action in all cases of pneumonia—especially in the very young and very old. The parts should be sprayed frequently with pleasant antiseptic solutions; the nose with an oily solution, in order to get a more prolonged contact. Spraying soothes the mucous membranes and protects them from infective material.

Next to diet in disease, stimulation is one of the most interesting subjects that comes up to us in medicine. Because on nutrition hinges life, and stimulation, while infrequently needed, is, when needed, more often abused than properly used. If it is alcohol you mean, then I can tell it in few words: Alcohol is good for the well to get sick on, but bad for the sick to get well on. The pneumonia patient, if seen early, directed along the lines succinctly marked out above, and nursed with care, will rarely, if ever, have need for alcohol. There may be, and occasionally will be, some depression, but no marked crisis, and with no positive crisis there's no need for alcohol. Its psychic effect on the patient and moral effect on his friends sometimes calls for its administration. Then, and always, its giving should be guided and guarded by the same safe rule that should guide and guard the administration of other stimulants—fractional doses at fractional intervals. I fear the depression of the reaction from large doses of alcohol vastly more than I do the depression of the crisis. Under an abundance of open air, and the further depuration by rational elimination, ample and easily digested food, there is rarely ever forced upon us a crisis for alcohol.

It has been said that "drunkards are more sensitive to alcohol, and therefore at times require larger doses than the same apparent condition calls for in the temperate." I wish to say, however, that rarely ever in the case of drunkards do I allow alcohol, surely not in the doses we are taught to give it. If the failing heart, in drunkards or others, is due to loss of functional power in either muscle or nerve, it seems to me that with alcohol, digitalis, and similar stimulants, given in free doses, there is imminent danger that the contributory stimulation may prove more than the heart can bear, and cause it to cease to beat from sheer exhaustion. I think I have seen such unfortunate endings. Then, again, the loss of functional power of the heart may be due to the direct action of the poison of a nondepurated blood—whether from want of adequate oxygenation, retention of urea compounds, or other products of waste, and if so on what reasonable grounds should stimulants be plied here to the maximum? Would it not be better to "away with" the offending causes of the depressed heart? Stimulants forced may postpone the patient's sufferings until death, but they will not prolong his life.

In alcoholics, when the action of the heart becomes weak or the mental activities disturbed, I have found tincture of capsicum determine efficient control. Capsicum promotes mouth and stomach secretion—thus aiding digestion, and it exalts the peristaltic action of the intestines. It is also a mild cardiac stimulant and assists the action of diaphoretics. It quiets the nervous phenomena better than any other one drug; combined with a fluid preparation of quassia, etc., its action is markedly enhanced. High enemeta of normal saline solution, if enough is used, and half to a pint is left in the colon, sustain the heart, tone the nervous system, increase the flow of urine, favor diaphoresis, and, of course, assist in the elimination of waste and the subsidence of fever. Their administration, I feel sure, is frequently indicated. Patients feel better after the irrigations—they are both physically and mentally refreshed.

If the dyspnea and cyanosis deepen to the point of apparent dissolution, and do not yield to other therapeutic measures, depletory infusion promises benefit. A few ounces of blood drawn, while a half pint or more of normal saline solution, to which adrenalin chloride solution is added, is injected into the cellular tissues, may not only lessen the tendency to increase of fibrin in the blood, but it may also further the excretion of toxins—it will cer-

tainly lessen the bronchorrhea present in many bad cases.

For the cardiac enfeeblement during the period of great obstruction, whether from a large involvement of lung tissue or otherwise, we want a remedy, the physiological action of which is a cardiac stimulant without simultaneous deviation in capillary and arteriole tension. In this respect we have a remedy that bids for a more extended trial. It acts more rapidly than digitalis, and its effects in moderate doses lasts from four to six hours. When prompt action is desired in pneumonia, especially when the patient gives evidence of antecedent disease of the myocardium or of the valves of the heart, sparteïn sulphate should give results. The indication for the drug is not frequent. If used, I would say, keep down to minimum doses.

Foster says "digitalis is eminently the medicine for a dilated rather than for a weak heart." It should never be used when there are changes in the cardiac muscle or atheroma of the blood-vessels. It has no place in the pneumonias of the elderly.

While strophanthus is less dangerous than digitalis, it is no better than the latter when the heart muscle is impaired. But the drug is so quickly toxic in its action, even when administered with caution, that the best safety lies in its non-use. Personally, I have no use for digitalis, strophanthus, and nitroglycerin in the treatment of pneumonia. To emphasize my position: J. W. W., aged about fifty years; family history tuberculous; patient tuberculous; had been under the treatment of one of our best physicians for about two years. I was called March 8, 1905. Diagnosis, croupous pneumonia. Condition serious from start. Consultation was refused. A week later, however, he was extremely ill from discharging abscess, right lung. The patient's son, who was just up from Washington, called a consultation. I could not be with the consultant. However, I met him on his way home. He pronounced the case hopeless, and it did look that way. During our talk he took a vial from his pocket and asked me if I was well supplied with stimulants. I said, "Doctor, don't pull those things on me, for don't you remember what I have so often told you about digitalis, strophanthus, and nitroglycerine?" He exclaimed, "What?" I replied that every time I had yielded to use them the patient had died. He replied, "Well, you know this man is going to die." I said, "Not if I can help it." I did not use the compound and very little, if any, whiskey, but I had a good nurse and open air. He got well and is well to-day. When stimulants do not kill at once, they may as surely lead to a fatal ending by slower action. Mrs. L., aged about seventy years; native of England; seven brothers and sisters had died of "heart disease;" patient was feeble from a like affection. Saw her in the afternoon. Diagnosis pneumonia. Next morning had consultation. Opinion, no possible hope—she was too feeble and heart condition too impaired. She was put on a digitalis, strophanthus, etc., compound, and all up to maximum doses. I did not see her for two days and nights, as I was with obstetrical cases. When I did see her she was restless, unable to sleep, skin dry, and tendons jerking. The end seemed at hand. I sat down by her bed and studied the situation. Finally, I made up my mind that she was getting too much stimulation; so I cut the stimulants down one-half and gave her acetanilid and waited. In about an hour she seemed less restless and skin less dry. In two hours she was quiet and the skin was moist. In three hours, by midnight, she was asleep. Every two hours she was aroused for nourishment. The next morning I found her in a more favorable condition. She got well. Acetanilid has other indications in the disease—properly used it is a valuable drug.

Nux vomica, or its alkaloid, meets more demands as a stimulant than any other single therapeutic agent. In small doses it stimulates the motor nerve cells of the spinal cord, the cardiac motor ganglia, the respiratory and vasomotor centers of the medulla. Its benign action reaching out to and including all the functional processes of the economy, virtually confirms nux vomica as a nutrient rather than a stimulant. In times of great prostration, with cold extremities, almost imperceptible pulse, and life apparently at its last ebb, the tincture administered in drop doses every few minutes demonstrates a sustaining and insistent power that carries the patient gratefully to eventual recovery. Nux vomica also seems to counteract the vasomotor paralysis, to which most of the injurious effects of alcohol are due, so that whatever may be the etiological beginning of the cardiac feebleness, or the character of the contributory complications, nux vomica or strychnine stands preeminently above all other stimulants. It is a good stomachic tonic. By promoting the gastric, pancreatic, and biliary secretions, it aids digestion, a most important aid in the treatment of pneumonia, especially the pneumonia of drunkards. It does more—by exalting peristalsis it assists intestinal elimination, and, as it is excreted chiefly in the urine, it helps to maintain the urinary output. Rationally administered, it sustains the broken compensation until repair harmonizes the disturbed forces.

Diet.—Lean meat juices, blood, bone marrow, and egg albumen, with pure grape juice, until convalescence is well under way. We need these to keep down blood attenuation and to keep up nerve tone. In guiding and guarding the pneumonia patient, we need the easiest and fullest functional activity of both heart and lungs—then don't confide in milk—it ferments, it disturbs, it makes the heart labor, and embarrasses the respiratory movements. Milk is hazardous in pneumonia and kills in typhoid fever. Only recently I attended a man of eighty-nine years with pneumonia. He did well—the temperature became lower, the pulse went down, the respirations quieted, and the mind cleared. About 8 P.M. he called for a glass of milk, which the nurse gave. He gulped it down. Gas formed; his heart began to labor, and about 7 o'clock the next morning the end came. Don't give milk. To get a better conception of the present-day treatment of pneumonia, I enclosed five questions to a few eminent clinicians, and, without further delay, I wish to acknowledge their prompt and courteous responses. The small amount of time allotted to this paper precludes analytic reference to the valuable information embodied in their replies, which I present in tabulated form for easy comparison. Comparison of views is the only basis of broadened knowledge. To know what others think preserves the equipoise of one's own thoughts, and shapes the way to fewer errors of judgment. Though my paper was written before I received the answers to my questions, the little time I have had to give to them has already awakened valuable suggestions.

As a part of the above table, it affords me pleasure to be able to make the following excerpts from letters of Dr. Joseph H. Pratt of Boston: "The treatment of pneumonia in our hospital is chiefly expectant. Few drugs are used. Personally I look with favor upon the hydrotherapeutic procedures recommended and used by Dr. Baruch. My friend, Dr. Millet, of Brockton, has obtained excellent results by the fresh air treatment which he has em-

TREATMENT OF PNEUMONIA.

	Internal	External	Most Important Factor	Mortality Per Cent.	Why is Pneumonia More Fatal To-day Than 100 and More Years Ago?	Remarks
Dr. E. Fletcher Ingals, Chicago.	Symptomatic, but opiates to be avoided excepting in extreme conditions Laxatives to be used very guardedly.	Oil silk jacket useful in many cases—much better than poltices. Leiter's coil over painful area when temp. is high. Strychnia when heart is weak.	Quiet, fresh air, sufficient nourishment.	Varies according to age—from 20 to 35 the best period. After 50 about 75 per cent. die In hospitals all kinds of cases—from 30 to 45 per cent. die	Probably this depends largely on the diagnosis being more accurately made now—cases of bronchitis are not now claimed as pneumonia.	
Dr. Thomas McCrae, The Johns Hopkins Hospital, Baltimore.	Liquid diet, large amounts of water, bowels kept open, alcohol or whiskey, if toxemia Strychnine hypodermically and digitaline hypodermically if necessary for the heart condition. Codeine and heroin for cough, morphine hypodermically for pain, dyspnea, or, if necessary, for sleep.	Rest in bed, cold sponges, ice-bag to affected side, room cool, 65° fresh air.	Diet, large am'ts of water, and stimulation used with judgment, along with as much sleep as possible.	About 25 per cent. in large series. This includes all cases. In any statistics it is impossible to note whether the terminal lobar pneum. cases are included. They are nearly always fatal and compose about 10 per cent. of our mortality.	Is it? Personally, I doubt this very much. So far as we know, pneum. mortality has varied but little. Remember that in yrs. with certain other diseases, *e g*, influenza, prevalent, the number of cases of *broncho-pneumonia* increases greatly, but this is not *lobar* pneumonia The distinction is important.	Bleeding sometimes at onset if severe distress in full-blooded subjects, during course of m'ked cyanosis and right heart be overloaded.
Dr. E. G. Wood, Nashville.	Place patient in best possible condition to resist the disease by maintaining his nutrition, supplying abundance of fresh air, a good nurse, and absolute rest in bed with treatment of symptoms as indicated No routine medication Drugs resorted to only when symptoms severe and cannot be relieved by other measures, such as opiates, the first day or two, if the pleuritic pain prevents sleep; stimulants for heart failure, etc.	I prefer the ice-bag, some use mustard, but never blister.	Fresh air and rest, with good nursing.	10 1-3.	.....	As stated above, I believe fresh air is the most important single factor in the management of a case of pneum. After that careful nursing with careful nutrition and the relief of symptoms which either interfere with the patient's rest or in other ways lower his vitality.
Dr James Tyson, Philadelphia.	Supporting and stimulating. Of late am prescribing creosote in addition, without having been able to discover any direct results from its use or to trace to it any especial effect.	Generally local applications of ice to inflamed lung.	Am not certain what is intended by this question, but if it refers to tr'tm't would say that m'st important factor is the internal supp'rt'g and stimulat'g effect.	Average mortality at the Pennsylvania Hospital for 5 yrs., 17.4 per cent.	I do not know why, i am not certain that it actually is.	
Dr. Jno. B. Calwell, Assistant Warden, Cook County Hospital, Chicago.	Treatment is almost wholly that of symptoms Patient put at absolute rest and on liquid diet No routine treatment No specifics Heart stimulation, whiskey strychnine, digitalis, etc Expectorants, KI, etc. Catharsis, diuresis, etc.	Local applications, ice-bag, hot water bag Occasionally venesection.	Care of heart....	Has been almost 50 per cent. for several years. Out of 738 cases treated the past year, 347 died.	I believe the disease more fatal than formerly because of changes in the individual due to different modes of life. Intemperance, luxury, and reckless exposure without gradual seasoning, make susceptity greater.	
Dr. B. Merrill Ricketts (Harry Silver, Assistant), Cincinnati.	Lobar: Ammonium carb., 5 to 7 gr. t.i.d. Whiskey ½ to 1 oz. t.i.d. Strychnine 1-40 to 1-30 t.i.d. For cough: Codeine, ½ to ¼ gr 0.6 hr Morph if necess'y For fever: Plenty of fresh air, and —phenacetin, 7 gr., acetanilid, 2 gr., caffeine, 1 gr.—repeat when necessary	Pneumonia jacket of flannel	Stimulation.....	Uncomp'l'ted cases Cincinnati City Hosp. rpts about 1891, 31%; '92, 38%; '93, 28%; '94, 24%; '95, 34%; '96, 38%; '97, 25%; '98, 28%; '99, 14%; 1900, 28%; '01, 23%; '02, 20%; '03, 28%; '04, 28%; '05, 32%.	You will see that the rate here is higher during the last 5 yrs. I think that low mortality of 100 yrs ago was due to more fresh air as result of open houses. The tr'tm't now is practically "*Open house.*" I think that oxyg. is the most import of all unless it is op'n air	
D. Wm. A. Jenkins, Kentucky School of Medicine, Louisville	Alkaloidal: In full blooded patients, 1 granule aconitine gr. 1-124, viratrine, 1-124, digitalin 1-67 at 20 min until pulse softens. Clean out prima viæ calomel gr. 1-6, podophyl, gr. 1-6, followed by saline Codeine for cough if necessary If there is intes disturb, give purified sulphocarb'tes of lime, soda, and zinc until st'ls are deodorized To sup. heart strych and whiskey For conval use triple arsenates with nuclein.	I always use a cotton batten jack't and I very frequently use hygroscopic substances such as antiphlogistine	Early *elimination* and *defervescence*. In most cases intestinal antiseptics and heart support.	Mortality is extremely variable, higher in hosp. practice than in private prac. Varies with the epidemic some years extremely high again on other occasions relatively low I know of no rational explanation of this feature	*It is not; see my answer to No. 4.*	
Dr. Carpenter, Barnes University, St. Louis.	I regret very much that the valuable contribution by Dr. Carpenter has been mislaid or lost. I hurriedly ran over his answers and remember that he specially emphasizes the value of Norwood's Tincture, veratrum viride. For 27 years success was the rule. Then he abandoned its use for a while and to his sorrow. He had no failures in 50 years' use of it. He does not consider it toxic when circumspectly administered. He cited an unusually interesting case in illustration.					

ployed for a number of years, and which, as far as I know, he was the first to advocate in this section of the country, if not in the United States.

"During 1905, one hundred and fifty-one patients with croupous pneumonia were treated at the Massachusetts General Hospital. Of these twenty-eight died and six were in the hospital on January 1, 1906. There were during the same period forty cases of bronchopneumonia; three of these patients died.

"How do you know pneumonia is more frequent now than a century ago? Remember that Laennec's epoch-making work on the physical signs of pneumonia did not appear until 1819. Accurate diagnosis before that date was impossible.

"I think Dr. Northrup of New York has done more than any other man to arouse interest among the profession in the open-air treatment of pneumonia. He read a short paper on this subject before the American Medical Association at its last meeting. You will find it with the discussion in the last volume of the *Journal of the American Medical Association*, XLVII., p. 1182. I think that another paper by him was presented at the meeting of the Association of American Physicians last year, but of this I am not sure. Apparently the honor of first introducing this form of treatment belongs to Dr. Northrup, as he states that he used it first fifteen years ago."

In conclusion, modern conditions cannot be altered at one stride, but a hint from the past is not amiss, and, while sharing the apparent comforts of air-secure houses under a high artificial heat, an effort should be made to return as much as possible to the common sense security that is waiting in the mixture of open air and a little more roughing it.

GASTRIC EXFOLIATION AS A FEATURE IN THE PRODUCTION OF ACUTE GASTRIC ULCER.

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THE etiological factors that enter into the production of gastric ulcer may be divided into two main groups, those that assail the gastric mucosa from the interior of the stomach and those that unfavorably affect the integrity of the glandular layer from the systemic side. The important ones that affect it from the interior are superacid gastric juice, bacteria, trauma, thermic, and chemical agents. While those from the other group are the blood dyscrasias, thrombi and emboli, disease of the arteries, lesions of the vagus, inflammatory changes in the gastric nerves, pressure effects, and possibly bacterial infections derived from the system. Naturally any two or more of these factors may combine or work successively in the production of ulcer. The interior factors are varied, but all of them are of the nature of an effect upon the membranes by an agent, while those of the second group (excepting the factors of bacteria and emboli, of which both may be said to be questionable) have to do with the circulation in the way of quality or quantity of nutrifying blood supplying the organ.

Based on clinical observations, all authorities agree that high acidity (HCl) of the gastric juice and a low status of nutrition to the stomach walls are the commonest factors or concomitants found in cases of acute gastric ulcer. While cases of ulcer are seen with low acidity or antacidity, most of the acute cases seen show a hyperchlorhydria. Accepting all of the outside factors as means that lower the resisting vitality of the glandular layer of the stomach to the irritation of an excessive acidity from within, I have made repeated examinations of wash waters taken mornings from the fasting stomach in patients who after an Ewald test meal showed a total HCl count of over 100 and compared the findings with thirteen other gastric cases that showed a normal or less than 60° secretion of hydrochloric acid with the result that the hyperchlorid stomach shows a greater degree of cellular exfoliation and a smaller amount of mucus than is found in any of the other stomach affections.

In all eighty-one specimens were examined, twenty-nine of which were from the seven cases of hyperchlorhydria. Eleven were from cases of gastritis acida which, like the other cases of gastritis that had a lowered acidity, showed an exfoliation but not to the extent that the hyperchlorhydria did.

Columnar cells from the stomach were found in every case of hyperchlorhydria, sometimes in considerable numbers, attached side by side, at other times in groups of two or more and often single ones. In five of the cases I found groups of cuboidal or irregularly rounded cells attached together, cells which were most probably from the gastric tubules. In one of the specimens, which showed a free HCl 56° combined HCl 80° and a total acidity of 151°, I saw plainly a single sided section through an infundibulum of a tubule which showed on one end columnar cells, in the middle shorter and wider ones and at the other end cells from the interior of the gland.

It can be stated that practically the lining epithelium and glandular elements from a normal stomach are not shed. In stomachs that secrete mucus in increased quantities (gastritis chronica) the glandular cells are often to be found with an occasional columnar and goblet cell usually incorporated in the mucus. I agree with Adolph Schmidt (*Virchow's Archiv*, Bd. CXLIII, S. 498) that in the inflammatory conditions of the stomach the epithelium of the surface of the stomach is preserved better, in the way of exfoliation, than the gland cells. But not with Siegel, that the gastric juice cannot affect unfavorably the delicate layers of epithelium during life and that a hyperacidity affects only the course of the ulcers healing, and that alone. The latter may be true in hyperacidities when there is mucus enough to protect the cells, but in these cases of high hyperchlorhydria the quantity of mucus is generally remarkably low and the investigations proved that not only were the gastric cells shed but that they were shed in larger numbers in these cases than in any of the other stomach disorders.

Technique of procedure: 240 c.c. of distilled water containing sodium chloride, 21 grains; sodium sulphate, sodium carbonate, and sodium phosphate, of each 1 grain; and potassium chloride, 1¼ grains, was given mornings on an empty stomach. The object of adding the salines was to prevent as much as possible the hydrolytic action of the water on the cellular elements and the changing of their shape by swelling. Although I think that if the entire specimen is centifuged and examined at once (requiring a large centrifuge like those used to separate cream from milk) the cells would be separated better out of the plain water than they would from the higher specific gravity saline solution.

The patient was made to run up and down stairs several times and the fluid further agitated in the organ (just before removal) by a series of deep, quick pressure movements over the stomach. Five minutes after the drinking of the fluid it was siphoned out with a long stomach tube, the patient

encouraged not to strain any. After standing in a cylindrical test glass for from two to eight hours 10 c.c. quantities were drawn from the middle zone and bottom, centrifuged for two or more minutes, and the sediment examined microscopically in the fresh state without staining. If the return contained incorporated mucus (all floating and top mucus was removed) the specimen was rendered alkaline to litmus by the addition of a normal lye solution, shaken vigorously in a heavy glass bottle containing washed bird shot, and examined as above stated.

With a low power all of the cells are discernible. In the preponderance of the squamous cells seen (they line all of the structures from the lips to the cardia) the columnar and cuboidal stand out in contrast. Care must be taken that the columnar cells observed are the free edged cells from the stomach and not the swallowed ciliated ones from the upper half of the pharynx, post nares and respiratory tract. With a high power they can be differentiated by observing their cilia, or a zone between the cell protoplasm proper and the free edge. they are also more pyramidal in shape (usually pointed at one end), are generally found incorporated with mucus, are seldom seen and usually found only singly. Also, unless the cuboidal cells from the tubules are in groups one often has difficulty in telling whether they are gastric, half digested, squamous, or other innocent cellular elements such as freed mucous cells, leucocytes, etc.

A common picture in a specimen from a case of high acidity is the great number of free nuclei seen. They are from cells (mucous probably) the protoplasm of which had been digested down to the more resisting nuclear membrane. To observe them best the specimen should be stained (fixing with methyl alcohol, and Biondi's polychrome methylene aquous stain used) and examined in the dry state.

In chronic gastritis, when much mucus is present, the mucous corpuscles share in preponderance with the squamous cells with an occasional cuboidal and goblet cell but rarely a gastric columnar in addition.

The work was tedious and especially discouraging when quantities of incorporated mucus were present. Some of the specimens took several hours to examine. A case of hyperacidity would often show definite desquamation of stomach cells at one time, and when next examined for it the same conclusion was difficult or impossible, particularly when the mineral alkalies had been used in the case. But the examination proved that, compared to other stomach conditions, there was distinctly more gastric exfoliation in the cases of superacidity, especially when the high acid secretion had existed for some time, and particularly when there was present a gastrochylorrhea in the case. Enough gleanings, however, could be deducted from the examinations to at least theoretically conclude that on these places of denuded basal membrane in the submucosa with a lowered resistance and repair power from poor nutrition (from whatever the cause) an acute gastric ulcer could easily make its beginning, assisted most probably by the bacteria ordinarily found and reported associated with the cases of peptic ulcer.

It is also suggestive to observe that, according to Brinton, gastric ulcer occurs in the stomach 43 per cent. in the posterior wall, 27 per cent. in the lesser curvature, and 16 per cent. in the pyloric end, the very locations in the stomach in which the membrane would be compelled to stand the greatest brunt from an increased acidity.

While gastric ulcer has been reported in cases of anacidity, that is no argument against the above conclusions, since the hyperchlorhydria and blood changes (the two common conditions found in most of our acute ulcer cases) is so numerously an argument against it. And it may be further stated that what is a normal amount of hydrochloric acid secretion in one stomach may be a hyperchlorhydria, or even a subacidity, in another.

It seemed to be proved also that, depending upon the quantity of mucus in the hyperchlorhydrias, the glandular layer was protected against the exfoliating work of the acid, and I observed that when the secretion of acid was decreased and the mucus had increased to a more normal quantity, the exfoliating of the cells subsided.

In this connection I wish to report the history of a case that I had observed, which is particularly significant.

E. M., September 20, 1906, age 24 years; married, no children; occupation, housewife. History—Family: Father killed at 47; mother died at 54, cause unknown. Personal: Dysmenorrhea since puberty; pneumonia five years ago; drinks four or more cups of tea and coffee a day; habits otherwise good, excepting is confined in house too much; had stomach trouble more or less for four years. More distressed during the past three months; habitually constipated. Present, troubled much with eructation of gas and distention after meals, particularly after dinner; has pyrosis and regurgitates acid fluid after meals. Physical examination shows fairly well-nourished woman; mucous membranes good color; tongue thinly coated, with red edges and tip; patient nervous and apprehensive; epigastric distress on pressure; abdomen moderately distended with gas; fecal mass in sigmoid. Analysis, September 21, 1906. Ewald test meal, expression easy, return 110 c.c., looks poorly digested, very little odor, no incorporated mucus; total HCl, 121°; total acidity, 133°. Urine amphoteric and heavy in phosphates. Diagnosis, hyperchlorhydria.

On the morning of the next day (September 22, 1906), when fasting, drank 240 c.c. of saline solution, which was left in stomach five minutes; 75 c.c. of return was examined and showed as follows: fluid distinctly acid (HCl) and bile stained, no incorporated mucus apparent, no visible food particles. After standing for three hours specimens from the middle zone were examined in lots of 10 c.c., which were centrifuged for two minutes or more with the following microscopical findings—large numbers of squamous cells, numerous free nuclei, considerable columnar cells and a few cuboidal ones from the gastric glands, one group of columnar cells (seven or more in number) were seen; the cuboidal cells were found in several groups attached together, a few sarcinæ, some shreds of mucus, free mucous corpuscles, and particles of detritus. Specimens from the bottom of the stand glass showed the same cellular findings as above stated, excepting that there were more of them with the addition of numerous small rolls of yellow stained mucus, a few vegetable and partially digested starch cells, and more detritus.

On October 7, 1906, I saw the patient, who, under the prescribed high proteid diet and a compound powder of mineral alkalies, claimed she was quite well again.

Ten months afterward (July 9, 1907) I visited her at her home, where I learned that nineteen days before (June 20, 1907) she had been delivered of a seven months' viable fetus, after the third uterine hemorrhage in five weeks. On June 19, 1907, the patient, while asleep, had an exsanguinating hemorrhage, followed by syncope and continued semi-consciousness for nearly two hours. The attendant diagnosed a placenta previa, quickly tapped the

membranes, packed the vagina with cotton, and the next afternoon she miscarried. The post-partum course was normal, excepting that the woman remained obstinately pale and peaked looking. Six days after her delivery she began to complain of pain and distress in the epigastrium after eating. The pains continued more or less, depending upon the character of nourishment she took, until the day before my visit, when, her stomach feeling somewhat better, she partook rather heavily of raw fruits, after which she was seized with severe gastric pain and vomited. The pain grew worse during the night and the next morning, after a glass of ice cold milk, she vomited considerable blood. The history and physical examination showed that it was plainly a case of gastric ulcer, probably in the posterior wall.

My deductions from the case were that the hyperchlorhydria, from which she suffered more or less for years, caused an exfoliation of the cellular elements of the gastric mucosa. This exfoliating continued, and, like small traumas from food or stomach tubes, was not serious as long as the nutrition of the stomach was sufficient to repair the slight abrasion. But when, as a result of a severe hemorrhage, the system was impoverished and devitalized, the resistance of the basal membrane and submucosa was lowered and the acidity continuing an ulcer ensued on some exfoliated area.

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THE DIAGNOSIS OF KIDNEY DISEASES WITH SPECIAL REFERENCE TO THE SIGNIFICANCE OF SLIGHT ALBUMINURIA.*

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The scope of this paper is limited to a consideration of certain phases of albuminuria and its bearing upon the diagnosis in the obscure, rather than the clearly defined cases. There is little doubt in advanced conditions where there are casts, albumin, edema, high arterial tension, etc., but we often feel uncertain as to the diagnosis and prognosis if there are only slight evidences of kidney disease, such as a trace of albumin or orthostatic albuminuria and a few casts.

When Richard Bright first called attention to the significance of albumin in the urine the crude methods then used in testing it prevented the detection of small amounts of proteid that we now find so frequently and have so much difficulty in correctly interpreting. Hasting and Hoobler have made a large number of careful examinations, and have found that the cases of well-defined Bright's disease, in which the symptoms and physical signs pointed to a renal lesion, include only 12.59 per cent. of the patients with albuminuria. Nucleoalbumin was frequently found, and should always be differentiated from serum albumin.

Albumin in urine may be renal or extrarenal in origin. By renal we mean that it passes through the kidneys with the urine, and may be due either to a local lesion in the kidney or to a systemic condition which, by general changes throughout the body, or by toxins circulating in the blood, injure to some extent the renal structure, and allow the escape of albumin. Extrarenal albumin may come from any part of the genitourinary tract below the kidneys, and is a contamination of the urine with proteid substances, for which we should be alert constantly, so as to avoid the error of mistaking it for renal albumin.

The commoner proteid substances that are found in the urine are serum albumin, serum globulin, nucleoalbumin and albumose. Serum albumin is the most important of these as a positive finding, and suitable tests should be made to eliminate the other proteids. Cohnheim's method of "salting" the urine with a saturated solution of sodium chloride, over acidulation with 3 to 5 drops of 50 per cent. acetic acid and boiling, will throw down the proteids commonly found in the urine. Nucleoalbumin is not precipitated by heat and acetic acid, though in highly salted urine; consequentiy a cloudiness with this test usually means serum albumin (Hasting).

Albumose frequently has its origin in an inflamed prostate gland or seminal vesicle. The proteid substances that are secreted in the prostatic discharge are digested by a ferment called leucoprotease, which is liberated from the disintegrating pus cells, and only acts in a faintly alkaline medium (Opie & Barker). This albumose is not precipitated by boiling, nor does it give the cloudiness at about 60° C., as does Bence-Jones albumose. When precipitated with cold citric and picric acid a sediment is formed, but will disappear when heated, and again return when allowed to cool. If serum albumin or nucleoalbumin be present it only partially clears when heated, and, if the test tube is placed in a boiling water bath, these albumins will settle to the bottom, and when it is allowed to cool the albumose is deposited in another layer upon it, a distinct line of demarcation between them being perceptible.

Bence-Jones albumose gives a cloudiness below the boiling point, but when further heated clears. If stratified upon hydrochloric acid it will also cause the appearance of a white ring at the zone of contact. The other proteids do not react to this test (Bradshaw).

The acid secretion in the vagina prevents the digestive action of the leucoprotease which is liberated from the pus cells, and the proteid discharge is not changed into albumose, but is converted into an acid albuminate which cannot be detected by the ordinary heat test, and when precipitated will not clear up again, as albumose does, when reheated.

A prostatic abscess draining into the urethra will give large quantities of serum albumin and globulin at first and later albumose. The presence of pus and albumin in such amounts at once suggest an abscess of the kidney In a previous paper I reported the history of a patient with an insidious prostatic abscess with urine exactly simulating a renal abscess.

Having found that we are dealing with albumin from the kidney, an even more difficult task is to determine its significance. It may be orthostatic in variety, as described years ago by our ex-president, Dr. A. W. Stirling, under the name postural albuminuria, as it only appears when the patient assumes an upright position. This form of albuminuria may, or may not be attended with tube casts, and may or may not be followed by serious kidney disease. As a rule, however, it is the least harmful, and a rather common form of albuminuria It is known that more urea is eliminated when a patient is in the upright position, and that the urine has a higher specific gravity, and is more highly colored than when reclining. Why this should be the case we are unable to say. It has been assumed that the escape of albumin from the kidneys, when the patient is standing, is due to certain changes in the blood pressure or to a paresis of the vasomotor system of the kidney.

*Read before the Fulton County Medical Society, October 3, 1907.

The experiments of Lemoissier have shown that standing lowers the secretion of water by the kidneys in all individuals, but this diminution of water was found to be greater in those in whom the kidneys were diseased, and the difference was sufficiently marked and constant to indicate that excessive orthostatic oliguria is a very delicate sign of defective renal secretion. Concerning an increase in the albumin in the urine when patients with an undoubted nephritis assume an upright position, very little has been written, but from a consideration of the facts pertaining to orthostatic albuminuria I feel confident that such a condition exists.

Fox, following the work of Wright, thought the trouble was due to a lessened coagulability of the blood, and gave patients calcium lactate, and again made tests when the coagulability had been increased, and claimed that when the albumin was purely functional it would disappear after the calcium lactate had been given, while if there be an organic renal lesion the albumin will not be affected. I have tried this test on a number of patients, but have had no very conclusive results. One patient with only a few hyaline casts and an orthostatic albuminuria, before taking the calcium lactate, had an enormous increase in the casts on the day following, and as many as forty were counted in one field with the low-power lens in a specimen from urine which had not been centrifugated, but had only been standing in a glass for about thirty minutes. With this increase in casts there was a diminution in the quantity of the albumin.

Simidar has made a number of experiments on animals, and found that physiological (?) albuminuria occurs in them as well as in man.

Collier, among whose duties is the examination of students at Oxford University, has been in the habit of advising all students who have albuminuria after exercise to give up competitions involving great muscular strain. In 1906, however, he made systematic examinations of all the men training for boat racing and found that, without exception, every man who rowed the full course passed albumin in his urine, and at least half passed it in considerable quantity. The same was true of running men, and has been observed by a number of previous investigators. Collier no longer holds that such men should give up hard athletic competitions.

Heubner has recently reported the post-mortem findings of a child in whom orthostatic albuminuria had been observed for a year and a half previous to death which was caused by a brain tumor. The kidneys were found practically normal, the very slight changes being too trivial to be considered, and were thought to be due to the long death agony. A small tuberculous area was found at the apex of one lung, which tends to confirm the view held by some observers that postural albuminuria is a "pretuberculous" phenomenon.

Examples of orthostatic albuminuria have been found to precede certain well-recognized forms of nephritis, and albuminuria in convalescents from scarlet fever has finally changed to the orthostatic form.

Bruns has reported the history of a patient with intermittent orthostatic albuminuria during attacks of malaria. This observer was unable to say that malaria was the cause of the albuminuria, but asserts that it was undoubtedly a factor in producing it. In this connection I desire to report the history of a patient of my own with syphilis, in whom orthostatic albuminuria was strikingly demonstrated. There were a few mucous patches in his mouth, and he suffered with severe nocturnal headache. Syphilis had been contracted ten months previously and had received very little treatment. How long the albuminuria had existed I am unable to say. There were a few hyaline and granular casts. Under antisyphilitic treatment with iodide of potash and intramuscular injections of salicylate of mercury the headache ceased immediately, the mucous patches were well in a week, and the urine became practically normal within a month, but the albumin showed a tendency to recur at intervals during the next two months. The casts disappeared entirely. No etiological factor other than syphilis could be assigned as the cause of this patient's orthostatic albuminuria, and this view seems confirmed by the fact that under treatment for this disease it cleared up along with the obvious syphilitic symptoms, and again returned after the patient had discontinued treatment for four months while out of the city. It is my opinion that if left untreated this condition will develop into a true syphilitic nephritis.

Tunis wrote letters to a number of the leading men of this country for their opinion regarding the significance of small quantities of albumin in the urine, and from their replies, and from his own experience, he has reached the conclusion that the mortality must necessarily be higher in these individuals than in those who do not show this abnormality.

Casts have about the same significance as has renal albumin. There are many drugs that cause their appearance, especially the hyaline variety. Severe muscular exertions and overindulgence in certain forms of food and alcoholics also produce them where there is no nephritis. Merely their presence in a single specimen of urine which has been allowed to stand and the upper portion decanted off and the lower part carefully centrifugated, cannot be taken in itself as evidence of Bright's disease—even if a few granular casts are found. When irritated the nonnephritic kidney seems capable of producing them in larger numbers than can the diseased kidney—especially the interstitial nephritis in patients of advanced age (Emerson).

Conclusions.—In doubtful cases no positive opinion should be expressed until many specimens of urine have been examined, for it is the persistence of renal albumin and casts that is of more serious import than is their occasional presence in considerably larger quantities. The 24-hour specimen should be measured and a comparison made between the amount ordinarily passed, and when an excess of water is being taken. The specific gravity is of much importance if the amount of fluids ingested is considered. In addition, the condition of the heart, blood-vessels, arterial tension, diet, intestinal canal, habits, and past history should receive due attention.

Many patients with orthostatic albuminuria of renal origin will go for years without any evidence of nephritis, but our prognosis must not be made from the urine alone, but from the entire picture. Prudence demands that we be conservative, and yet not be too pessimistic and give patients unnecessary alarm about conditions which may not be dangerous. Success in discriminating between the insignificant forms of albuminuria, and those indicating renal disease, depends more upon eliminating nucleoalbumin and extrarenal albumin and albumose than in any further refinement in our chemical examinations.

I realize that this paper has not cleared up the subject very much, but I will feel that it has served its purpose if it has assisted any of those present in looking upon albuminuria in a more judicial man-

ner. It is important that we discard dogmatic statements and preconceived ideas that albuminuria necessarily means Bright's disease, and at the same time it is of as much consequence that we be not too positive in our assertions that orthostatic or the so-called physiological albuminuria is always harmless.

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1014–15 CENTURY BUILDING.

A CASE OF UNILATERAL THIRD NERVE PARALYSIS.*

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CASES of third nerve paralysis, of the classical type that was exhibited in the present instance, are so striking that the general practitioner should find no difficulty in recognizing them. It is to call attention to these interesting and easily recognizable cases, and to point out the value of appropriate treatment, that the following case is reported.

One interesting feature of third nerve paralysis is that the patient offers a complete clinical picture, in correspondence with a definite set of lesions, the most striking and pathognomonic objective symptoms being: (1) Complete ptosis or drooping of upper lid which is due to paralysis or deficient development of the levator palpebræ. (2) On opening the lid with the fingers we find the globe turned toward the temporal side and slightly down; this is brought about by the action of the external rectus and superior oblique muscles, which are not supplied by the third nerve. (3) The pupil is dilated, which is due to paralysis of the sphincter pupillæ, which contain the contracting fibers of the iris and supplied by the third nerve.

In the study of these lesions several features are of considerable theoretical as well as practical interest, the first being the origin of the affection, a question which plays such a prominent rôle in the selection of treatment, most of the standard authors insisting upon the syphilitic origin of the affection, and in many of the reported cases the syphilitic antecedents of the patients are clearly shown; but the present instance, after a careful inquiry and thorough examination failed to reveal the existence of any syphilitic taint, either acquired or hereditary. In spite of this, however, active mercurial treatment followed by potassium iodid produced results, the promptness and completeness of which left nothing to be desired. The causes of third nerve paralysis are rheumatism, diphtheria, traumatism, syphilis, aneurysm, tumor, and meningitis.

Mrs. D., age 51, family history negative. Previous personal history, the usual diseases of childhood. Symptoms simulating rheumatism for past three years. No head or face injuries. No history of syphilis could be obtained.

About six weeks prior to consulting me, the patient felt pains in back of the left ear, which radiated over the left brow. One week later the upper lid of left eye was noticeably drooped. Appearance of patient on first visit as follows: Head inclined toward left shoulder; facial expressions normal; upper lid of left eye closed, the patient having absolutely no control over its functions; slight ciliary tenderness; exophthalmos slight; pupil dilated; marked divergent strabismus. Upon elevating the lid the patient complained of dizziness and nausea. Movement in, down, and upward very much limited. Crossed diplopia for near and distant vision. False image higher and its upper end inclined toward paralyzed side. Pupil reacted neither to light, accommodation, or convergence. Ophthalmoscope presented a few small hemorrhagic spots visible toward nasal side of fundus.

Vision: O. D. 18/200 with + 3.50 sphere = 18/30 — O. S. 10/200 w + 5.00 = 18/30. Could not test for near on account of marked crossed diplopia. The field of vision was normal in right eye. Left eye there was concentric contraction as follows: Temporal 75°; nasal 45°; above 30°; below 45°.

Field for colors was practically normal. Atropine reaction was negative. The urine contained a faint trace of albumin with a few hyaline casts.

Having diagnosed the case as complete paralysis of the motoroculi, the oleate of mercury was prescribed, in form of inunctions, daily for 100 applications, selecting alternately the right thigh, left axilla, left thigh and right axilla. The faradic current was applied three times weekly, one pole at occipital region, the other over the supraorbital, infraorbital, and temporal regions. A saturated solution of potassium iodide was given in dose of ten drops in a wine glass of cold water, one-half hour before each meal, increasing one drop daily until twenty-five drops were taken, three times daily.

After three months of constant treatment the ptosis diminished considerably, the patient being able to control the movement of the lid. The strabismus was greatly improved and the pupil reacted to light, but movement of the globe upward and downward was very limited. The double vision still persisted at five feet, but the patient enjoyed good single vision at twenty feet with the proper lenses. The electricity was discontinued, also the mercurial inunctions. The biniodide of mercury, gr. 1/20 three times daily after meals, was substituted, together with a nutritive diet and attention to hygiene and digestion.

Six months after the first treatment the patient was entirely free from the ptosis and enjoyed good single vision, both for near and far, with the following lenses:

O. D. w + 3.50 sphere = 18/30 w + 5.50 sphere = Jäger number 2 at 13 inches.
O. S. w + 4.00 sphere = 18/30 w + 6.00 sphere = Jäger number 3 at 13 inches.

In third nerve paralysis, as in other paralyses, the lesion may be central or peripheral, according to its location, either between the cortex, and the apparent origin of the nerves, at the base of the brain or from the base of the brain to their peripheral terminations. It is often difficult to differentiate between central and peripheral lesions.

In closing, it may be of interest to mention my patient has had no return of the paralytic symptoms. It is now about eighteen months after first treatment. Epiphora of the left eye has yielded to dilatation and probing; this condition is in no way attributed to the third nerve paralysis.

126 EAST NINETEENTH STREET.

*Read before the Brooklyn Medical Association, October, 1907.

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THE PROPHYLAXIS OF SYPHILIS.

IT needs no argument to show that in general the greatest sufferers from venereal diseases and their consequences are not those who have acquired them through illicit sexual intercourse, but the innocent to whom those diseases have been transmitted in the marriage bed or through the medium of contaminated objects, such as towels, table utensils, surgical instruments, and the like. It is not the young man who has sown his wild oats and harvested a gonorrhea that suffers the most, but his innocent bride who has taken him for better or for worse. It is not the man who knows he has contracted syphilis and seeks treatment betimes that is ruined for life, but the comrade who shares his pipe or his spoon, or the fiancée who receives his polluted kiss, and who carries the disease untreated for months or years until irreparable damage has been done. In Russia, Tarnovsky says, over 70 per cent. of the syphilitic morbidity is due to extragenital infection, the disease being unrecognized and untreated for years, and so transmitted to the unborn children, implanting in them the seeds of early death, of degeneracy, and of parasyphilitic affections. Bulkley, in his important work on "Syphilis Insontium," has strikingly portrayed the deplorable evil to the community which may be wrought by the syphilitic who bears no external evidence of the plague which he is disseminating. The results of gonorrhea insontium are less widespread; they bear less upon the community at large, except as the disease fills the blind asylums, and so imposes a preventable burden upon society; but in the case of the individual they are often even more disastrous than those of syphilis.

All these facts are well known to the medical profession, but they are known only imperfectly to the laity. The subject of venereal disease is tabooed in polite society, and perhaps rightly so. It is a question how far a common knowledge of such things would go in shielding the innocent from the consequences of others' sins, and even the most fanatic of reformers could but wish for some other way of preventing the spread of such diseases than by instructing a pure young girl in their mode of dissemination. Associations such as the Society for Moral Prophylaxis are undoubtedly doing a good work, and the distribution to young men of tracts dealing with the evils of illicit sexual intercourse is commendable, but the suppression of venereal diseases and the evils resulting from them will never be accomplished by such means. Ignorance is not the only cause of syphilis and gonorrhea, for, as is often said, we all know that in spite of having been adequately warned, young doctors and students of medicine furnish a not inconsiderable number of victims. When the millenium comes, venereal disease will be abolished by abstention—but not until then. Moral suasion will save a few, but for the great majority the only hope of prevention is in medical measures instituted after the act. What is needed most is a Society for Prophylaxis, with "moral" in parentheses. Prophylaxis is the necessity—moral if may be and certainly by preference, but in any case phophylaxis. The objection, based on high grounds of morality, to post-factum prophylaxis would perhaps be tenable if the consequences of the act were confined to the individual, but when we know that the neglect of such prophylaxis may ruin another and perhaps many innocent lives, the refusal to sanction or advocate such prophylaxis seems almost, if not actually, criminal. In the case of smallpox the one suffering from the disease is forcibly isolated and the one who has been exposed to contagion is compelled to submit to protective vaccination. Society is not yet sufficiently evoluted to demand for itself the same measures of protection in the case of grand pox, but until it is it should not protest, on the ground of "morality," against individual measures of prophylaxis. Men will consort with unclean women, or women who are presumptively unclean, in spite of the teachings of religion and the warnings of medicine—they have done so from the dawn of history, and there is nothing in the present state of society to lead us to hope that they will not continue to do so. Moral suasion has been tried for centuries and has failed lamentably, and it is time now for the medical profession to safeguard society by instructing the malefactor how to protect, not himself alone or chiefly, but the innocent, from the consequences of his evil deeds. Moralists do not forbid the treatment of venereal disease, yet, so curious are the workings of the human mind, they protest vociferously against measures taken immediately after an impure sexual intercourse to prevent the development of disease. If one is permissible and even necessary, why should the other be wrong? If it be allowable to cure a gonorrhea rapidly by irrigations or other therapeutic measures, why should it be forbidden to take similar measures to prevent the occurrence of the disease? If it is allowable to give mercury for the cure of syphilis once it has declared itself, why should it be wrong to apply a mercurial ointment or to give arsenical injections immediately after sexual intercourse, to prevent the disease? Is it necessary to let the sinner suffer for a few days or a few months from the consequences of his act by way of punishment, even if by so doing we give him the opportunity to involve innocent beings in his punishment? It may be that the sins of the fathers must be visited upon the children, and those of the husbands upon the wives, but he is a stern moralist indeed who would willingly take an active or even a passive part in executing this sentence.

These thoughts are suggested by a report made by Metchnikoff to the recent International Congress of Hygiene in Berlin upon the prophylaxis of syphilis. The writer's first endeavors were in the direction of an antisyphilitic serum or a vaccine, and he

presented a paper on the subject at the meeting of the Congress in Brussels in 1903. The first experiments seemed to give promise of good results, but the promise was not fulfilled, and work in that direction was abandoned. Then a bichloride wash was tried, and finally resort was had, with apparent success, to an ointment of calomel 33, vaselin 10, and lanolin 67. Metchnikoff, working in collaboration with Roux and Salmon, made numerous experiments with this ointment, and after a large number of favorable results obtained in inoculations of monkeys, a physician, Dr. Maisonneuve, lent himself for a final and more conclusive test of the remedy. He was inoculated with a large dose of syphilitic virus and one hour later the calomel ointment was freely applied at the site of the inoculation; he remained free from any symptoms of the disease.

A condition of success in the employment of this calomel ointment is, of course, that it shall be applied within a short time after suspicious contact, and when several hours have elapsed it is not to be expected that a local application will destroy the virus already in part absorbed. In such cases it is evident the remedy must be given internally. The favorable action of the arsenic-acid anilide (atoxyl) in certain spirillum infections led to experiments with this remedy. It was found that its hypodermic employment as late as two weeks after the inoculation, in doses of 33 mg. per kilo of the animal's weight, sufficed to prevent the appearance of syphilis in the monkeys experimented upon. The objection to the routine employment of this drug in man is its highly poisonous properties, and a desideratum is a less toxic arsenical preparation having an equally destructive action upon spirochetes. When this is discovered, Metchnikoff says, we shall be in possession of an absolute prophylactic of syphilis up to as late as two weeks after the impure contact, this being rendered possible by the fact that the reproduction of the specific microorganisms does not occur for a comparatively long time after their introduction into the body.

REPORT OF THE BRITISH TUBERCULOSIS COMMISSION.

The British Royal Commission on Tuberculosis has published recently a second volume of the appendix to the second interim report. This volume deals with Dr. Louis Cobbett's evidence on the pathogenic effects of human viruses. Dr. Cobbett's experiments were made with the object of classifying the various strains of tubercle bacilli according to their virulence for different kinds of animals. The animals used for the investigation were the goat, ox, pig, dog, monkey, rabbit, guinea-pig, and rat. A few experiments were made also on the cat, mouse, and fowl, three on the chimpanzee, and two on the baboon. The majority of the experiments were made by inoculation and with viruses classed as virulent and slightly virulent.

The results from these experiments on bovines and rabbits were quite important, as Dr. Cobbett demonstrated the fact that "the viruses obtained from man were, with the exception of one from a case of lupus, found to be broadly separable into two groups—namely, those which caused fatal tuberculosis and those which did not." The investigator states that injected subcutaneously into the calf in suitable doses, such as 50 mg. of culture, they either produced rapidly fatal general tuberculosis, or they caused no more than a transient disturbance of health and localized or minimal lesions, which soon became retrogressive. The viruses which were highly virulent for the ox species were also highly virulent for the rabbit, while those which had a low degree of virulence for the calf had also a low degree of virulence for the rabbit, and very rarely caused progressive or fatal tuberculosis.

In the light of Dr. Cobbett's experiments, the proceedings of the International Conference on Tuberculosis, which took place in Vienna from September 19 to 21, were of much interest. Prof. Flügge of Breslau, the chief advocate of the inhalation theory of tuberculosis infection, put forward as a strong point in favor of his views that it was very difficult to infect animals with food mixed with tuberculous material. Cobbett infected bovines by feeding, although not so severely as by injection, and found that when tested on the chimpanzee both types of bacilli were capable, in small doses, either by feeding or by subcutaneous injection, of causing acute general tuberculosis. Of course this does not wholly disprove Prof. Flügge's theory, but it seems to go a very long way in this direction. Perhaps there may be two kinds of tuberculosis, one of which is rapid and fatal, and the other kind comparatively innocuous. As to the mode of infection, Prof. Orth of Berlin expressed himself at the Vienna conference in a manner which will probably meet the views of a very large number of physicians in all parts of the world. He said that the bacilli of Koch could establish themselves in the lungs and produce tuberculosis either after having gained access by means of the inhalation of air charged with them, or after having first invaded the glands and thence found their way to the lung either by the circulating lymph or blood, or by direct access owing to the breaking down of glands. They would also enter the body from the intestinal canal, which might itself, however, remain completely unaffected. A special predisposition was necessary to produce tuberculous lesions of the lungs. Such a predisposition might be acquired by repeated attacks of bronchitis or similar diseases. Even small quantities of bacilli gave a positive reaction in the lung, but large quantities were often inactive in the intestinal canal. From the point of view of prophylaxis, the question of the channels of infection was of only secondary interest, for the object to be aimed at was the destruction of all sources from which infection might take place. Such sources were the milk and butter from diseased cows and the sputum of tuberculous individuals. Bovine tuberculosis was undoubtedly infectious for human beings.

The British Commission on Tuberculosis has done valuable work, and has definitely shown that bovine tuberculosis is transmissible to man, at least as clearly as this can be demonstrated. The results already known as to the danger of bovine tuberculosis to man should act as a spur, if such were needed, to health authorities to insist upon a pure milk supply and the pasteurization of all milk the purity of which cannot be absolutely guaranteed.

A Discovery of Hygienic Value in Telephony.

Much has been written of the danger of infection from public telephones, and that this danger is very real has been amply demonstrated by the bacterioscopic examination of scrapings from telephonic transmitters. To obviate this danger a vast amount of ingenuity has been expended in devising membranous diaphragms to cover the transmitter, a new diaphragm being used by each user of the telephone, and various forms of apparatus for spraying a disinfectant into the transmitter. None of these has proved itself to be generally practicable. The diaphragm muffles the voice and the disinfecting apparatuses are more or less clumsy, and, moreover, when a telephone is in constant use there is no time for the disinfectant to work. A discovery that promises to be of real practical value is announced in the *New York Times* of November 25. This is that the voice is transmitted as clearly if the transmitter is pressed firmly against the chest while talking as it is when one speaks into the tube. The *Times* despatch states that the discovery was made by two young women in St. Louis, but it is now stated that it is not new and that a transmitter for body telephony was invented several years ago in Europe. It is nevertheless new to most telephone users. Apart from the danger of infection, the use of a public telephone, reeking as the transmitter sometimes is with the odor of tobacco and alcohol, is disgusting and only tolerated because of its necessity. It is a fact that the voice carries as well and as clearly, with a somewhat lower tone, when the transmitter is applied firmly to the lower end of the sternum, as it does when one speaks directly into the transmitter, and the intervention of the clothing seems to make no difference. A desk telephone is necessary, as one cannot conveniently stand on a stool to press his chest against a wall transmitter, but the hygienic utility of the chest method of telephony is so obvious that the telephone companies, most (or we might better say some) of which are progressive, will doubtless devise a new form of transmitter which can be used in this way. In the meantime we would strongly recommend to all users of the telephone, whose apparatus lends itself to it, to employ the chest method. It is a real advance—it is easy, it is efficient, and it is hygienic.

The Codification of Medical Practice.

We have often envied the old-time homeopathic practitioner, who had a little book in which every symptom was noted, with its therapeutic indication plainly stated. It must have been conducive to much peace of mind when a patient said she had a desire to curse and swear to be able to turn to that symptom and find that anacardium would restore the moral balance; or, when one disliked going down in a sky-scraper elevator, to be able to raise his spirits, even as his body was lowered, by borax, 30. Hitherto regular practitioners, both internists and surgeons, have had no such aids, and have been compelled to rely upon their own judgment, faulty as it might be, in the treatment of disease. The dawn of a better day has come, however, and if the lawmakers of the country will only act upon the suggestion of the president of a national society which recently held its annual meeting in Chicago, the practice of the healing art will be wonderfully simplified, and those engaged in it will be relieved of much sleep-chasing and life-shortening responsibility. A Chicago despatch to the *Evening Post* of October 18 quotes this reformer of medical practice as saying: "I think the time for legal recognition of and punishment for delay in diagnosis and operation for appendicitis is due, and unless the profession awakens to its shortcomings an enactment will soon be placed on our statute books." We are not in general disposed to accept too literally the reports in the lay press of the sayings and doings of medical men, and it may be that in this and the further quotation, that "the practice of procrastination in all acute infections should no longer be tolerated by the profession and will not be by the public," less than justice has been done the speaker. We hope, however, he has been correctly quoted, for the idea is one full of fascinating possibilities. Nothing could be easier and more remunerative to the surgeon than to be compelled by the courts to diagnose appendicitis and operate at once if his patient with a stomach ache could be made to squeal when McBurney's point was prodded. What confusion, too, would overtake the disciples of Osler if the law drove them to treat pneumonia by specifics, or the active principles, instead of leaving the patient to work out his own salvation according to the self-limited disease theory! The pernicious research laboratories would be closed, the investigators therein could go to work to earn an honest living, and the rabbits and guinea-pigs could be canned to feed the starving millions, for of course the law would not recognize anything so uncertain as the results of laboratory investigation. The Council on Pharmacy and Chemistry could rest from its labors, for the law would naturally prescribe only pharmacopœial remedies; this would save the *Regulator* ems upon ems of costly composition and reduce its issues to readable size. The more one thinks of this plan of the legal codification of medical practice the more attractive it appears. The practice of medicine and surgery would indeed be simple if its professors had only to treat their patients according to a legal code, as formerly the younger men among them had to regulate their own conduct according to the quaint provisions of an ethical code. We fear, however, this is only a dream. Even Congress would shrink from the task of codifying the whole of medical practice. There is only one man in the country who would feel himself competent to undertake the job, and he is busy now.

The Cause of Sudden Death in Swimmers.

A question that has given rise to a great deal of discussion without apparently any very fruitful result is the cause of the sudden death that sometimes overwhelms even skilful and experienced swimmers under circumstances that do not seem in any way abnormal. In addition to the popular and more than vague diagnosis of "cramps" numerous explanations of accidents of this sort have been put forward, heart failure being a favorite but not very satisfactory one. Syncope, nausea and vomiting, rupture of an ear drum, and the effect of entering the water shortly after a meal are other alleged causes of sudden death under these conditions, but they are all more or less indefinite and leave a great deal to the imagination. Revenstorf (*Münchener medizinische Wochenschrift*, November 5, 1907) points out that Du Bois Reymond has already shown that the effect of simple immersion in deep water is to increase the energy output necessary for respiration by about ten per cent., while the very active muscular exercise attending the act of swimming

greatly augments the tax on the respiratory muscles which are then called up to do at least fifty per cent. more work than when the body is at rest on land. Müller has found that the pulmonary intake during swimming is 51 liters per minute as opposed to 42 liters during mountain climbing. This increased tax in the respiratory capacity together with the very active muscular exertion in which good swimmers are apt to indulge, when combined with a third factor, that of gastric distention, is considered by Revenstorf sufficient to explain many instances of apparently inexplicable drowning. If the stomach is distended with food, fluid, or gas the effect of the increased pressure on the surface of the body in impeding the movements of the diaphragm is greatly augmented and respiratory failure can occur without the victim's having received any warning of the impending collapse. Revenstorf describes several cases in which no abnormality could be found to explain the sudden death, but the stomach was more or less distended with food, and while all the swimmers who die suddenly while in the water undoubtedly do not do so as the consequence of bathing too soon after eating, the author's argument is a cogent reason for adhering to the old rule not to enter the water until an hour or two after the last meal.

Cutaneous Sensibility in Gynecological Conditions.

The significance of the highly ingenious researches of Head by means of which he was enabled to map out on the surface of the body areas or zones corresponding to the spinal segments in connection with the different organs, has not been altogether appreciated, or even admitted. While most authors who have concerned themselves with the matter have with some minor modifications corroborated the conclusions reached by the English investigator, the practical application of his results has found fewer exponents. In a recent communication in the *Deutsche medizinische Wochenschrift* of November 7, 1907, Alsberg gives some sketches showing the location of areas of cutaneous hyperesthesia found in patients suffering from gynecological conditions and expresses the opinion that they should be sought for in all cases. Owing, however, to the fact that they occurred in only about 8.5 per cent. of the patients examined by him and did not appear to exhibit a very definite relationship to special organs or affections he considers that in gynecological conditions their diagnostic value is at present rather slight, and consists chiefly in that, if found present, they indicate the necessity for a careful examination of the nervous system.

News of the Week.

Harvey Society Lecture.—The third lecture in the Harvey Society course will be delivered by Prof. David Edsall of the University of Pennsylvania at the New York Academy of Medicine, on Saturday, November 30, at 8:30 P.M. Subject: "The Bearing of Metabolism Studies on Clinical Medicine." All interested are cordially invited to be present.

The Nobel Prize in Chemistry.—The next award of this prize is to be made to Sir William Crookes of London, who has lately discovered a process for extracting nitrogen from the atmosphere and rendering it available for human use.

Large Output of Radium.—The Imperial Academy of Science of Vienna is reported as having succeeded in greatly cheapening the cost of production of radium. About three grams of the finished product were obtained at a cost of $10,000 from ten tons of uranium and pitchblende given to the Academy by the Government from its mines in Bohemia.

Radiographic Test of Death.—Dr. Vaillant of the Lariboisière Hospital in Paris last week, in a paper read before the Academy of Sciences, stated that the differences between radiographs of the trunk made before and after death were sufficiently great to enable this method to be used as a means of determining whether or not life was extinct.

Automobiles for Viennese Physicians.—The medical men of Vienna have organized an association to aid its members in acquiring automobiles. It is proposed first to persuade manufacturers to build a car specially adapted for medical work, and the members will be enabled to buy the machines from the club on the installment plan. The monthly payments will be less than the present cost of hiring a carriage by the month, as most doctors do. The club will have its own central garage, and branch garages will be opened in various districts of the city as the demand increases. The promoters of the association hope to increase the number of motoring doctors from the present twenty or so to at least two hundred.

"American Journal of Orthopedic Surgery."—This excellently edited and very readable journal is to be enlarged by the addition to each number of one or more monographs of not less than twenty pages and fifteen pages of abstracts of orthopedic literature. This is the only journal in the English language devoted exclusively to orthopedic surgery, and the proposed improvements will easily place it at the head of journals of this specialty in the world.

Loss of Life in Switzerland.—The official statistics relative to the tourist season in the Italian, Swiss, and Austrian Alps show that the number of lives lost by mountain climbers was seventy-five, and 350 cases of grave but not fatal injury are recorded. Most of the accidents are ascribed to the foolhardiness of inexperienced climbers in attempting difficult ascents without guides.

Street Car Accidents.—The reports of the Public Service Commission show that during the month of October forty-seven persons were killed in street car accidents in this city. The total number of accidents recorded for the month was 4,866, as against 5,202 for September, and 5,500 for the last twenty-six days of August. The total number of serious injuries inflicted, including the fatal cases, is given as 191 for the month, as against 216 for September and 189 for August. The decrease is ascribed to the fact that closed cars were substituted for the open ones in use during the summer months, the operation of the latter being more likely to cause accidents.

Football Casualties.—With the football season practically over the *Chicago Tribune* states that this year's record shows eleven deaths and ninety-eight cases of serious injury. Last year the same number of deaths and one hundred and three cases of injury were reported.

Plague.—Surgeon Blue of the Marine Hospital Service, who is in charge of the plague situation in San Francisco, has reported to Surgeon-General

Wyman that the disease seems to be on the decrease. Up to November 16 there had been ninety-six cases of plague reported in San Francisco, from which sixty deaths have resulted. A bounty of ten cents has been offered for rats, and during the first week of this month 13,000 rats were poisoned or trapped. The last case in Seattle was reported on October 30. In India the situation is increasing in gravity, especially in the Punjab. From April 18 to September 14 of this year in that district there were 339,557 cases, with 306,905 deaths.

Red Cross Society.—The New York State Branch of the American National Red Cross Society at its annual meeting in this city last week passed resolutions to make in times of peace a special fight against tuberculosis and to study the subject of preventable accidents. A special effort is also to be made to increase the membership of the organization.

Smallpox of a mild type is occurring in Jefferson, Lewis, and Oneida counties of this State, and about a hundred cases have been reported.

Cholera.—Cholera is reported as having broken out in Constantinople.

Yellow Fever in Barbadoes.—An outbreak of yellow fever is reported from Barbadoes where four cases with two deaths have occurred among the seamen of the British cruiser *Indefatigable*.

The Temperance Movement in Germany.—The Prussian Minister of Justice is leading a movement among the alumni of the universities to check drinking on the part of students, especially by abolishing compulsory drinking on the part of members of the Student Corps. The Government also has been petitioned to set apart cars on the Prussian railways Saturday and Sunday nights for intoxicated persons, or if that be deemed inexpedient to reserve cars for abstainers, with train hands at the doors, when the trains stop, to exclude intoxicated people and thus afford abstainers quiet traveling.

Slow Payments in Germany.—The Medical Association of Eastern Prussia is about to compile and distribute among its members a black list containing the names and addresses of persons in good circumstances who are slow in paying their doctors' bills. The list is to be revised every six months.

Rockefeller Institute for Medical Research.—The directors of the Rockefeller Institute for Medical Research have received from Mr. John D. Rockefeller a further sum of $2,600,000 to serve as an endowment fund for the maintenance of the institute. Mr. Rockefeller's previous gifts had amounted to $1,200,000.

Bequests to Philadelphia Hospital.—By the will of the late Hanson L. Withers the sum of $5,000 is devised to the Hospital of the University of Pennsylvania for the endowment of a free bed to be used for patients suffering from diseases of the lungs, the beneficiaries to be named by the testator's daughter and Dr. Edward Martin. The residue of the estate also is devised to the University Hospital on the death of the daughter without issue and on the death of a son during whose life it is to be held in trust. This fund is to be devoted to the erection of a ward to be known as the Alice M. Withers Ward, and the purposes to which it is to be put are to be designated by Dr. Edward Martin.

Public Hospital for Springfield (Illinois).—An additional public hospital for this city is provided for in the will of the late Col. Stephen Logan Littler. The testament creates a trust of the bulk of Col. Littler's estate, which is said to amount to nearly $1,000,000. Provision is made for the payment of the net income to relatives and other beneficiaries until the death of the longest lived of the beneficiaries, when the entire trust estate is to become immediately available for founding and maintaining a new hospital. Twenty-five per cent. of the value of the property may be used in purchasing grounds, erecting buildings, and equipping the institution, and the annual income of the remainder of the estate is to be used in maintaining the hospital.

Nurses at the Cook County (Illinois) Hospital.—The hospital committee of the county board recently submitted to the board a report of recommendations for the improvement of the county hospital service. The report advises an increase in the number of nurses to 200, and the establishment of a training school for nurses. It also says the city of Chicago should assume care of all contagious and alcoholic cases.

California Northern District Medical Society.—At the seventeenth annual meeting of this organization, held in Marysville on November 12, the following officers were elected for the ensuing year: *President*, Dr. John Jones of Nevada City; *Vice-Presidents*, Dr. H. S. Tickwell of Nevada City, Dr. F. R. Fairchild of Woodland, and Dr. J. H. Barr of Marysville; *Secretary*, Dr. J. W. James of Sacramento; *Treasurer*, Dr. O. Stansbury of Chico.

Hardin County (Ky.) Medical Society.—Officers as follows were elected at the meeting of this society held in Elizabethtown on November 16: *President*, Dr. C. W. Rogers; *Vice-President*, Dr. John Glasscock; *Secretary*, Dr. J. M. English.

Southern Illinois Medical Society.—At the thirty-third annual meeting of this organization held in McLeansboro on November 8 the election of officers resulted as follows: *President*, Dr. J. W. Hamilton of Mt. Vernon; *Vice-Presidents*, Dr. G. R. Rainey of Salem and Dr. O. B. Ormsbee of Murphysboro; *Secretary*, Dr. E. E. Tyke of Centralia; *Assistant Secretary*, Dr. T. M. Adderhold of Zeigler; *Treasurer*, Dr. A. T. Telford of Olney.

Rockingham County (N. H.) Medical Society.—The following were elected as officers at the meeting of this society held in Portsmouth on November 14: *President*, Dr. John J. Berry of Portsmouth; *Vice-President*, Dr. A. M. Mitchel of Epping; *Secretary*, Dr. Walter Tuttle of Exeter; *Treasurer*, Dr. Alice M. Chesley of Exeter.

Black Hills (S. D.) Medical Association.—Officers as follows were elected at the annual meeting of this society held in Deadwood on November 12: *President*, Dr. W. G. Smith of Sturgis; *Vice-President*, Dr. A. G. Allen of Deadwood; *Secretary*, Dr. Felix Ashcroft of Deadwood; *Treasurer*, Dr. F. S. Howe of Deadwood.

In Memory of the Late Dr. Francis H. Markoe.—At the meeting of the Medical Association of the Greater City of New York the following report was adopted relative to the death of the late Dr. Francis H. Markoe: To the enumeration of the many honors and distinctions so freely given to, and so richly deserved by Doctor Markoe, one would wish to add a more personal note; to speak of the charm of his personality, of the gentleness and kindliness of his nature, of his high ideals and standards. To his assistants and pupils he was ever an example of the enthusiastic and untiring worker, of the seeker after truth, of the kindly adviser. To his patients he gave, with his rare technical skill and wise coun-

sel, an unselfish devotion and a most helpful sympathy. Most impressive were the last weeks of Doctor Markoe's life. From many men we may learn how to live, but few teach us how to die. This preeminently Doctor Markoe did. In his example of patience and fortitude in suffering, and of the separableness of the spirit from the body, of the soul half from the mortal half, he rendered to each and to all of us the highest service. (Signed.)

FRANCIS P. KINNICUTT,
CHARLES T. POORE,
FRANK HARTLEY,
Committee.

In Memory of the Late Dr. Richard H. Derby.—The following resolution was adopted at a meeting of the Medical Association of the Greater City of New York held on November 18, 1907: *Whereas*, Death has removed an honored member from our midst; be it *Resolved*, That the heartfelt sympathy of the Fellows of this Association be extended to the bereaved family, and that a copy of this minute be sent to them; also *Resolved*, That a copy of these resolutions be sent to the MEDICAL RECORD and the *New York Medical Journal*. (Signed.)

C. COLE BRADLEY,
R. O. BORN,
W. B. MARPLE,
Committee.

Obituary Notes.—Dr. WILLIAM NATHAN BELCHER of Brooklyn died suddenly of pneumonia on November 20, in his forty-fourth year. He was a graduate of the Long Island College Hospital and had practised in Brooklyn for about twenty years. He was connected with the Seney and Long Island College Hospitals.

Dr. HUGH T. MURRAY of Washington, D. C., died suddenly on November 21, at the age of sixty years. He was a native of Culpepper county, Va., and was educated in Georgetown University, Manhattan College, and the Baltimore College of Medicine. For eighteen years he had been house physician of the Arlington Hotel.

Dr. D. D. STEVENS of this city died suddenly of heart disease on November 19. He was visiting physician to the Hahnemann and Metropolitan Hospitals.

Dr. SAMUEL HOUSTON of Washington, D. C., died on November 17, at the age of sixty-five years. He was a native of Lancaster, Pa., and for twenty-five years had been connected with the medical bureau of the Pension Office, of which for many years he was chief medical referee.

Dr. CHARLES N. THAYER, formerly of Cape Cod, Mass., died on November 16, at the home of his son, in Fairhaven, at the age of seventy-nine years. He was born in Attleboro and had practised in Cape Cod for over thirty years. He retired from active practice about ten years ago and since then had resided in Fairhaven.

Dr. D. W. HARRIS of Dallas, Tex., died on November 12 at the age of seventy-eight years. Dr. Harris was a native of Indiana but had practised in Texas for over thirty years. Some years ago advancing age compelled him to retire from active work.

Dr. J. F. GRAHAM of Hot Springs, Ark., died on November 17 of heart disease, at the age of fifty-six years. He was a native of Alabama and had practised for a time in Arkadelphia before coming to Hot Springs about nine years ago.

Dr. W. W. ESSICK of St. Louis, Mo., was instantly killed in a railway accident in Murphysboro on November 15. He was a member of the faculty of the St. Louis College of Physicians and Surgeons and was surgeon for the Mobile and Ohio railroads.

Dr. S. G. GLOVER, formerly of Arlington, Neb., died in San Diego, Cal., on November 14, of heart disease, at the age of seventy-two years. He had been a resident of Arlington since 1869.

Dr. GEORGE F. WOODWARD of Morrisville, Vt., died on November 11, of pneumonia, at the age of fifty-four years. Dr. Woodward was born in Danville and began practice in Morrisville over thirty years ago.

Dr. GEORGE E. ALSOP of Newport News, Va., died on November 10 at the age of sixty-eight years, after a lingering illness. Dr. Alsop was born in Spottsylvania county and lived in Fredericksburg until twenty-four years ago, when he removed to Newport News. He had retired from practice several years ago.

Dr. WILLIAM F. HELD of East Pepperell, Mass., died on November 13 at the age of sixty-four years, after a long illness. Dr. Held was born in Boston and was graduated in medicine from Dartmouth College. After practising for a time at Newport, Me., he removed to Pepperell in 1888.

Dr. HARRY P. JACKSON, formerly of Detroit, died on November 11, in Simcoe, Ont., at the age of forty-five years, after a long illness. He was a graduate of the University of Toronto and the University of Edinburgh, and practised in Detroit for several years before ill health compelled his retirement.

Dr. J. C. GATCHELL died at Lampeter, Pa., on November 17 at the age of sixty-eight years. He was graduated from Jefferson Medical College in the class of 1860.

Dr. ALFRED WHELEN of Philadelphia died at Naples, Italy, on November 18, at the age of fifty-four years. He was graduated from the medical department of the University of Pennsylvania in the class of 1874.

Dr. JABEZ PERKINS of Owosso, Mich., died on November 6, at the age of eighty-seven years. Dr. Perkins was born in Defiance, O., and was graduated from Wesleyan and Western Reserve Universities. He began practice in Springville, Mich., and was elected to the State Legislature from that place. In 1860 he removed to Owosso, and from 1863 to 1865 served as cavalry surgeon in the Civil War.

Dr. J. H. HARRIS of Rome Ga., died on November 3, at the age of sixty-nine years. Dr. Harris had been a resident of Rome for about eight years.

Dr. J. W. WHITE of Lancaster, S. C., died in Spencer, N. C., on November 6, after a lingering illness. For many years he was a resident of Lancaster, but about a year ago failing health compelled him to give up active work and retire to Spencer.

Dr. W. L. DOWNING of Iowa City, Ia., died in Chicago on November 2, at the age of forty-five years. Dr. Downing was a native of Daytonville, and was graduated from Rush Medical College in 1885. He had practised in Nebraska and also in Minneapolis. For some years he had been retired from active practice.

Dr. J. W. WINN of Plattsburg, Mo., died on November 5 at St. Joseph's Hospital in Kansas City, at the age of forty-eight years.

Dr. JOHN T. BELL of Independence, Cal., died on November 4 of pneumonia at the age of twenty-eight years. Dr. Bell was a native of Nebraska, and was graduated from the University of Southern California Medical School in the class of 1905.

Correspondence.

BACK TO AN OLD IDEA.

LAWSON TAIT AND HIS WORK.

To the Editor of the Medical Record:

Sir:—Probably in the minds of many who read the scholarly and suggestive address of Dr. Morris at the last meeting of the Association of Obstetricians and Gynecologists there will not be lodged a full appreciation of the real virtue of the operative work of Mr. Lawson Tait—the famous "surgical juggler" of the last century.

No surgeon ever lived who condemned more the presence and retention in the peritoneal cavity of pus and other filth, including blood clot, than did Mr. Tait, nor made more determined and persistent effort for their removal. Undoubtedly he believed that by sponging and copious irrigation this end could be attained, to be followed by drainage to provide for the escape of future accumulations. In relation to him the word "persistent" should be taken in a somewhat paradoxical sense. It was a skillful but *rapid* persistence during which there was not a moment's intermission from start to finish. Like a bullet from the rifle in the hands of an expert marksman, there was no wavering in design or execution, no curve, eccentric, nor *ricochet*—the bull's eye was reached by a "royal line," inspired in the cerebration of the man of genius behind the gun, but all the details were thorough and complete.

I repeatedly saw him remove bad pus tubes, cleanse the peritoneal cavity, drain, and close the incision within ten minutes, and on one occasion do a Porro operation, removing a living child, in the same time. His manipulations were "lightning-like," but not always the gentlest. In the latter respect he is surpassed by Joseph Price and perhaps Dr. Morris, but my impression is that they are a trifle slower in operating.

Mr. Tait anticipated the depressing effects of trauma and anesthetics, his rapid dexterity minimized these effects almost to the vanishing point. The theory of phagocytosis had just then been announced. He laughed at it, but kept on with his rapid, clean, and drainage operations, which brought splendid results without reference to any subtle and, as yet, unproved explanation. Were he alive to-day I fancy that his practice and thoughts would be the same, notwithstanding Bier, Wright, and Metchnikoff.

Mr. Tait was good in anatomy, but he "puttered" not over its exquisite detail and refinement. He humorously but enthusiastically endorsed a remark he had heard was made by Warren Stone of New Orleans, who declared that "a good surgeon pays little attention to layers when operating for hernia, but knows gut when he sees it, and therefore cuts for gut until he finds it, for thus can the operation be made short and no less safe." Likewise in his abdominal operations, time was saved by employing the simplest and fewest details in technique, but that these were sufficient, his brilliant results fully demonstrated. Long lines of complicated suturing appealed not to him, but, as Dr. Morris has well said, the patient's vitality appealed more, and the suturing provided a nice adjustment for the latter to the success of the operation. Interrupted sutures were placed quickly at reasonable intervals, and interfered little with the nutrition of the wound edges. "Surgical foolishness," with its time loss and perhaps disaster, was rigidly eschewed.

Mr. Tait was a good naturalist. He closely studied the habits, temperaments, and endurance of the lower animals, for which he had a great affection, and, although bitterly opposed to vivisection, he was often known to compare their characteristics with those of the human being. These comparisons were useful in surgical work, and to the fullest extent possible he realized their import in this relation. Moreover, he was a fine mechanic; could shoe a horse with nicety and dispatch, and splice a rope, or tie and untie a complicated knot as well as an average sailor. Machinery had an especial charm for him, and he never lost an opportunity to investigate any useful mechanical device which came in his way; hence his adoption of the Staffordshire knot which, instead of "strangling two thieves," was made in his hands to constrict the two divisions of an ovarian pedicle with celerity and security.

Mr. Tait almost defied unexpected complications during an operation, for they yielded quickly to his resourceful genius. Said Mr. Marsh—a fine surgeon on the staff of Queen's College Hospital at Birmingham—"the difference is that Tait, when faced by complications, finds a ready and safe escape without apparent deliberation while we must stop and consider." Mr. Tait himself said, "deliberate during your work, but do this quickly," for in such circumstances oftentimes "he who hesitates is lost." Here, also, the word "deliberate" discovers an abstruse meaning which represents a rapid-fire discharge of thought-cell metabolism only to be found in the magazine of a great intellectual genius. In operating on a large abdominal tumor with assured complications, which had been blinked at by several noted surgeons in London and Edinburgh, Mr. Tait immediately dug through to its pedicle, secured this, and enucleated the enormous mass out of dense and widespread adhesions from below upwards with amazing rapidity, and saved the patient. He always paid great respect to the omentum, which in this case was mutilated, and bled copiously. It was sandwiched between two broad metal plates, the upper one being heated by the thermocautery; this promptly arrested the hemorrhage without ligatures.

Multiplied arrangements for the operation, entailing time loss and confusion before, during, and after its performance were avoided habitually. The patient was operated upon in her room and lifted from a warm bed to a table equally warm which stood near; consequently, there was no risk of chilling, and but one transference. The table was a large ironing board, supported on trusses. A small stand on which could rest two little pans containing the ligatures, needles, and instruments, of which there were not more than half a dozen for the most radical operation, was placed to the right of the operator. Curved needles, needle-holders, and retractors were conspicuous by their absence. Two straight needles, large and small, threaded with silk, did all the sewing. Briareus stood abashed, a juggler could work with a single pair! Mr. Tait and one assistant donned plain white aprons. Having cleaned their nails, they rinsed their hands with turpentine spirit, washed this off with soap and water followed by plain tap water. Not a word was spoken during the operation, save an exceptional reprimand to a nurse for stupidity or inattention. Instruction was given after the patient was returned to bed, and not then unless leisure wisely afforded the opportunity. The stay in the room was very brief, but I often saw the patient awake with almost perfect intelligence—no hypodermics, no transfusion, no stimulating enemas. Everything was done within the abdominal cavity with the patient in a horizontal position, trauma was minimized, and the entire organism but slightly disturbed in its functions by the careful administration of the small amount of anesthetic used. I wonder what Mr. Tait would say if ushered into some of our modern operating rooms!

It will be conceded that it was the presence and harmonious cooperation of many essential qualities that evolved the perfect surgical species of the divine afflatus in the makeup of this remarkable man. He knew little of the asserted rôle of opsonins, phagocytes, *et hoc genus omne* as protective agencies of the economy against the destructive effects of bacteria, but that he would have placed any reliance in these to neutralize even the smallest amount of pus left either designedly or inadvertently during an operation cannot be claimed. He was the stentorian apostle of "free and unlimited" drainage, albeit his results, in part, may be explained now on other grounds; but surely these are insignificant and negligible factors when others are considered which about eliminate their importance, notwithstanding his drainage may have been imperfect and in some degree harmful. Only in his latter years would he have anything to do with gauze for any purpose whatever, but I understand he finally employed iodoform gauze somewhat after the method of Mikulicz, where much oozing was probable from torn adhesions; but rubber and glass tubes were his articles of faith, and he never discarded them. Were it possible, he never would have closed an abdomen with any pus inside, which he must nevertheless have suspected happened in some cases that speedily and completely recovered. But he vouchsafed no explanation—his faith in drainage was never impaired, much less abandoned.

I may be permitted to add that Lawson Tait was a kind-hearted and generous man. He was plain and blunt, without toleration of snobbery and morbid sentimentalism; he had no time for these. His friendships were strong and lasting, but when aroused he was a vicious opponent who never asked or cried for quarter. He lived for the benefit of humanity and a profession which I apprehend has done him scant justice and has lent too ready an ear to the discredited tale of two women, one of whom was discharged from his service for gross insubordination, and chose a method of revenge that may recoil upon any surgeon who enforces his authority in similar circumstances.

Let us "back to an old idea" and make bright the record of as deserving a hero as ever stood in the forefront of our profession. The watchman said: "The morning cometh * * * turn ye. Come."

Dallas, Texas. Henry K. Leake, M.D.

OUR LONDON LETTER.

(From Our Special Correspondent.)

ROYAL SOCIETY OF MEDICINE; THE SECTIONS AT WORK—SLEEPING SICKNESS—A NEW DIPLOMA—MEDICAL INSPECTION OF SCHOOL CHILDREN.

LONDON, November 8, 1907.

THE Medical Section of the Royal Society of Medicine began its work with a discussion on the complications of pneumonia, opened by Dr. Hector Mackenzie on the 22d ult. and continued on November 5. Regarding pneumonia as a defensive process against acute bacteriemia, he remarked that where antibacterial substances abounded, as in the young and adolescent, recovery was usual, but where they were deficient, as in infancy and after middle age, death was common. The pneumococcus was almost constant in the blood through which it reached distant organs and there set up inflammatory changes. Toxemia was the cause of the graver constitutional symptoms and so far we had not produced an antitoxic serum. Animals could be immunized, but their serum, though antibacterial, was not antitoxic—so the serum treatment of pneumonia and its complications had hitherto been proved unsatisfactory. Of the complications, pleurisy was most common, empyema the most important. In gout, of ten cases of empyema the cause was the pneumococcus. When the onset was acute the effusion was almost certainly pneumococcic and purulent; when gradual it was most likely serous and tuberculous. Gangrene of the lung was rare, but almost always a fatal complication. Abscess also was rare and seldom recognized during life. Pericarditis was, next to pleurisy, the most frequent complication. Endocarditis was not so common, although one out of every four cases of the ulcerative form was due to the pneumococcus. Peritonitis was rare after pneumonia; when it occurred the microbe probably reached the serous membrane through the stomach or intestines. Herpes, otitis media, meningitis, cerebral abscess, neuritis, transitory hemiplegia, arthritis, pseudomembranous inflammation of mucous membranes, croupous colitis, thrombosis, tonsillitis, subcutaneous abscesses, cellulitis, conjunctivitis, corneal ulcer, hypopyon, nephritis, all these were mentioned by Dr. Hector Mackenzie as among the rarer complications of pneumonia, and on most of them he commented from a diagnostic or clinical point of view. Often, he observed, several complications coexisted, greatly aggravating the danger, as pointing to a pneumococcal bacteriemia, which in a severe form was invariably fatal. As to the effects of treatment by serums and vaccines, it was necessary to bear in mind the varying mortality at different ages, especially the fact that most young subjects recovered under ordinary treatment, while the old and infants generally died.

Mr. A. G. Foulerton said that in discussing the vaccine treatment it was necessary to distinguish between the early and late stages, for it was only in the late stage that a vaccine was indicated. He had found 75 per cent. of empyema cases in adults were streptococcal and only 25 per cent. pneumococcal, but in children over 80 per cent. pneumococcal. In some cases of pneumonia in old subjects and with slow resolution, he thought an antistreptococcal serum worth a trial. In acute cases the question was between a vaccine and an antiserum. During the first three or four days, *i.e.* in the negative phase, a vaccine was dangerous. He agreed that hitherto serum treatment had failed; of seven test cases at the Middlesex Hospital only two succeeded. The cause of the failure seemed to be that the antibodies disappeared very rapidly from horse's serum. Dr. Herringham produced a series of statistics from St. Bartholomew's Hospital and commented upon them. Similar figures from the Middlesex were presented by Dr. Pasteur, who related two cases of pneumonia complicated by dilatation of the stomach and two of gangrene of the lung with recovery.

At the adjourned meeting on Tuesday last other statistics were brought forward from the London, King's, East London Children's, St. George's, St. Mary's, and Guy's Hospitals. An analysis of all these would be rather a full dose to inflict on general readers, and the figures will be easily obtainable a little later by all who may be especially interested. Dr. Hadley found that in nearly half the complicated cases certain conditions of a fatal kind had preceded, such as alcoholism, nephritis, and cardiovascular changes. In pericarditis there was little chance, unless the diagnosis was frank and the sac opened or aspirated. Chronic cases were most suitable for inoculation, but any protection conferred must be short, as one attack seemed to predispose to another.

Dr. Gossage found pneumonia as common under ten as over and the diagnosis more difficult under that age. Complications were more common in childhood and the mortality higher. Under one the rate was largely due to toxemia.

Dr. A. Latham found the knee-jerk sluggish or absent in only 30 out of 125 cases. One case treated with antipneumococcic serum was observed and rapidly recovered. In some treated with antidiphtheritic serum the temperature fell at once.

Dr. Caley said that in empyema the sooner operation was done the better the outlook both for recovery and for the duration of illness. Pericarditis was often associated with endocarditis. Only two cases of infective endocarditis were among 437. There was evidence of myocardial change in about a third of the cases. His figures also included a recovery with antipneumococcic serum.

Dr. S. West remarked that the pulse-respiration ratio was often more marked in convalescence than in the attack. Knee-jerks disappeared about the seventh or eighth day. The coccus which gave rise to lesions in different parts might not be identical with the one producing the pneumonia.

Dr. Tirard thought the fatality of complications less than sometimes thought, and he considered hemoptysis in pneumonia rather favorable.

Dr. Fawcett said of 15 cases with serous effusion at Guy's, only three required tapping.

Dr. B. Harris described two cases of slow pneumonia treated with a vaccine obtained from cultures of their own pneumococcus and a case of staphylococcus pneumonia with erysipelas with serum from the *Staph. alb.* from the patient, and said the organism should always be from the patient himself.

In the Section of Obstetrics and Gynecology, Drs. W. E. Dixon and F. E. Taylor gave an epidiascopic demonstration on the effect of placental extracts on the circulation. It resembled the effect of adrenalin, but caused a less rapid rise of blood pressure but a more prolonged rise and a less marked cardiac effect. In the pregnant uterus there was increased tonus of musculature and of rhythmic contractility, and so they suggested that the placenta produced a substance the liberation of which by contracting the uterus and the vessels might bring on normal labor.

Dr. A. Routh mentioned a case of his in which labor occurred during paraplegia, and induced Dr. Mott to suggest that at any rate in part the onset of labor might be due to metabolism of the pregnant uterus. Dr. Griffith objected to the view that labor was brought on by a placental substance because it increased uterine contraction, for there were many substances which increased contraction but were quite useless for the induction of labor. Dr. Longridge referred to a suggestion that had been made as to the effect of calcium in the blood, but as that was insoluble in alcohol it could not be present in the placental extracts employed in the experiments submitted to the Section.

The Neurological Section opened with an exhibition of most interesting cases, which scarcely lend themselves to brief description.

The Therapeutical Section began with the president's address—an account of the rather short life of the Society it supersedes. After this, Dr. Robert Hutchison discussed the scientific treatment of dyspepsia—perhaps I should say the dyspepsias, for he was emphatic on the necessity of accurate classification. His treatment is of the old-established kind and he did not trust much to ferments or electrotherapy.

The Surgical Section had so important an opening meeting that I must postpone my notice of it to my next, as space and time alike fail me.

Dr. Albert R. Cook, on the 18th ult., gave an address on sleeping sickness at the Society of Tropical Medicine and Hygiene. He said Greig's method of diagnosis was best—viz., puncture of the swollen cervical glands, so frequently met with. The gland juice usually showed the trypanosomes under a one-eighth objective, even in early stages. But occasionally they could not be found. In Uganda segregation was tried as far as possible, but the natives clung to their homes and did not believe that the kivn (tsetse fly) conveyed the disease. Clearing extensive areas around markets and landing places was a further plan of restricting the disease, and the circulation of instructions in the native languages and, most important of all perhaps was the enlisting of the active cooperation of the chiefs. Atoxyl was by far the most successful treatment that had been tried and its value was first shown by Dr. Thomas of Liverpool—a credit to English investigators, who were all along in the front rank of research in tropical medicine. Of late the frequency of injections of atoxyl had been increased. The effect in a bad case was at first magical. Even in a late case it powerfully influenced nutrition and the patient's death was more easy, for he died without the extreme emaciation and bed sores. The trypanosomes disappeared from the gland juice a few hours after injection, but there must be others—perhaps

immature or encysted—for sooner or later they reappeared. Thus the hope that a perfect treatment had been discovered is disappointed, but though atoxyl is not absolutely curative the relief it gives is of the greatest value. Experiments are being made as to whether some other arsenical compound may not prove effectual.

Professor Koch has permitted himself to be interviewed on board the ship in which he is returning from East Africa. Our newspapers are consequently giving us his opinions on sleeping sickness. I do not find in the reported interview anything new, but of course the interviewer took all his opinions as discoveries—and most of the statements are to be assigned to other observers. But the professor says he has found the blood of the crocodile is the chief food of the tsetse, which sucks it between the plates of the creature's hide. He will give a detailed account of this on his return. He could not destroy the crocodiles by poisoned meat, as the natives would be likely to eat it.

We are threatened with a new diploma. The two Royal Colleges have agreed to give certificates in tropical medicine to students of the London school. When the public health diploma was inaugurated I expected the example would be followed if it proved profitable. Why the certificate should be attainable only by students of the London School of Tropical Medicine is not quite clear. The Liverpool school is just as efficient. It is also to be confined to those who are qualified by one of the two colleges. Thus a graduate of any of the universities is not eligible for admission to the examination, although he has studied at the tropical school, unless he also holds a college diploma—which seems absurd. If any certificate were really desirable the tropical school itself should be ready to grant its own testimony that the person had gone through a course of study to the satisfaction of its staff.

It seems probable that the duty of inspecting school children may prove a more far-reaching one than has been supposed. If the children are to be carefully examined as to their physical and mental fitness for entering on school work, the examiners must be very numerous. It is, moreover, the intention of the Education Board to direct examinations on other occasions. It was thought at first that the medical officers of health might undertake this duty, but it would be scarcely possible for those in charge of a large district to do so, and it is suggested that the general practitioners residing near the schools are the proper persons for the work.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

JAPANESE RIVER FEVER AND SPOTTED FEVER OF MONTANA—MADURA FOOT IN THE PHILIPPINES—CHOLERA IN MANILA.

MANILA, P. I., October, 18, 1907.

THE regular monthly meeting of the Manila Medical Society took place October 14, at 8:30 P.M., at St. Paul's Hospital. Drs. Ashburn and Craig of the Army Board on Tropical Diseases read a paper entitled "A Comparative Study of Tsutsugamushi Disease and Spotted Fever of Montana." The authors were of the opinion that while the diseases presented many points of resemblance, yet the points of difference were so marked and clear-cut that there seemed to be but little question that the two were entirely separate and distinct. In the first place, Tsutsugamushi disease invariably starts from the bite of a mite, which produces a small papule, which later becomes a pustule, and the lymph glands of the area involved show marked signs of enlargement; whereas, with spotted fever, the point of entrance of infection is scarcely ever so clearly defined. While the distribution of the rash, on its appearance, is about the same as that of spotted fever, yet the latter was much more pronounced. However, this may have been more apparent than real, owing to the darker skin of the Japanese, making the rash appear less prominent. In Japan the disease only occurs in low-lying valleys which are subject to regular inundations, and is practically confined to those persons who gather mulberries in the region referred to, after the floods have subsided. Owing to the lack of microscopical apparatus, they were unable to make any satisfactory distinctions by microscopical work.

Dr. Musgrave exhibited another case of what he regarded as madura foot, but the laboratory report has not yet been completed. He also stated that the report of the first case observed in the Philippine Islands would shortly be published, the diagnosis having been positively confirmed by producing the disease in a monkey.

Another clinical case was also presented by Dr. Musgrave, as one which might be regarded as gangosa. After an examination by a number of those present, the consensus of opinion seemed to be that the case was probably an atypical form of syphilis. The case presented no particular symptoms, with the exception of the perforation of the hard palate with some involvement of the nasal septum.

The quarterly report of the Bureau of Health for the quarter ended September 30, which has just been issued, makes the following statement with regard to cholera: "The death rate in Manila has to some extent been augmented by Asiatic cholera, which has probably been present since the early part of the quarter, at which time a few cases of gastrointestinal disorders closely resembling cholera were reported, though the suspicions were not confirmed by laboratory examination. It was not until the last of July that the presence of cholera in Manila was actually confirmed by laboratory diagnosis. Since that time the disease has been more or less prevalent, and during the last week of the quarter averaged about three cases daily. The disease was not confined to any particular locality, as the cases were found widely separated, with no apparent relation between them. If there had been a central focus the matter of suppression would have been simplified. Painstaking efforts were made to trace every case and connect it with some other case, and while such efforts were not entirely successful, they led to the conclusion that the most probable source of the disease was the unhealthy and filthy practice of the market gardeners of fertilizing their products with human excreta. The Secret Service was asked to investigate the matter and it was not long before convictions were secured, thus substantiating the conclusions which had been reached by the Bureau."

Progress of Medical Science.

Boston Medical and Surgical Journal, November 14, 1907.

Hemorrhage Following Tonsillotomy.—The chief interest in the two cases reported by E. A. Crockett lies in the fact that the bleeding followed removal of the tonsils with the cold wire snare, a method commonly considered as free from this danger. Case 1 was that of a boy of eight years. The hemorrhage began three hours after operation in hospital, the boy being kept quiet in bed, and was checked by, first, digital, and later instrumental pressure, the clamp being kept on eight hours. Hypodermoclysis and rectal saline infusions were resorted to. The throat was quite septic for some time, and it was six weeks before the boy could resume attendance at school. Case 2 was that of a twelve-year-old girl. Bleeding came on in four hours, but stopped of its own accord. Recovery was complete in eight days. Crockett is not disposed to abandon the use of the snare with a No. 5 steel wire, but insists that all tonsillotomy cases should be within easy call of the operator for the first twenty-four hours after operation.

An Abdominal Lesion Simulating Cancer.—B. B. Cates reports the case of a man of fifty years of age attacked with sharp pain in the left lower quadrant of the abdomen. There was over this area some sense of resistance and great tenderness on deep pressure. Four inches from the anus there seemed to be a slight bulging of the bowel on the anterior surface. Pressure against it caused pain. Exploratory incision was made parallel to and above Poupart's ligament. The pelvic cavity was found full of small bowel, and so adherent to everything that the operator abandoned the first incision for the time being, and opened the abdomen in the middle line, in order that he might have a better field for operation. The small bowels filled the pelvis and hid the sigmoid and rectum from view. In sponging the adhesions apart, he broke into a pocket of half a pint of foul-smelling pus on the left side of the sigmoid and rectum. While the pus had a foul fecal odor, there were no fecal concretions, nor did he find any communication with the bowel. He then placed the patient in the reversed Trendelenburg position, placed gauze around the bowels, so as not to infect the general peritoneal cavity, introduced cigarette drains from both wounds down to the pocket of pus, and closed the wounds down to the drains. Recovery was without incident. The only cause for the lesion was suggested by a statement of the patient that he was induced by some friends to eat sand for constipation. The sand might have lodged in some of the folds or pockets of mucous membrane of the sigmoid or rectum and caused ulceration, secondarily setting up suppuration around the gut.

New York Medical Journal, November 16, 1907.

Relief of Nutritional Disorders by Developing the Abdominal Supports.—J. M. Taylor declares that many

forms of gastrointestinal disease, especially putrefactions, gouty phenomena, over- and undernutrition, are caused in part, if not wholly, by displacements of the abdominal organ. Defective elaboration is not seldom due to errors in hydraulics. The author aims to establish the efficacy of improving power and mobility in the supporting structures of the abdomen, thus enhancing their capacity to exert needed pressures on and supporting reactions in the viscera. This action, he says, is duplex upon (1) the caliber of the organs directly, and (2) upon the regulative functions of the blood-vessels. We should endeavor to arouse the vasomotor integrity, reflexly through the paravertebral tissues innervated by the posterior primary divisions of the cord; (2) by stretching the contracted structures, and (3) by motor education, that is, the education of the voluntary muscles concerned, in supporting and maintaining in their natural and necessary positions the large, hollow viscera. Surgical procedures for the replacement of prolapsed viscera do not give entire satisfactory or lasting results. First of all, we must endeavor to bring about a proper contour of the body. A well-proportioned trunk implies a fairly straight spine, showing only the normal curves. The pelvis, designed to contain and protect the lower hollow viscera, should be carried practically on a level. This permits greater freedom of the action of the thighs and encourages a better bodily poise. All this leads up to functional competency. The key to a normal posture resides in a correct attitude of the thorax. The entire body will assume natural attitudes in almost any position, standing or sitting, provided the ribs are maintained in their normal erectness, that is, at the top of their upward excursus. Then, also, a most important factor in normal abdominal support follows, viz., the lower ribs remain well above the pelvis. A slouching position, inducing a relaxation of the erector spinæ and other muscles, invites a sagging down of the viscera, which thus not only rest upon the pelvis unduly, but the impending weight of the upper structures bears hurtfully upon those within the pelvis and encourages disuse of the lower supports. This pressure long continued makes for a variety of derangements, among which are congestions, passive hyperemia, etc., etc. As illustration, note the fact that even rebellious constipation is often cured by remedying this one defect alone.

Amebic Dysentery (Chronic) a Surgical Disease.—J. M. Holt defines a chronic case in this connection as one in which the *Amœba coli* still persists in the stools after the patient has faithfully tried colon irrigations for the space of one year. If, under these conditions, the sigmoidoscope reveals no ulcers, we should advise an appendicostomy or colostomy. The author advises the plan advocated by Weir of flushing the colon from above through the appendix, and reports three cases. He advocates the gridiron opening, as the wound is not completely closed at the time of operation. The appendix is freed from its mesentery, its vessels carefully spared for future nourishment to the parts, is then brought up through the incision until its base and the adjacent cecal surface are flush with the parietal peritoneum, where two or more anchor sutures hold it *in situ*. Other anchor sutures are introduced at the skin level of the wound, and the entire wound closed about the appendix, the tip of which is left protruding through the sutured wound. After forty-eight hours, when adhesions have formed, the appendix tip is opened. By this time the peritoneal cavity is effectually sealed from possible infection. In one of the author's cases the appendix was so slender that, after forty-eight hours, when the extraabdominal appendicular tip was clipped off, the caliber of the appendix was so small that the finest silver probe could not be introduced, and it was only after the second or third dressing that introduction was finally accomplished. Gentle manipulation only was practised, as the abdominal wound was of so recent origin.

Microscopic Traumatic Gangrene.—According to J. W. Beveridge, this process explains some of the unexpected and mysterious cases of wound infection. In many tedious abdominal cases the layers of adipose tissue which have been separated by the incision lie exposed for two hours or more. The capillaries and the lymphatics are constantly being drained; fat cells and the connective tissue cells that lie in the immediate path of the knife break down and disintegrate; the small amount of circulation which is present in adipose tissue has been severely taxed. A condition is at once created so minute as to be microscopic in its character, but nevertheless present, wherein a continuation of breaking down of the fat cells and the connective tissue cells continues for a long period. Later on the usual pus appears, and this is due to the condition created by the surgeon in causing an incision trauma wherein the usual surfaces were either held by retractors for too long a period, or the drainage of the lymphatics and capillaries was permitted to cover a time that was inadequate to the recovery of the minute cellular circulation. The result is a continuous breakdown of the cells of the adipose tissue, *i.e.* traumatic microscopic gangrene, and, on their breakdown, a pathological formation of sterile pus ensues. Experiences from various hospitals and records of private cases have shown that in major operations lasting over two hours from the time of the primary incision till final wound closure pus is nearly always found under the line of incision. Apparently it takes about two hours or a little over for the adipose tissue to receive damage severe enough to cause a minute gangrene to set in. This pathological change does not take place in the muscular tissues, as the blood supply and nerve supply is much stronger. The cause of the slight rise in temperature is a toxin formed from the dead fat cells, connective tissue cells, and epithelial cells, an action the same as that of a toxin from dead bacilli.

A New Treatment of Diabetes.—S. G. Soules reports one case, that of a physician of sixty-two years of age, with 10 per cent. of sugar. The remedies named below were given for some two years without apparent effect, but in the third year results became evident. Capsicum annuum pulverized and given in doses of grs. xxx, t. i. d. (preferably in capsules) reduced the sugar about one half, and its effect in this regard lasted for several weeks. Grindelia robusta did nearly the same. Dose ʒi, t. i. d. fluid extract saw palmetto in doses ʒii, t. i. d., about the same. However, these agents seem to be of very little consequence compared to chimaphila, which in doses of ʒii fluid extract at each meal time taken in a glass of milk, well stirred immediately before its ingestion, proved a veritable nugget of the purest gold from the mines of therapeutics, and banished the sugar completely in twenty-three days exactly. It, however, returned in ten days, after eating a large quantity of starchy food and reducing the remedy to ʒi of the fluid extract. The author states that he has found less than ʒii of the fluid extract of chimaphila insufficient to eliminate all the sugar from the urine. Under this dose it disappeared in less than a month. As soon as the sugar disappears, arsenic in small doses should be added to the treatment and gradually increased to a medium dose. This should be continued for two months at least, and if the sugar does not appear in that time, starchy diet should be resumed very gradually. If the sugar should at any time appear, starchy diet should be dropped at once, and the antidiabetic diet resumed, together with a full dose of the medicine, which should be reduced one-half at the time of the commencement of a starchy diet. After a few weeks (two or three) starchy diet may be cautiously tried again, and so on, until the patient is cured.

Journal of the American Medical Association, November 23, 1907.

The Ferments of Milk.—R. G. Freeman gives a résumé of the facts known concerning the effects of temperature on the biological properties of milk and those in regard to the ferments it contains, summarizing especially the results of the studies of Spulverini, Hippæus, and others on the subject. He finds from the more recent observations that, in order to preserve the normal ferments of milk in pasteurization, a temperature not exceeding 140° F. should be used. Such a temperature will scarcely alter the chemical composition, will not destroy the ferments, and the most recent observations would seem to show that if kept up for from 30 to 40 minutes it will destroy tubercle bacilli in milk, unless they are enveloped in thick mucopurulent material, or are protected by a film formed on the surface of the milk. Such conditions are not likely to exist in sealed bottles of properly handled milk from healthy cows.

Flatfoot.—E. H. Ochsner says this is a much more common and disabling deformity than is commonly supposed. It is not so apt to be caused by weakness of special muscles or parts as by general muscular weakness; and a very important factor in the production of flatfoot, in Ochsner's opinion, is the lack of correlation between the strength of the muscles and tendons and the weight of the body that occurs about puberty. In fact, he considers that the symptoms in most cases appear about this time and are caused by the changes then taking place, and this is the time when treatment is most effective. Of course, there are other factors in special cases, such as trauma, ill-fitting shoes, and occupation demanding continuous standing, and he also thinks the habit of toeing out favors the production of flatfoot. The condition is very often incorrectly diagnosed as rheumatism or neuralgia. In the treatment of

the condition, besides the use of regulated exercises, correction of faulty footwear, attention to general hygienic measures, etc., he calls special attention to the method employed by him of using adhesive plaster strapping, which was briefly alluded to by him in a paper read before the Illinois Medical Society six years ago. The straps are so placed as to supinate and abduct the foot, support the arch, and relax the muscles, thus securing rest and relieving pain, as well as furnishing massage to the extremity with every step, thus favoring regeneration of the muscles and ligaments. The application of the straps is described and illustrated. He has used this method for nine years, and it has seldom failed.

The Abdominal Belt Treatment of Pertussis.—T. W. Kilmer reports the result from letters of inquiry in regard to the value of the abdominal belt in whooping-cough, sent out to pediatrists in various parts of the United States, to which forty-five replies, covering over 550 cases, were received. The results are given in tabulated form, and show 484 out of 556 patients improved (nearly 88 per cent.), and only 72 showing no improvement. Most of the replies were of interest on account of their testimony to the good effects of the belt in the prevention of vomiting. This was the chief benefit claimed by him, and he is pleased to have the support of these additional witnesses. A large number of cases with complications were reported in the answers, but he finds by further inquiry that in most cases these existed before the adoption of the belt treatment. Drugs were also used in many of the cases, but the effect of the belt on the vomiting was marked, independent of the medication.

Renal and Biliary Calculi.—A. M. Pond remarks that there is a striking similarity in the formation, symptoms and resulting pathological conditions in calculous disease of the kidneys and that of the biliary tract. This fact makes a diagnosis sometimes exceedingly difficult when the right kidney is at fault, owing to the relational anatomy being so intimate and the nerve supply of the viscera involved so complex and extensive. He reviews the conditions of calculous formation, showing that the same general laws apply in both cases, analyzes the symptoms and pathological conditions, and points out how confusion and diagnostic difficulties may arise. His findings are recapitulated as follows: (1) Kidney stone is found usually in the pelvis of the kidney and the frequency of the right kidney is 119 to 68 in the left. (2) Ureteral stone is found in 40.7 per cent. of the cases at the upper flexure of the psoas flexure. (3) More than half the gallstones found in the common duct are located in the ampulla of Vater. (4) Both of these regions are connected with the pneumogastric distribution through the renal plexus, and this explains the nausea and vomiting during the acute seizures. (5) The pelvis of the kidney, the usual site of kidney stone; the psoas flexure of the ureter, the location of 40.7 per cent. of all ureteral stone; the fundus of the gall-bladder, the site of gallstone in more than half of all cases; the descending common duct, the distal portion of the duct of Wirsung; the ampulla of Vater, which is the location of 57 per cent. of all common duct stone; and the descending portion of the duodenum are all contained in a space covered by a silver dollar, between the ninth rib and the umbilicus. (6) The pain of a kidney or ureteral stone does not always radiate to the groin or bladder, but is sometimes more evident about or above the umbilicus. It is clear, therefore, that disturbance of any of these structures may cause pathological conditions in the adjacent ones. The article is illustrated.

Pulmonary Gangrene in Early Life.—D. J. M. Miller describes the etiology, symptomatology, and physical signs of gangrene of the lung as it occurs in young children, and reports a case. The condition follows measles in children more often than any other acute condition, but more cases are due to aspiration than is generally supposed. Weakly marasmic infants may readily aspirate, unnoticed, small particles of food; septic materials from necrotic processes in the mouth or pharynx, and foreign bodies can also be taken into the lung. The association of otitis media with pulmonary gangrene in children was noticed by Guillemot in 1899; seven out of ten cases observed by him were of otitic origin. The diffuse form is most often observed in children, several centers of necrosis being usually present. The disease is generally unilateral, but both sides may be affected. The symptoms also differ from those commonly observed in the adult, children do not usually expectorate, and the characteristic fetor may be absent. Hemorrhages are common. The physical signs are not in themselves of special significance; it is the order of their evolution, taken in connection with the general symptoms, that is important. Localized signs of consolidation, gradually developing into those of a cavity, with marked fetor of breath and general hectic symptoms occurring in the course of pneumonia, particularly secondary pneumonia, warrant the diagnosis of gangrene. The condition, however, may be entirely latent, and this is more common in children than in adults. The diagnosis is often only a conjecture to be confirmed by autopsy. The prognosis is always grave, most cases ending fatally unless relieved by operation. Sometimes gradual improvement progressing to a cure occurs, but relapses are liable to happen. The treatment is the same in children as in adults, operation offering the only hope in most cases. In the case here reported, a child of two years, the symptoms were characteristic and the diagnosis hardly to be questioned, but the child made a good recovery. The exact seat of the gangrene, however, could not be determined, hence operation was deferred from time to time until the patient's condition had rendered it needless. The continuous open-air treatment employed in this case is worthy of note, and to it is largely attributed the final good result.

The Conservative Treatment of Middle-ear Disease.—S. Theobald deprecates too hasty resort to radical operative procedures without giving sufficient thought to other methods by which success can in many instances be attained. The points on which he lays special stress are: First, the patient should not be made wholly dependent on the surgeon for the carrying out of the treatment; he should be taught to treat himself to a reasonable extent. Second, in the treatment constitutional measures are almost, if not quite as important as local measures. Apart from the removal of nasal polypi, operative measures, he holds, are seldom called for in chronic middle-ear suppuration, unless there is evidence of mastoid involvement. Even curetting granulations and removal of tiny areas of carious bone are, he thinks, usually superfluous, as they tend to mend themselves when the discharge is brought under control. He advocates the use of antiseptic fluids instead of powders, and has found solutions of bichloride of mercury (1-8,000 to 1-4,000), and boracic acid in saturated solution, the most satisfactory. Syringing the ear with these as often as is necessary to control the suppuration, in chronic cases seldom more than once a day, in acute cases with abundant discharge somewhat oftener, is advised. Powders are only used by him in recent years in long-standing cases with extensive destruction of the drum, and then only after failure with the solutions. Any concurrent nasal disease or systemic condition on which the ear trouble may depend must, of course, be duly treated. That every patient can be cured by only these measures is not contended, but Theobald holds that many can, and that in others still the risk of serious complications can be reduced to a minimum. The cases he finds least amenable to the treatment are not those with extensive destruction of the drum head, but those in which the membrana vibrans is intact and the discharge escapes through a comparatively small perforation in the membrana flaccida. Even if the mastoid antrum is involved it does not necessarily follow that operation is inevitable. If drainage is free it not infrequently happens that the antral trouble disappears when the tympanic suppuration is controlled. In these cases he has found great benefit in the administration of liberal doses of sodium pyrophosphate, as previously recommended by him.

The Lancet, November 9, 1907.

A Contribution to the Analysis of the Mental Process in Criminal Acts.—After a general discussion of the subject, T. C. Shaw states his position in the matter in the following words: In criminal acts the mental process introduces no fresh element. If in the insane a criminal act occurs the only fresh element is the false motive, which, however, acts in the same way as does a normal one. The constituents of the voluntary process are the same in kind as in normal minds: motive, desire, feeling, end in view, action on presentation (otherwise impulse), action upon reflection—all may occur in the same way as in normal thought processes. The only difference is not in the mechanism of the elements, but in their nature; thus the motive may be a wrong one (*i.e.* against the accepted obligations of society) or the element of feeling may be an irregular one due to structural conditions, but we must remember that just as social systems are temporary—are themselves in a mutable condition—so are mental processes. We have not in the one the perfection of organization, though such as it is it acts in accordance with its construction; neither have we in the other any but a temporary adaptation, though such as it is it acts in the way we should expect it to do, and in this expectation we are rarely disappointed.

Cancer Infection and Cancer Recurrence; A Danger to Avoid in Cancer Operations.—This topic is discussed by C. Ryall, who in a freely illustrated paper summarizes the details of twenty-five cases. He believes that carcinoma is a highly infectious disease. Proof of its communicability from one person to another may be wanting, but when a person once becomes the subject of the malady there is not only the liability of its spreading by a well-defined infective process, but also in those cases in which the surgeon attempts to remove the disease there is a risk of reinfecting the patient from the growth, the removal of which is undertaken. Cancerous infection of wounds is of frequent occurrence, and its occurrence during operation is responsible for the occurrence of the malignant nodules in the site of the operation wound. Suture-hole infection is especially common. Cancer infection is also responsible for diffuse recurrent carcinoma taking place in operation wounds, and especially in those cases where a general flare-up occurs after interference with a cancer growth. In fact, Ryall regards cancer infection as the reason why chronic carcinomatous growths so frequently run a very acute course after attempted operations. In the parent growth the cells are, more or less, encapsuled in fibrous tissue, but some cells escape during operation and find a resting place in the wound, which is comparatively unprepared to meet and to resist the invasion. Cancer infection is also responsible for the unusual behavior of some abdominal wounds after operation, and is nearly always the cause of unexpected postoperative abdominal fistulæ, whether gastric or intestinal, developing after a cancerous growth has been explored or dealt with in some way.

Clinical Observations on the Origin of Fever.—A. Lorand declares that the maintenance of health depends on the integrity of the internal secretions of the ductless glands, especially the thyroid. Persons and animals deprived of it suffer from all sorts of infection. He then goes on to show that Graves' disease and fever have similar clinical manifestations, as rapid pulse, thirst, sensation of heat; after awhile abundant perspiration, etc. Vasodilatation and sweating can be produced by thyroid feeding. This latter symptom of fever is a device of nature for eliminating toxic materials. Its occurrence is generally followed by an improvement in the general condition. The diarrhea of some infectious diseases is a typical Graves' symptom. To complete the analogy, the author mentions also toxic decomposition of proteins, loss of weight, muscular weakness and fever, and increased urea elimination. In both Graves' disease there is increased oxidation, possible delirium, cutaneous eruption, etc. Fever symptoms, therefore, are due in a general way to increased activity. Consequently, it seems to the author that we are justified in believing that fever is a beneficent institution of our organism which is produced by an increased activity of the thyroid gland as a reaction against toxic products and poisons in general. The symptoms of fever are the expression of this increased activity, and they are directed towards the elimination of noxious elements. It would be unreasoanble to oppose this spontaneous healing tendency of nature by fighting these salutary symptoms, unless there be hyperpyrexia.

Berliner klinische Wochenschrift, November 4, 1907.

An Early Symptom of Ileus.—Ewald says that a symptom of intestinal obstruction that does not ordinarily receive the attention it deserves is the fact that the stomach becomes filled with intestinal contents very early in mechanical or paralytic intestinal occlusion. It is frequently possible on introducing the stomach tube to obtain material with a strongly fecal odor even at a time when no other symptoms such as fecal belching, or much less, vomiting, indicate the gravity of the illness, and there is hardly a suspicion that the case is one of intestinal obstruction. It is advisable to wash out the stomach at frequent intervals, even six to ten times a day, and enormous quantities of fluid may often be removed. The severity of the general condition as well as the prostration of the patients is greatly diminished by this procedure and if operation becomes necessary they are much better able to stand it.

The Differentiation of Transudates from Exudates.—Janowski refers to a test suggested some years ago by Rivalta, which is intended to aid in determining whether or not an effusion is of inflammatory nature or is simply a transudate. In order to perform it a drop of the fluid in question is allowed to fall into a solution of two drops of glacial acetic acid in 100 c.c. of water. Instead of glacial acetic acid 20 drops of ordinary vinegar may be used. If the fluid is an exudate the path of the drop toward the bottom of the vessel will be marked by a white or bluish white streak of precipitated albuminous material, while if it is a transudate the acetic acid solution remains clear. Effusions taken from cadavers always give a negative result, but this is unimportant, as the truth of the character of the process can usually be determined by inspection. Traces of blood do not interfere with the results and do not give any precipitate in the case of transudates. The test is negative with normal cerebrospinal fluid, the fluid from echinococcus cysts of the liver, hydronephrosis, and amniotic fluid. It is positive with fluid from incarcerated hernias, ovarian cysts, and hydrocele in children. In a large number of cases in which the method was tested by the author it gave uniformly reliable results and in some instances gave decisive information when the other data were inconclusive. Rivalta at first believed that the reaction was due to the presence of nucleoalbumin from the leucocytes occurring in inflammatory exudates, but in a later communication has expressed the view that it is caused by euglobulin and pseudoglobulin from the blood.

Deutsche medizinische Wochenschrift, November 7, 1907.

Acute Poisoning After Oil Enemas.—Buttersack reports a case of serious poisoning accompanied by methemoglobinemia occurring in a women of thirty-three years, who was given an enema of 250 c.c. of oil of sesame for an attack of gallstone colic. This remedy had been frequently used before for the same condition without any untoward consequences, but on the occasion in question the injection of the oil was promptly followed by symptoms of collapse which in a few hours became so severe as to make recovery seem doubtful. The blood was chocolate-colored and gave the characteristic methemoglobin spectrum, while the surface of the body was cyanotic and cold, especially the face, ears, fingers, and toes. Urine passed ten hours after the enema contained blood cells and traces of albumin, but no hemoglobin or methemoglobin. Twelve hours later hemoglobin was present in abundance. The treatment consisted in the administration of cardiac stimulants and in the inhalation of oxygen, which seemed to be particularly beneficial. The patient finally recovered completely. Examination of the oil revealed the fact that this was not oil of sesame, but a yellow paraffin oil. Several somewhat similar cases have been reported in which the oil of sesame used was the oleum sesami gallicum instead of the oleum sesami germanicum, and in these the symptoms strongly resemble those exhibited by the author's patient.

The Treatment of Perforated Gastric Ulcer.—Martens says that the less reluctance the public feels towards surgical operations, the more sensitive it becomes to abdominal pain, and the less castor oil, enemas, and opium are used for abdominal colics the better will be the results in the treatment of perforative peritonitis. The improvement in the statistics of this condition that has been obtained of recent years is due for the most part to the fact that the practising physicians make the diagnosis earlier and the patients enter the hospital before their condition has become hopeless. An important prophylactic measure is to instruct patients suffering from gastric ulcer in regard to the possibilities of a perforation and warn them of the necessity for hospital treatment at the first suspicion of this complication. He reports ten cases of perforation of a gastric ulcer treated by suture, with six recoveries. The indication is to operate immediately without waiting for symptoms of shock to subside, to find the ulcer as quickly as possible, and close the perforation. He prefers not to excise the ulcer, but simply to suture over the perforation, covering the spot with a piece of omentum. A tampon is then placed at the operative area. The question of whether or not to perform a gastroenterostomy is still in doubt, but the author ordinarily prefers not to do so. Cleansing of the abdominal cavity is best performed by the use of large quantities of saline fluid, for which purpose the author employs from twenty to thirty liters.

Carrier Pigeons in Medical Practice.—The car of Venus is often represented as surrounded by doves, but no such poetic symbols are accorded to Æsculapius. We learn from an English contemporary, however, that carrier pigeons as aids to country doctors are used in the north of Scotland. A doctor who has a scattered practice, when on long rounds takes several pigeons with him. If one of his patients needs medicine immediately, he writes out a prescription, and by means of the birds forwards it to his surgery. Here an assistant gets the message, prepares the prescription, and dispatches the medicine. If after visiting a patient the doctor thinks he will be required later in the day, he simply leaves a pigeon, with which he can be called if necessary.

Book Reviews.

THE MEDICAL AND SURGICAL USES OF ELECTRICITY. Including the *x*-Ray, Phototherapy, the Finsen Light, Vibratory Therapeutics, High-Frequency Currents, and Radioactivity. By A. D. ROCKWELL, A.M., M.D., Neurologist and Electro-Therapeutist to the Flushing Hospital; Formerly Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine; Member of the American Academy of Medicine, etc. With Two Hundred and Fifty-nine Illustrations. New Edition, Revised and Enlarged. New York: E. B. Treat & Co., 1907.

THIS volume is practically the eleventh edition of the work that originally appeared under the names of Beard and Rockwell. It deals most exhaustively with the general subject of electricity as applied to medicine and surgery; it also contains chapters on the *x*-rays, phototherapy, Finsen light, vibratory therapeutics, high-frequency currents, and radioactivity. In the present edition the chapter on high-frequency currents has been enlarged and mostly rewritten; various changes and additions have been incorporated in the chapter on *x*-ray diagnosis and therapeutics; the chapter devoted to phototherapy has been enlarged and partly rewritten, while the subject of radioactivity is considered in an additional chapter. There is a tendency in many books on this subject to exaggerate the value of electricity as a therapeutic agent and also to overestimate the conditions in which it is indicated. Further, what were considered indications twenty years ago may not be so considered to-day. In the present work much of the chapter on midwifery (for example) is of historic interest only; and in a few of the other chapters many of the references are of considerable age, and there is comparatively little reference to the more modern work. The author says with much truth: "Elaborate electric pharaphernalia (static and high-frequency) adorn the consulting room of many a physician who is quite ignorant of the fundamental principles on which is based the use of electricity in medicine, and who would be altogether perplexed if asked to differentiate in the use of electric modalities." Physicians who wish for a thorough understanding of this important matter are recommended to read this book, which since the early editions has been recognized as the standard work on the subject.

THE CHEMISTRY OF COMMERCE. A Simple Interpretation of Some New Chemistry in Its Relation to Modern Industry. By ROBERT KENNEDY DUNCAN, Professor of Industrial Chemistry at the University of Kansas; Author of "The New Knowledge." Illustrated. New York and London: Harper & Brothers, 1907.

WHILE the supremacy of this country in many industrial fields is undeniable, in others we are still far behind our European competitors, and even in those branches in which American manufacturers have been most successful this result has not always been attained through superiority in technology, but rather through more intensive business methods. In addition to its purpose of setting forth in entertaining fashion many of the recent advances in chemical knowledge, it is the object of the present book to emphasize how important an ally scientific research can and should be in commercial affairs, and to point out how frequently neglect of the theoretical aspects of a manufacturing problem leads to financial disaster or at least bars all progress. The managers of the large enterprises are realizing this and making use of every aid that the laboratory workers can give them in testing and selecting raw material, devising more economical methods of production, utilizing what have been regarded as waste products, etc., while the smaller manufacturers, unable to understand the nature of the new industrial power that is being turned against them, have ascribed their commercial downfall to the force of combination, trusts, etc. Professor Duncan urges the manufacturer to avail himself of the forces and abilities modern chemistry places in his reach, and suggests a plan of university fellowship, supported by commercial interests, by which young men may be trained as chemical technologists.

Among the subjects he discusses in order to illustrate the potency of scientific knowledge as applied to practical affairs, are the newer lore concerning catalysis, the problem of fixing the nitrogen of the air and rendering it available for man's use, high temperatures as applied to modern industries, glass making, industrial alcohol, and the chemistry of cellulose. Two chapters are also included which bear directly on medicine, one on the making of synthetic remedies and the other on the opsonins. The former would certainly gain more approval from the medical reader were the identity of the manufacturing firm whose methods it describes more carefully concealed, or else its praises less extravagantly sung, while we are sure that the twenty pages devoted to the latter subject could have been used by the author to much more purpose in discussing some topic more nearly in keeping with the title and general tenor of the book.

Professor Duncan's agreeable style makes the wonders he describes seem doubly fascinating, and it is a pleasure to call attention to a work that no educated layman—and much less a physician—can read without interest and profit.

RATIONAL AND EFFECTIVE TREATMENT OF HIP-DISEASE. By P. BRUCE BENNIE, M.A., M.D., B.S. (Melb.); Honorary Medical Officer, Melbourne Hospital for Sick Children, etc. Founded on Experience of Numerous Cases in Hospital Practice During 28 Years. Compiled by ALEX. B. BENNIE, M.A., M.D., B.S. (Melb.) New York: William Wood & Company, 1907.

THIS little book seems to be a plea for the use of the Thomas hip splint in tuberculous coxitis in preference to any other mode of treatment. The writer has used the appliance in a large number of cases and claims that in this method the joint can be absolutely fixed with the slightest degree of inconvenience to the patient. He insists that the apparatus be made in general after the model devised by Dr. Thomas, but recommends several minor modifications. Bennie also advocates the use of the double form of the splint in the treatment of Pott's disease, not only of the lumbar, but of the dorsal and cervical varieties as well. An interesting point to which the author calls attention is the value of stereoscopic skiagraphs in interpreting the degree of ankylosis in a hip. In the case reported, one of eight years' standing, the supposed bony ankylosis was shown by this means to be entirely fibrous.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph.D., M.D., Assistant Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Philadelphia and London: W. B. Saunders Company, 1907.

THIS is a very timely presentation of a subject that is constantly gaining in importance and that even threatens in some of its phases to overshadow the study of morphological pathology itself. The work is characterized by a very logical plan of arrangement and facile style that render its perusal a pleasure. It opens with an introductory chapter on the physics and chemistry of the cell which summarizes in easily intelligible fashion the intricate lore of the newer conceptions in this field, and is followed by an equally illuminating exposition of the nature of enzymes and their manner of action, including the subject of autolysis. The succeeding seven chapters are devoted to various phases of bacterial action and the means of defense against poisons of bacterial, chemical, and animal nature. The subjects of inflammation and hematology are next discussed and then the various cellular degenerations and metamorphoses. The little that is known of the chemistry of the tumors is brought well up to date and the last hundred pages of the volume are devoted to the disorders of metabolism. The value of the book is much enhanced by the very numerous references and by an unusually voluminous index. The difficulty of producing so satisfactory a treatise on this fascinating but unfortunately still rather inchoate subject can be appreciated only by workers in the same field, and the author is to be highly congratulated on the success with which he has performed his arduous but beneficent task.

A TEXT-BOOK OF PHYSIOLOGY for Medical Students and Physicians. By WILLIAM H. HOWELL, Ph.D., M.D., LL.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907.

THE author of this book wastes no time or space with any introduction or general remarks—subjects more or less remote from the one in hand, but begins at once with the physiology of muscle and nerve, the opening chapter being on the phenomenon of contraction. He differs from many writers on physiology in getting down to the level of the average student of this subject, who starts usually in absolute ignorance of its most fundamental and commonplace facts. The language is clear and nothing is taken for granted; lucidity has not been sacrificed to brevity on the one side nor to a vain desire to embrace the entire subject on the other. This is not an encyclopedia of physiology nor is it a compend, but a text-book in which the student will find the main facts of the science presented in an easily comprehensible manner. The second edition differs but little from the first, only such additions and changes having been made as were rendered necessary by the normal progress in physiological knowledge

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

210th Regular Meeting, Held on October 11, 1907.

THE PRESIDENT, DR. ROBERT ABBE, IN THE CHAIR.

A Consideration of Esophageal Stricture.—By Dr. ROBERT ABBE. (See page 890.)

Dr. WALTER B. JAMES said that last winter he saw a patient who had been under the care of a surgeon for a fusiform dilatation of the esophagus resulting from a stricture which was treated by the so-called string method. The patient would swallow ten or more feet of a strong silk cord, which apparently had no difficulty in passing the esophageal obstructionn, and would then enter the stomach and intestines, at times even emerging from the anus. With this string, which was firmly held in the intestinal canal, serving as a guide, an olive-tipped bougie was passed which acted as a dilator.

Dr. JOSEPH D. BRYANT said that about ten years ago, when treating a case of esophageal stricture, it occurred to him that possibly it might be wise and feasible to attempt dilatation from above by a string-cutting process, and with that object in view he devised a bougie with a tiny wheel at the end over which a string was drawn back and forth with the idea of sawing through the stricture at either side at the same time. He employed this device in one instance with very satisfactory results. He realized, however, that it was necessary for the purpose of carrying the dividing mechanism through the constriction to provide a stiffer instrument than that which he had first employed. He regarded it better and safer that the constriction be equally divided at two aspects than wholly divided above.

Dr. ABBE, in closing, said that strictures of the esophagus were exactly like those of the urethra; there were some that could not be treated by the string method, and there were many that could not be stretched by sounds with any degree of satisfaction. After a urethral stricture had been cut, and dilatation had been persisted in for three or four years, the urethral canal might retain its patency, and the same was true of esophageal strictures. A certain number of esophageal strictures could be dilated easily, but there were some cases in which the obstructions were so dense, gristly, and numerous that the only result of persistent dilatation was to set up an inflammation of the parts and aggravate the condition. It was in those instances to which the method he had shown was applicable. When the stricture was once cut widely open it remained patulous. The speaker said he did not regard gastrostomy in these cases as a serious operation if it was done carefully.

Two Cases of Primrose Poisoning.—Reported by Dr. WALTER B. JAMES. The speaker said he had recently seen two patients who suffered from this unusual form of poisoning, which manifested itself as an acute dermatitis. Both had suffered from recurrent attacks of the affection for many years, and had been in the habit of going to the Hot Springs of Virginia for what was supposed to be gouty eczema. In one case, the history of the attack which he obtained was as follows: The patient was a woman who had worn a bunch of spring primroses in her corsage during the evening. On the following morning she observed an eruption on the chest, which soon spread to the arms and neck. It became infected by scratching and persisted for several weeks. She subsequently observed that each time she handled primroses she became subject to these attacks of intense dermatitis of a moist, oozing variety, with intense itching and some swelling. In her case the cause of the trouble was discovered by accident, as her daughter was subject to the same affection, and wrote to her mother regarding it. The second patient gave the history of having suffered from several violent attacks of dermatit's affecting the face, neck, hands, and arms, for which she had undergone various methods of treatment without avail. When Dr. James saw her, the eruption did not look like an ordinary eczema, but had more the appearance of a toxic dermatitis. This attack occurred in the middle of winter, and the history obtained from the patient was that while out driving she had seen a particular variety of primroses in the florist's window, and had purchased a bunch of them and carried them home in her lap. On the following day she had developed this dermatitis. She was warned against handling this flower, and since that time had had no further trouble. The eruption is these cases, Dr. James said, bore a fairly close resemblance to ivy poisoning, but the edema was more intense and the blebs extensive, with oozing and the formation of crusts. In both cases the diagnosis had been made of gouty eczema and angioneurotic edema. Primrose poisoning, Dr. James said, was far from unknown in literature. Some of the dermatological works spoke of it, as well as some of the books on toxicology. It was an exceedingly violent form of toxic dermatitis, and it was pretty well recognized among florists, who were aware of the fact that some men were unable to handle primroses without subjecting themselves to this danger, while others were apparently immune. One florist suggested that it was due to the insecticides, such as hellebore, that were applied to the plants by the growers.

Dr. S. GREIDANUS of The Hague said that in Holland it was a well known fact that certain varieties of the primrose gave rise to a skin affection. The eruption was attributed to the tiny hairs with which the plants were studded, and the speaker said he had seen many such cases. The particular variety of the primrose that was recognized among florists as causing this trouble was known as *Primula obconica japonica*, the blossoms of which were considered dangerous to handle, as they frequently caused inflammation of the skin and eyes.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held October 24, 1907.

DR. HOWARD C. TAYLOR IN THE CHAIR.

Pregnancy Complicated by a Myofibroma, Obstructing the Pelvic Outlet.—Dr. HERMAN J. BOLDT presented this specimen. He said the various complications connected with myofibromata were of common occurrence. Tubo-ovarian inflammations were among the most common. When pregnancy was complicated by the existence of fibromyomata, the gestation in most instances might be permitted to go to term, it being possible usually to bring about delivery with safety to the mother and child. Occasionally, however, the patient with a myofibroma was not so fortunate, and at the time of termination of pregnancy the outlet was obstructed to such a degree that artificial means must be resorted to. He had on three occasions found it necessary to deliver women at the termination of pregnancy through the abdominal route; the last time three months ago. In all of these three instances he also removed the uterus; first because of the neoplasms and their relation to the uterus, and secondly, to avoid the danger of sepsis after delivery. In the instance from which the specimen was obtained the outlet was completely blocked by the large cervical myofibroma, to such an extent that delivery by morcellation of the child would have been almost a physical impossibility. The operation was undertaken at the beginning of labor. Fortunately for the patient the attending physician realized that there was a serious complication present, and at once requested council, so that the patient had neither been infected nor had she lost strength by long labor pains. Both mother and child were alive and well.

Extrauterine Pregnancy on Right Side; Pyosalpinx on Left Side.—Dr. HERMAN J. BOLDT presented this speci-

men. The patient was thirty-five years old, and had missed her period three months ago; six weeks thereafter she began to have atypical bleeding for which she was curetted, under the supposition that she had an incomplete abortion. Since that time she had cramp-like pains in the lower abdomen. She was again curetted under ether two weeks ago. The pains became worse and the bleeding continued. A few days ago she was seen by Dr. Boldt in consultation. The woman then had a general peritonitis. Inasmuch as no improvement was ascertainable she was operated upon. The operation was unusually difficult because of intimate and diffuse adhesions. The blood that was found in the form of a hematocele was old. The severe bleeding was undoubtedly caused by the curetting. The woman was now convalescing.

Specimen Illustrative of Conservative Surgery Practised upon the Uterine Adnexa.—Dr. Herman J. Boldt said that for several months he had tried more extensive conservatism in instances of inflammation of the adnexa. For instance, in cases of interstitial salpingitis with the tubes nearly an inch in diameter, held to the floor of the pelvis by adhesions, the pelvic organs matted together, all the adhesions were separated, the adherent uterus attached to the parietal peritoneum, and the inflamed tubes and ovaries suspended to the upper border of the broad ligaments by stitching them with one or two stitches to the round ligaments, so that they could not again prolapse and become adherent to the floor of the pelvis. In instances of much purulent secretion, the cul-de-sac of Douglas would be opened and the pelvis drained for a short time with gauze surrounded with rubber tissue. The specimen presented was obtained at an operation performed that morning. The ovaries were so firmly adherent to the floor of the pelvis that it required much force to separate the adhesions. The tubes were likewise adherent. It was an inflammation probably caused by a former gonorrheal infection; the woman, however, never had the acute symptoms of gonorrhea. In this instance conservatism was practised only on one side so that he could show the condition of the adnexa which were treated conservatively by him, in the hope that others might make a study of the subject, and try it on a certain class of hospital cases, keeping them under observation for a couple of years, and then report the result. Undoubtedly in his opinion some would require subsequent operation for the removal of the adnexa, but he believed that many would be completely cured without unsexing these women. He maintained, however, that vaginal surgery was out of the question in such cases. Much more exact work could be done through the abdominal route. In the case from which the specimen was presented, the Fallopian tube on the side retained was dissected off the ovary as far as necessary and the abdominal opening made widely patent by cutting it open and everting the opening thus made, holding the edges permanently open by stitching them. The ovary itself was halved, a piece taken out of the center to take off the tension from the cortex, and then the gland was brought into apposition. What the eventual outcome of this kind of work would be, remained to be seen, but he proposed to thus treat 100 cases, and after three or four years he hoped to come to a definite conclusion.

Dr. Charles Jewett discussed these specimens.

Uterine Fibromyoma Complicated by Acute Pyosalpinx.—Dr. Herman Grad reported a case of fibroid of the uterus complicated by an acute pyosalpinx because of the symptoms presented and the difficulty of diagnosis. The patient was seen in consultation July 7. The attending physician said that twenty four hours previous the patient was taken with severe abdominal pains. The attack came on when the patient was apparently in good health. Morphine had to be given and repeated. No diagnosis had been made. The temperature was 101°, and pulse 140. She had an anxious expression and extreme pallor. There was nausea and vomiting. The urine was drawn by catheter. The bowels were moved by a cathartic. She never had a similar attack. She was forty-five years old, and had one child three years old. She never had a miscarriage, and her menstruation was normal. The flow was excessive, lasting eight to ten days, and she always passed large clots. She had cramps with her periods. Her last menstruation was one week ago. She had been conscious of some enlargement of the abdomen for several months, but did not consult about it, because she had no pain. She attributed her pallor to the excessive loss of blood during her menses. Even the slightest palpation of the abdomen was resented on account of the extreme hypersensitiveness, necessitating an examination under an anesthesia. An abdominal tumor was discovered reaching up to the umbilicus. It was immovable, felt hard, and had a smooth outline. It filled the pelvic cavity completely, so that the appendages could not be palpated. A tentative diagnosis was made of twisting of the pedicle of the pelvic tumor. She was sent to the hospital and kept under observation for forty-eight hours. Leucocytosis was moderate. Her temperature was 100°, and pulse from 120 to 130. The nausea and vomiting was considerable. On July 10, the abdomen was opened. A few recent adhesions were found. The bowels and omentum were adherent to the tumor, which was a myoma of the uterus. After liberating the tumor, a large pyosalpinx of the left side came into view. The tumor, uterus, and pus tube were removed in one mass. The patient made an afebrile recovery. While pyosalpinx complicating a fibroid of the uterus was not uncommon, it was rare enough to mislead one in diagnosis.

Rupture of the Uterus after Cesarean Section.—Dr. George L. Brodhead said that the patient was a Russian, thirty-five years old, and pregnant for the fifth time. Her first and second were long labors, and she was attended by a midwife, and no instruments were used. Both were stillbirths. The third and fourth were difficult labors, instruments were used, and these were stillbirths. In each instance the fetal movements persisted up to the last day. The pelvis was the typically flat one, with an internal conjugate of eight cm. On December 31, 1904, cesarean section was performed, the mother and child doing well. The uterus was sutured in layers with No. 1 (ten day) chromicized catgut. The peritoneum was sewn with plain catgut No. 2, and the fascia with No. 2 chromic gut. In August, 1906, the patient was seen for the first time in her sixth pregnancy. She gave the date of her last menstruation as April 1, and she supposed she was about four months pregnant. No life had as yet been felt, and the uterus appeared to be of four months' size. It was decided to perform cesarean section again during the latter part of December, at about full term. On November 26, at about eight P.M., a physician telephoned that he had seen the patient and that she was having "false pains," with a slight bloody discharge from the vagina. The patient was advised to enter the hospital at once, and she was admitted about eleven P.M. She was very restless, and very thirsty. The skin was cold and clammy. Her pulse was 104 and of poor quality. Her respirations were forty-four. The cervix admitted one finger. The abdomen was distended with fluid, and the fetus was felt freely movable in the abdominal cavity. Laparotomy was at once performed, but the patient soon died after the incision was made. The child weighed 7 5-16 pounds and was stillborn. The rupture was at the site of the old scar. While he did not feel certain that the continuous layer sutures were responsible for the weakness of and rupture of the uterus, he had, since that time, repaired the uterus by passing interrupted sutures of No. 2 (twenty day) chromic catgut through the inner two-thirds of the muscle, down to but not including the mucous membrane. A second set of interrupted sutures closed the outer portion of the muscular coat. The peritoneal in-

cision was then closed and its raw surface covered with a continuous suture of No. 1 plain catgut.

Dr. J. Clifton Edgar said that he used twenty day chromic catgut in these cases.

Dr. Charles Jewett asked Dr. Brodhead what proportion of the cases of cesarean section was followed by rupture of the uterus. He had never had the misfortune to meet with but one case. A recent German writer had proposed in all cases where a cesarean section was to be performed, that the woman should first be sterilized. One hour later the operation was performed.

Dr. A. Sturmdorf called attention to one point in the technique which Dr. Stone had brought up in a similar discussion. It did not make so much difference whether one used interrupted or continuous sutures, but it did make much difference how they treated the lining membrane. If the uterine membrane was caught in the suture, it would in some cases proliferate. The line of rupture was along this line in the endometrium.

Dr. W. S. Stone said that rupture might occur no matter whether a longitudinal or transverse incision was made. The transformation of islands into decidual tissue was the cause of these ruptures. He had always used plain catgut. He recalled one case of rupture which occurred a few days after an operation; here the omentum filled in the chink in the uterus. The woman recovered although the uterus became firmly attached to the abdominal wall. Before she left the hospital it was thought best to open the abdomen when the omentum was found filling in the hole in the uterus. In that instance there was a poor line of union. The incision, whenever possible, should be made in the median line and slightly obliquely. The uterine muscle would retract unevenly. In some cases one side would be thin, while the other would be thick. Therefore, it was difficult to make a nice line of union.

Dr. George L. Brodhead said he could not furnish any statistics as to the frequency of rupture following cesarean section, but a considerable number of cases had been reported. They had occurred often enough to make them feel that, if cesarean section was to be performed, the matter should be laid before the woman, telling her of the frequency of rupture, etc. In one or two instances cesarean section had been performed four times on the same woman. In a case Dr. Stone referred to the rupture occurred through the fundal incision.

Placenta Prævia; Remarks on Its Frequency and Mortality, with Report of Eight Cases.—Dr. I. L. Hill read this paper, and gave the following summary: Among multiparas, placenta prævia could hardly be called a rare complication. In 1,800 cases, of which 87 per cent. were multiparas and the average number of pregnancies four, he found the ratio to be 1 to 225. The mortality had been understated recently because of too broad generalization upon a few highly favorable series of cases reported. There had been very little reduction in the fetal death rate, which was still from 40 to 50 per cent. In the presence of hemorrhage in the last third of gestation, the cervix should be dilated sufficiently to allow a diagnosis by the finger, and if placenta prævia was present, the uterus should be emptied without delay. Tamponade of the cervix and vagina was useful as a preliminary step. The Braxton-Hicks version was effective in controlling hemorrhage and was the safest procedure for the mother, but it did not give satisfactoryy results for the child. When the dilatability of the cervix made them positive that delivery could be effected with little or no tearing of the cervix, they might elect rapid delivery by version and forceps, packing the uterus and vagina if there was bleeding after the third stage. In cases presenting long, rigid cervices, complete prævia and a viable child, if the surroundings of the case were favorable, cesarean section should be chosen in the interests of the child. The advance in the treatment of placenta prævia had been remarkable in reducing the maternal death rate even though the saving of the patients had not been brought so near an exact science as some suggested. It would seem that progress must be directed to decreasing the fetal mortality.

Dr. Charles Jewett, speaking of the mortality in cases of placenta prævia, said that methods of treatment which were best for the mother were worse for the child, and conversely. His own mortality he had not by any method been able to keep down to 1 per cent. In any large number of cases taken as they go so low a mortality was impossible. One or two weeks ago he lost a case; there had been considerable hemorrhage when the patient entered the hospital. This was controlled and he was about to take steps for immediate delivery when the woman was seized with eclampsia. She was delivered easily under chloroform. Catharsis, hypodermoclysis, and other measures were used, but the patient died of exhaustion a few hours after delivery. With reference to treatment before the period of fetal viability he formerly advocated an expectant course except when the hemorrhage was profuse. He was now inclined to think that in most instances such cases should be treated by immediate evacuation of the uterus. Exceptions might be made when the blood loss was very moderate and the case could be closely watched. But the prospect for a living and viable child was so small that the attempt was seldom advisable. The choice of procedure at delivery was pre-eminently a matter of judgment in the individual case. In marginal or very partial placenta prævia with good pains rupture of the membranes had in his hands been entirely satisfactory. With much bleeding before the cervix had fairly begun to dilate a firm vaginal pack with wet strip gauze supplemented by a tight abdominal binder had served him well and it had a good record in other hands. Still better, when beginning dilatation permitted, was the vaginal tamponade together with a water bag in the cervix. The Pomeroy bag was free from the objections to other bags for this purpose. Sometimes, after labor was well established, manual dilatation and extraction might be carried out safely in the exceptional cases in which the woman had not bled much. When the cervix would admit two fingers, and the membranes were unbroken there was perhaps no quicker or better method for the control of profuse hemorrhage than bipolar version without extraction. Extraction immediately following version he thought was in most instances an unfortunate mistake. The half exsanguinated woman succumbed very easily to superadded shock. Cesarean section he granted might be justified in rare instances, but as a rule the usual obstetric procedures were better, as figures would show. He certainly would not perform a cesarean operation on a woman who had recently lost much blood.

Dr. J. Clifton Edgar said the fetal and maternal mortality must be considered in such cases. They took certain risks in order to give the child a chance and, at the same time, they lessened the chance for the mother. Looking at placenta prævia from a practical standpoint, it seemed to him that the cervix was the interesting part and should be an object for consideration. It was a significant fact that of the cases reported there was not one primipara among them; all the cases occurred in multiparas. It seemed to him that where the woman had had several children the chances were favorable as regarded the prognosis for the mother. This led them to consider the statement hinted at by Dr. Jewett, that cases of placenta prævia would rarely require cesarean section. Occasionally one met with a case with a long cervix where suprapubic operation undoubtedly gave better chance for the child as well as for the mother. Dr. Edgar confessed that he had not the fortitude to use bags in a cervix covered by placenta; introducing a bag under those circumstances, and injecting water into that bag, gave him the feeling that he would be separating the placenta further. But where a finger or two could be placed in the cervix, he did not hesitate to use one

of the smaller bags. After one or two sharp hemorrhages in placenta prævia the fate of the child was sealed. But an ordinary birth under such circumstances gave a high mortality. Bossi's dilator had a place in placenta prævia. It started dilatation, when manual dilatation could be proceeded with. The slow extraction of the child had not been brought out. A gentleman in Philadelphia favored the Braxton-Hicks method of extraction in these cases.

Dr. George L. Brodhead said that in all cases of placenta prævia, whether the child was viable or not, pregnancy should be terminated unless the woman was in a hospital where she could be closely observed. Allowing these patients to go on without careful watching was a bad procedure. With regard to the mortality rate he agreed with Dr. Hill, that where the treatment was instituted promptly after the diagnosis was made, the mortality should be small. When the diagnosis was established, and measures instituted to empty the uterus, the chance for the mother was good, although there was a high mortality for the child. One of the most important points brought out in the paper he believed to be the statement that after version had been done, with the cervix only partially dilated, extraction should be made slowly. He could recall a number of cases where the child was saved by rapid extraction, but the mother died. He thought the mother should be saved even though the child was lost. A number of women lost their lives through rupture of the uterus, shock and hemorrhage because of the rapid dilatation of cervix and rapid extraction of the child through an undilated cervix. Dr. Brodhead had never had a case of placenta prævia in which it was necessary to do a cesarean section, but he had no doubt that in some of the cases described it would give a living child, and a far better chance than if version and forceps were employed. It seemed to him that in those cases with a long and rigid cervix, the best treatment was packing; he thought the tampon offered the best possible chance where the cervix was undilated. Where the cervix admitted two or three fingers there was no question but that the Braxton-Hicks method was the safest. Podalic version was best for the patient, although it was not so good for the child. Where the cervix was well dilated and the hemorrhage slight, forceps and version. If the cervix was very well dilated, forceps should be the means of extraction. In some cases he advocated the use of the tampon; later on rupture the membranes; or complete the dilatation with the fingers, then later on operation with forceps and version.

Dr. Leonard S. Rau said that in the report of his eight cases the reader of the paper used the bags in none. Personally he favored the bags; this was his favorite method of treatment. In cases where the cervix was readily dilatable delivery should be done as soon as possible. Those who saw many cases realized the danger to the mother. Unfortunately the mortality for the child too was high. He did not know why he examined all the cervices of women after delivery, because in many cases one would find that, although forceps had not been used, there would be a tear, quite a marked tear, in the broad ligament and sometimes in the uterus itself. These were the cases in which the women did badly. Dr. Rau's method was, if the cervix was sufficiently dilated, to introduce the bag. This checked the hemorrhage, and gave the woman a chance to regain her strength and produced dilatation. He then did a Braxton-Hicks, bringing the foot down; then he allowed nature to do the rest. With regard to the long rigid cervix, he did not see how the diagnosis could be made of a complete placenta prævia because one could not get the finger through. That was simply presumptive.

Dr. H. N. Vineberg said that he had seen a number of cases where the bleeding occurred from the uterus and not from the cervix. He had allowed cases to go to full term with no hemorrhage and no evidences of placental detachment. He had known of cases with slight bleeding where it was not deemed necessary to do anything, and they were delivered all right. But where there was active bleeding there was nothing to do but go ahead and deliver as soon as possible. He had seen cases in the hospital under the expectant treatment, being closely under observation; then there would be a scurrying to and fro, and death of the patient before delivery. In cases with a low placental detachment and profuse hemorrhage delivery should be accomplished as soon as possible. If the cervix was dilatable and you could introduce three or four fingers, the rest would be easy; the rest of the dilatation could be done without difficulty. The child then could be turned and delivered without fear of rupturing the uterus. The great difficulty was encountered in dilating sufficiently to get in two or three fingers not only in primiparas, but in multiparas as well.

Dr. John O. Polak wished to called attention to the extreme friability of the cervix in these cases of placenta prævia. The last speaker had just stated that when three or four fingers could be introduced into the cervix, the rest of the dilatation was easy; but that was just how the tear took place. He had rapidly dilated cervices and with a tenaculum brought down the cervix and had found a tear in one or the other fornix. Multiparas had scarred cervices and increased friability of the parts, and he wished to say that Dr. Rau's treatment was one form of treatment which saved the most lives. With regard to cesarean section he could see theoretically the advisability of doing it; but personally he did not believe in it except in those rare instances of central implantation, with slight bleeding; then one might be justified in placing this extra strain upon the mother in the interest of the child.

Dr. I. L. Hill, referring to Dr. Rau's criticism regarding the difficulty of diagnosing a central placenta prævia in cases of long and rigid os, said that he did say complete, one covering the lumen of the os. If necessary he dilated it as far as was necessary to pass in the finger to make the diagnosis. One could twist the finger around. With regard to Dr. Edgar's statement that hemorrhage caused the death of the fetus and cesarean section later offered little hope of saving the child, it should be remembered that cesarean section, if done at all, should be done as soon as possible, even though hemorrhage was going on. He hoped what he had said might be felt and a greater number of children saved. He had been impressed in studying this matter with the great difficulty of all methods used in reducing the mortality of the child.

Injuries of the Perineum; Their Mode of Formation and Treatment, with Report of Seven Cases.—Dr. Ellice McDonald presented this communication, illustrating his remarks with charts.

Dr. Charles Jewett, Dr. H. N. Vineberg, and Dr. Herman C. Collyer entered into the discussion.

SECTION ON PEDIATRICS.

Stated Meeting, Held October 10, 1907.

Dr. Godfrey R. Pisek in the Chair.

A New Diagnosis of Tuberculosis.—Dr. Louis Fischer said that the diagnosis of tuberculosis years ago, by the Koch method, fell into disrepute because it was necessary to use such large doses. In this present method tuberculin was taken and diluted with normal saline solution 1-4. Three portions of an arm were scarified and to two of these the diluted tuberculin was applied, the other place being used as a control. In tuberculous cases a marked reaction would occur. In the last stages of miliary tuberculosis or tuberculous meningitis there would be no such reaction. This was what Koch found years ago, when he injected pure tuberculin. In one case of marasmus Dr. Fischer had seen, there was a reaction within twenty-four hours, as shown by the amount of inflammation around the inoculated area. In Vienna he was told that the area of in-

flammation following the injection of the diluted tuberculin was about 10 millimeters, and if it was more it should be excluded as a diagnostic point, but Dr. Fischer had seen it even larger in cases of undoubted tuberculosis. Among seven hundred cases inoculated, only three gave febrile reaction. Some had a complication of conjunctivitis, and some a severe type of rhinitis following the injection. Dr. Fischer had seen personally seventy-five or one hundred cases injected with this method, which was a very simple one. A few days ago he used this method and was surprised at the quickness with which it responded. In regard to infants and nurslings, four, five, or six days after the inoculation the condition wore away entirely, whereas in older children it might remain for several weeks, with distinct red streaks about the site of inoculation.

High Frequency Currents in the Treatment of Hernias.—Dr. HERMAN C. FRAUENTHAL showed a child who had whooping cough, which was followed by inguinal and umbilical herniæ. The child was treated with high-frequency currents with apparently remarkable results.

Dr. L. E. LA FÉTRA examined the patient and found evidences of the hernia, and asked Dr. Frauenthal what he considered the condition of the patient to be at present.

Dr. HENRY W. FRAUENTHAL answered that the child had been under treatment but two weeks and, at present, the hernia which protruded was about the size of the thumb. He showed the base because he expected to show it again, and see what the future would bring forth.

A Fatal Case of Hemophilia Neonatorum.—Dr. H. FRED LANGE ZIEGEL reported this case. An infant weighing twelve pounds at birth had tongue-tie and phimosis. The prepuce was retracted over the glans, causing a small laceration on its anterior surface, where a small bleeding area was noticed. To check this oozing a strip of gauze was packed under the preputial tissue. Then the tongue was drawn forward and with the points of the scissors a slit was made through the tight frenum. Six hours later he was sent for, and found that though blood oozed steadily from the cut surfaces of the frenum linguæ, yet no bleeding vessel was to be detected. Various hemostatic agents were applied, with but little effect upon the bleeding. After the application of ice and digital pressure for about an hour the bleeding was apparently controlled. Twelve hours after the operation bleeding was more profuse and, after fruitless efforts to control it, he summoned a consultant, who tried various measures, but without success. The patient was then admitted to Mt. Sinai Hospital, where Dr. Charles A. Elsberg was on duty in Dr. Lilienthal's service. The blood was escaping in a steady flow from the substance of the tissues as a capillary oozing. It was pale, and gave no evidence of normal clotting. Styptics, astringents, ice, pressure, additional sutures, the actual cautery, enemata containing calcium chloride and gelatin, were all employed in vain. The infant died seven hours after admission to the hospital. Unfortunately an autopsy was not granted. The loss in weight from the bleeding was as much as two pounds. The doctor reproached himself for having cut the frenum linguæ as early as the second day, and undoubtedly the procedure was reprehensible; but the intended end seemed to justify the supposedly harmless means.

Some Observations on the Recent Epidemic of Acute Poliomyelitis in New York City.—Dr. J. F. TERRIBERRY said that there had been in this city and vicinity since the beginning of last July an epidemic of infantile paralysis, which in severity and extent exceeded the disease as previously met with. This disease constituted as high as 8 per cent. of all the diseases of childhood, and the limps seen in children were caused by this disease in 50 per cent. of the cases. Notwithstanding the fact that this disease had received the attention of investigators for many years, they practically had no knowledge of its etiology or its management. Dr. Terriberry then referred to an outbreak of infantile palsy, spotted fever, and typhoid fever at Ridgway, a village of 6,700 population in Pennsylvania, lying at the convergence of the Clarion River and Elk Creek. The general drinking supply was from a well, into which drained the excreta from a case of typhoid fever. Of the cases of infantile paralysis, fifty in number, four died. Almost all epidemics of this disease originated in low-lying regions and along coast lines. Again, they occurred at a time when the rainfall was reduced. At Ridgway he was informed that the Elk Creek had ceased to flow last summer for the first time. Most of the cases coming to the hospital were improperly diagnosed. The general practitioner should pay more attention to this disease, because of so many mistakes in the diagnosis. The bacteriological findings so far had been negative. In spite of the study of an immense number of these cases, our knowledge of the cause and treatment had not advanced at all.

Dr. SIMON FLEXNER said he had had an opportunity last week to see a number of these cases, wishing to make bacteriological and pathological study of them. He had been fortunate enough to get the spinal fluid and the blood from some cases in the early stages of the disease, as well as in older cases. But thus far he had no results to offer. He wished to make an appeal to those present, that if they saw these cases early, and if an opportunity was given to get some spinal fluid by lumbar puncture, that he would like to have some for study at the Rockefeller Institute. He also wished to obtain some material at autopsy, especially parts of the central nervous system. He said he would be much indebted to them if they would allow him to be present and secure whatever material possible, as he was particularly anxious to get material in the fresh state. So far as the spinal fluid was concerned, there were no evidences from the histological or morphological standpoint to say that it was of inflammatory character.

Dr. HENRY W. BERG thought that there should be some method by which an epidemic like the one now prevailing, which did not often kill, but maimed, should be recorded. A disease of this nature should be reported to the Health Department, even though the disease did not terminate in a death certificate. He had seen 25 cases, and believed the disease to be quite widespread. He called attention to the peculiar flaccidity of the muscles, which was very characteristic in those cases when seen early. The diagnosis rested upon this and the severe paralysis, with loss of patellar reflex. Kernig's reaction was not present. He then reported some interesting cases.

Dr. L. EMMETT HOLT reported the case of a child who was admitted to the hospital on the fourth or fifth day of the disease with paralysis of all four extremities and the muscles of respiration except the diaphragm. There was complete loss of voice and a moderate amount of temperature. At present the child was regaining power in the extremities, but not in the neck muscles, and there was as yet no phonation. The respiration continued diaphragmatic. He had seen two or three cases of extreme severity; also cases of extreme mildness, cases which presented, after a slight febrile reaction, paralysis of one member, complete recovery taking place at the end of one month or six weeks. The results in each case depended not so much upon the treatment as upon the severity of the infection and the temperature.

Dr. HENRY DWIGHT CHAPIN reported one case with respiratory phenomena. This patient left the hospital and he could not tell how it terminated. In 1900 he was called to Poughkeepsie for consultation as to the nature of an epidemic. There were about 60 cases in which pain in the extremities was the marked feature, and it was uncertain whether they were dealing with a peripheral neuritis or a poliomyelitis. One child died and at autopsy the typical lesions of the latter disease were noted.

Dr. GODFREY R. PISEK said he had seen 12 cases. He wished that more could be said regarding the etiological factor. In eight of the cases there was a previous gastro-enteric infection and it seemed to him quite possible that the bacterial flora were at the basis of the disease. The

feces should be more carefully examined. In six of his cases lumbar puncture, as well as the urinary examination, resulted in negative findings.

Dr. Josephine Hemenway said that there had been 50 cases of poliomyelitis at the Babies' Hospital during the past five years. The cases admitted so far were all severe, involving three or four extremities, and several with neck muscle involvement. All had a sudden onset with rapid recovery. Many of the cases had been diagnosed as cerebrospinal meningitis because of the rigidity of the neck, opisthotonos, and paralysis coming on several days later.

Dr. T. Halsted Myers reported a case which made a remarkable recovery. Within thirty-six hours the paralysis cleared up and in forty-eight hours the coma had entirely disappeared and the child was practically well.

Dr. Charles G. Kerley said he had seen 33 cases. Within the first thirty-six hours of the disease a diagnosis of cerebrospinal meningitis he believed to be quite reasonable. He emphasized the condition of mental apathy, the comatose condition from which it was difficult to arouse the patient, and one case he had seen in consultation had been unconscious for four days. When the patient began to speak it was nearly a week before he could enunciate clearly. He believed the disease to be an infection of some sort.

Dr. Henry Heiman said that of the 36 cases he had seen 11 were hospital cases, 12 dispensary cases, 6 were seen in private practice, and 7 were seen by Dr. Schwarz. The onset was sudden in 30. He believed this to be an infectious disease and therefore vomiting and diarrhea might be expected to be present. Rigidity of the neck muscles was present in 4 of the 11 hospital cases. Blood cultures showed negative results. The blood count showed a leucocytosis. The treatment followed was that advocated by Gibney and Whitman, *i.e.* feet up in the state of flexion and inversion, to prevent the resulting drop-foot.

Dr. Carlton Wallace said that there had been 300 cases of this disease at the Hospital for Ruptured and Crippled during the last few months. In June there were 17 cases; July, 24 cases; August, 86 cases; September, 138 cases; so far in October, 35 cases. According to age, he reported as follows: First year, 24; second year, 80; third year, 77; fourth year, 57; from fifth to eighth year, 41; from eighth to the twelfth year, 17; after the twelfth year, 4, a total of 300 cases. There were 169 males and 131 females. The treatment should be rest during the first three or four weeks; prevent the contractures. Afterwards some sort of stimulation should be employed and the child should be encouraged to use the muscles. He thought the disease to be an infectious one.

Dr. Henry W. Frauenthal presented three photographs illustrating the facial paralysis which occurred in these cases of infantile paralysis.

Dr. Herman Schwarz reported three cases, each representing a type of the disease. In one case, before death, the paralysis of the left lower extremity had disappeared, showing the rapidity with which function might be regained. At autopsy hemorrhages were found in the anterior horns and in the pia mater. In another case, a child of two years had a temperature of 102°. On the following day there was paralysis of all four extremities and of the muscles of the neck. One month later he was completely cured. A third case had rigidity of the neck muscles, temperature, etc., and it appeared as if the child was to be paralyzed. Here were three distinct types of the disease.

Dr. Sidney V. Haas gave some statistics from Dr. Holt's clinic. There were 40 cases, 15 males and 25 females. There was no case under six months of age and none over four years. The onset was sudden in 31 cases. He presented figures showing the frequency of occurrence of certain symptoms.

Dr. I. E. LaFétra believed that a man was justified in being in doubt as to his diagnosis of these cases. The condition from which it must be diagnosed in many cases was cerebrospinal meningitis. In many cases gastrointestinal symptoms preceded the onset. The absence of cellular elements in the cerebrospinal fluid, the absence of leucocytosis in many cases, and the high polymorphonuclear count, made one think that he was possibly dealing with some preceding trouble in the system, or with some atmospheric condition. As to treatment, the spasm should be relaxed by warm baths, and some suggested that they should be given continuously. The application of the ice-bag along the spine was of value. If the temperature was low and there was much pain, the application of a mustard paste along the spine would prove of benefit. In one case he had used chloral with good effect; this relaxed the spasm and quieted the system in general. In cases of severe pain he gave morphine and codeine.

Blood Pressure in Children.—Dr. William L. Stowell read this paper. He said that with the modern sphygmomanometer it was easy to determine the pressure on any vessel under varying conditions. It was found that the carotid of man supported a column of mercury 150 to 200 millimeters high. Blood pressure depended upon many conditions, such as the energy of the ventricular contraction, peripheral resistance, elasticity of the arterial walls, and the volume of blood. The pulse rate and pressure did not necessarily increase together. Some drugs increased the heart's action, as strychnine, while others, like adrenalin, acted chiefly on the vessels and so increased pressure with little or no increase in the number of beats. Increased abdominal pressure raised arterial pressure up to a certain point, but after that point was reached it caused a fall. Stimulation of centripetal nerves caused increased blood pressure; so also did irritation of the cerebral cortex. As a rule, rise in frequency meant rise in pressure. In deep breathing there was an extreme rise in pressure at the beginning of expiration. The tension of the vessels rose and fell with atmospheric pressure. The pressure was low during sleep. Alcohol did not increase the pressure ordinarily, although it increased the pulse rate. Tobacco, on the other hand, had the effect of increasing the pressure through its influence on the vasoconstrictors. It was said that any pressure below 100 millimeters was pathological. After making more general observations, he said that it was evident that vascular tension was lower in childhood than in adult life, his deductions being based on a study of 216 children in health and disease. Seventeen little idiots were examined and exhibited pulse rates and arterial pressure both above the normal. One theory of the cause of epileptic convulsions was disturbance of the vasomotor center in the medulla. Thirty-two of these patients were examined, but the variations from normal were very slight. Very fat subjects had high pressure. Dr. Stowell concluded that blood pressure in the young was low in proportion to extreme youth; its rise and fall was quickly influenced by emotions as in adults; diseases of the nervous system gave high pressure; acute diseases with high temperature might give either high or low pressure; sclerosis of arteries was almost unknown in childhood, so that the use of a sphygmomanometer for its detection was needless; blood pressure readings were of interest physiologically, but had little clinical value in childhood.

Dr. L. Faugères Bishop believed it to be worth while to recognize the mechanism of high pressure because of its important bearing on certain cases. High pressure and cerebral compression was purely compensatory and he referred to Dr. Emerson's experiments at the College of Physicians and Surgeons; a hole was made in the animal's skull and a cannula screwed in. An instrument was introduced into the carotid artery to measure the blood pressure. Whenever the pressure in the cranial cavity was raised the blood pressure in the carotid was raised as well; when it was reduced the blood pressure went down too. The high arterial tension accompanied by cerebral com-

pression he believed to be an attempt on nature's part to maintain the circulation in the brain. When such was the case he did not think it was wise to use nitroglycerine.

Dr. L. E. LaFÉTRA moved that the Chair appoint a committee of three to confer with a committee already appointed by the Neurological Section, that they might take such steps as were necessary in the study of the etiology of poliomyelitis. This was seconded and carried, and Drs. L. E. LaFétra, Josephine Hemenway, and Herman Schwarz were appointed on the committee.

Acute Anterior Poliomyelitis.—Dr. WALTER B. JENNINGS presented this case. A typical history was obtained. The patient was a boy, eight years old, who had always been healthy. On the afternoon of August 29, 1907, the child came to the house from play and complained of being tired. That same night, about 2 A.M., the mother said that the child had an "awful fever," together with a stiff neck. She gave him a hot mustard bath, after which the child went to sleep. The next morning the child appeared to be much better, but remained in bed during the day. There were no gastrointestinal disturbances. Dr. Jennings saw the patient September 6, just one week after the onset, when the patient complained of pain in the left hip and leg, together with loss of function of the entire lower left extremity. Rheumatism was excluded. The skin was cold and had a reddish mottled look. The muscles were flabby and the patella reflex was absent. The boy had as well an enlarged thyroid gland.

NATIONAL ASSOCIATION FOR THE STUDY OF EPILEPSY AND THE CARE AND TREATMENT OF EPILEPTICS.

THE seventh annual meeting of this Association was held at Richmond, Va., October 24, 1907. It was opened with short addresses of welcome by Governor Swanson of Virginia, by Mayor McCarthy of Richmond, and by Dr. Ennion G. Williams on behalf of the medical profession of Richmond. Responses were made for the Association by Dr. Everett Flood of Palmer, Mass., and Dr. Spratling of Sonyea, etc. Reports were read from several States in which there are institutions—Ohio, New York, New Jersey, Massachusetts, Indiana, Pennsylvania, and the Province of Ontario, Canada.

Epilepsy; Its Definition and Treatment.—Dr. J. S. DEJARNETTE of Virginia, offered the following definition, formulated by Dr. Freed and himself: "Epilepsy is a chronic disease, characterized by sudden, occasional, recurring, and involuntary discharges, usually short in duration, from a diseased cerebral cortex; always with psychical disturbance, frequently with convulsions, excluding the diseases paresis, meningitis, and short attacks of mania. The tendency is always towards dementia." He believed that heredity was much more important than generally considered because epilepsy was concealed or undetected in many cases. The writer emphasized the impulsiveness and irritability of the epileptic. Bromide of potassium was advocated most strongly. Colony treatment was recommended most highly because of the control which it was possible to have over the patient.

Alcohol as a Primary and Exciting Cause of Epilepsy.—Dr. THOMAS C. FITZSIMMONS of Wilkesbarre, Pa., said that alcohol was dangerous as a cause of epilepsy not only in the drinker himself, but in his posterity. Especial stress was laid upon the influence of alcohol upon conception. The product of conception when one parent, or both, was under the influence of alcohol at the time, was especially prone to the disease.

The Value of Elimination in the Treatment of Epilepsy.—Dr. J. ALLISON HODGES of Richmond, believed that faulty chemical processes played an important and conspicuous role in the disease; that a hypertoxic condition with inadequate elimination was the underlying basis of the disease. "Clean out, clean up, and keep clean" expressed his idea of the treatment of epilepsy. He reported three cases, in all of which there was an undue proportion of indican and a deficient secretion of urea in the renal secretion. Small doses of strontium bromide were given and dechlorization was secured. General methods for stimulating elimination were employed. The seizures were notably decreased in each case and the general health was markedly improved. In one case there had been up to this time (one year) no return of the epileptic seizures. Their continued improvement for the lapse of a year argued well for the future.

Pulmonary Edema as a Complication of the Epileptic Seizure.—Dr. W. T. SHANAHAN of Sonyea, N. Y., said that pulmonary edema was a frequent and serious complication of grand mal seizures and the status epilepticus. The cause was probably an enfeebled action of the heart. The treatment was the adoption of a posture to aid in draining the respiratory passages, dry cupping, and the use of atropine and strychnine hypodermically, with venesection in full-blooded patients.

Eye Defects in Epilepsy.—Dr. D. D. WILLCOX read this paper, reporting some improvement following work in this direction.

Surgical Intervention in the Treatment of Epilepsy.—Dr. STUART MCGUIRE of Richmond, discussed this subject. His conclusion was that the term "epilepsy" was at present too broad a one on which to base a definite line of intervention. The removal of the sources of peripheral irritation was advised as the first step in the surgical treatment of epilepsy. Direct interference with the brain should be avoided unless there are localizing symptoms.

Surgery as a Therapeutic Measure in the Cure of Epilepsy: a Plea for More Frequent Surgery.—Dr. MATTHEW WOODS of Philadelphia presented a paper with this title. He pointed out the possibility that at times the mere incidents and concomitants of operative procedure, such as disturbance of vasomotor equilibrium, etc., might cause cure, rather than the removal of tumors, cicatrices, etc. While permanent recovery had occasionally followed the removal of abnormal tissues, nevertheless there seemed to be many recoveries when the operation resulted in the removal of either nothing or of such parts as were now believed to have no causative bearing on the disease.

Dr. WHARTON SINKLER presented a case of epilepsy of the family type in which a considerable number of the members of the family were epileptic.

The Heart's Action Preceding the Seizure.—Dr. MUNSON of Sonyea, N. Y., discussed this point. In several cases of epilepsy he found the rate practically unchanged, usually slightly accelerated, before the onset of the convulsion.

The Committee on the Prize Essay reported that no award would be made, but that honorable mention should be made of the essay of Dr. E. E. Southard of the Department of Pathology of Harvard University.

It was the sense of the meeting that every effort should be used to bring about the public care of epileptics in States where no effort is being made at present, and that the facilities in States already having institutions should be greatly increased. This was necessary, not alone because the epileptic was dangerous to himself and to the public at large, but also because under proper regulation of life and habits his condition could be greatly improved. The lot of an epileptic outside of an institution was at best a hard one. He was an object of curiosity, of scorn, of pity. No one would employ him; there was no place for him. In the properly constructed institution he found a place in life where he could work to the best advantage and have all the social privileges he was capable of enjoying, together with the best medical care.

Officers.—The following officers were elected: *President*, Dr. H. M. Weeks, New Jersey State Village for Epileptics, Skillman, N. J.; *Vice-Presidents*, Drs. W. F. Drewry, Petersburg, Va., and Thomas C. Fitzsimmons, Wilkesbarre, Pa.; *Secretary and Treasurer*, Dr. J. F. Munson, Sonyea, N. Y.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 23, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	345	154
Diphtheria	282	31
Measles	293	5
Scarlet Fever	278	17
Smallpox	..	..
Varicella	136	..
Typhoid Fever	86	12
Whooping Cough	27	1
Cerebrospinal Meningitis	4	5
Malarial Fever	..	..
Totals	1451	225

Cancer of the Rectum.—O. Laurent gives the etiological factors in rectal cancer as constipation, traumatism, and hemorrhoids. Age, after fifty-five years in general, but sometimes twenty to thirty. It is localized, especially at the points at which the feces are retained, the cecum and rectum. There are three types: at the anus, in the ampulla, and in the sigmoid flexure. The growth may be pavement epithelium when in the rectal region; it may be of cylindrical epithelium, or the cells may be transformed into muciparous cells. It may be nodular and vegetating, infiltrating, annular, or massive, propagated to the peripheral tissues. It extends into the ischiorectal fossa, the bladder, uterus, or vagina. The neighboring glands are infiltrated quickly. The three cardinal symptoms are pain, severe or heavy bearing down feeling; hemorrhage, profuse or slight and mixed with purulent materials; and constipation, with obstruction at times. Its course is from one and a half to six years. Operation is indicated by mobility. If firmly adherent to the sacrum, excision will be useless. The method may be perineal, vaginal, or abdominoperitoneal. The rectum must be emptied and fluid diet used for a day or two. An artificial anus must generally be made a week before. Schlange's tegumentosacral operation is the best when the growth is at all extensive. By this method the growth is operated on by way of the sacrum with an osteoplastic procedure. Complications are septicemia, gangrene, fistula, and incontinence. The best results are obtained when the sphincter is not involved in the operation.—*La Révue Médico-Sociale.*

Nasopharyngeal Irritation.—J. S. Fraser and J. D. Comrie recently presented to the Edinburgh Medico-Chirurgical Society an interesting paper on the nasopharynx as an infection-carrier in epidemic cerebrospinal meningitis. They pointed out that epidemics of this disease were frequent in seaport and colliery towns. Their investigations were chiefly concerned with the occurrence of the disease in Leith, where up to May 28, 1907, 83 cases have occurred. Most of the cases were found in the densely crowded and poorer parts of the town near the docks. Eighty per cent. of the cases were under 16 years of age, at the period of life when adenoids and nasopharyngeal catarrh were common. The *Micrococcus intracellularis meningitidis* was found in 2 out of 13 cases of epidemic cerebrospinal meningitis examined. This small proportion was due to the fact that isolation of one bacterium was very difficult in the case of patients who were extremely ill and whose nasal cavities swarmed with germs of different kinds. The micrococcus was present in 10 out of 60 contacts; and of those 10, 5 were fathers of patients; and of the 60, 14 were fathers of patients. The organism was present in only 0 per cent. of the mothers, brothers, sisters, and other relatives, but in 33 per cent. of the fathers of the patients. Five of the 14 fathers worked on a particular ship, and on exposing Petri dishes containing ascitic agar in various parts of this ship the micrococcus was found to be present in the air of the engine room. Twenty three controls who had no evident connection with the disease were examined, and in none was the micrococcus found to be present in the nasopharynx. The authors thought the usual methods employed in stopping epidemics were useless when applied to outbreaks of acute cerebrospinal meningitis. Their investigations and those of Ichle pointed to the spread of the disease by the fathers of the patients, causing infection of the nasopharynx by kissing or by expectoration; therefore, all contacts should be isolated and a bacteriological examination of their nose and nasopharynx should be obtained. Those cavities should subsequently be disinfected by very dilute solutions of formalin or other antiseptic.—*British Medical Journal.*

New Method of Reducing Dislocation of the Thumb.—L. B. Burnett states that in view of his failure in a recent case to reduce a dislocated thumb by ordinary methods and in view of the fact that the tension of the flexor longus is one of the chief hindrances to reduction, he made a further attempt at reduction with the wrist completely flexed and he applied the two half hitches of bandage, with which he grasped the thumb to the first phalanx so as to allow the second phalanx to flex and so still further relax the flexor longus tendon. He then pressed the metacarpal bone firmly into the palm of the hand to relax the short flexor; having thus relaxed all the muscles that were opposing reduction he then made traction in the usual way, first backwards, and by the time he had got the thumb straight the dislocation was reduced. He admits that the result may have been a pure coincidence, but believes that the method deserves a further trial.—*The Lancet.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending November 22, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Bakersfield	July 1—Nov. 15	..	Present
" Los Angeles	Oct. 26—Nov. 9	7	..
" Tehachapi	June 1—Nov. 15	125	..
Illinois, Chicago	Nov. 10-16	1	..
" Springfield	Nov 1-14	67	..
Indiana, Seven Counties	Sept. 1-30	23	..
" Elkhart	Nov. 3-9	5	..
Iowa, Cartersville	Sept. 21-Oct. 12	3	..
Massachusetts, Fall River	Nov. 10-16	1	..
Missouri, St. Louis	Oct. 20-26	1	..
New York, Eleven Counties	Aug 1-Nov. 7	56	..
" Kingston	Oct. 1-31	1	..
North Carolina, Nine Counties	Sept. 1-30	34	..
Tennessee, Nashville	Nov. 10-16	2	..
Texas, San Antonio	Nov. 3-9	1	..
Washington, Tacoma	Nov. 3-9	2	..
Wisconsin, La Crosse	Nov. 3-9	2	..

SMALLPOX—FOREIGN.

Argentina, Buenos Aires	Aug. 1-31	..	3
Austria, Vienna	Oct. 22-28	4	..
Brazil, Para	Oct. 22-28	26	19
China, Hongkong	Sept. 22-28	2	2
" Shanghai	Sept. 30-Oct. 6	2	6
Columbia, Cartagena	Oct. 7-Nov. 1	..	Present
Ecuador, Guayaquil	Oct. 10-20	..	2
France, Marseilles	Oct. 1-31	..	23
" Paris	Oct. 27-Nov. 2	2	..
India, Calcutta	Sept. 22-28	..	2
" Rangoon	Sept. 29-Oct. 5	..	1
Java, Batavia	Sept. 29-Oct. 5	18	5
Peru, Lima	Oct. 13-19	..	Present
Russia, Batoum	Sept. 13-Oct. 13	3	..
" Riga	Oct. 20-26	5	..
" Warsaw	Oct. 8-14	..	11
Spain, Barcelona	Oct. 10-20	..	2
" Denia	Oct. 7-26	2	..
" Valencia	Oct. 14-27	56	5
Turkey in Europe, Constantinople	Oct. 13-27	..	1

CHOLERA.

China, Hongkong	Sept. 8-14	1	..
India, Bombay	Oct. 10-22	..	8
" Calcutta	Sept. 14-21	1	31
" Cochin	Sept. 7-Oct. 4	..	12
" Rangoon	Sept. 29-Oct. 5	..	2
Japan, General	Aug. 19-Oct. 5	2,944	736
" Kobe	Oct. 5-12	40	15
" Yokahama	Oct. 15-21	10	9
Manchuria, Dalny	Oct 6 12	12	6
Philippine Islands, Manila	Sept. 29 Oct. 12	55	48
" Bulachan Province	Oct. 6-12	1	..
Straits Settlements, Singapore	Oct. 6-12	..	4
Turkey in Europe, Constantinople	Nov. 9	..	Present

YELLOW FEVER.

Brazil, Para	Oct. 20 26	10	10
Cuba, Camaguay Province—			
Ciego de Avila	Nov. 6 18	3	1
Habana Province			
Guines	Nov. 13 16	1	1
Matanzas Province			
Alacrancs	Nov 17	1	1
Cienfuegos	Nov. 10	..	1
Santa Clara Province			
Santa Clara	Nov. 10	2 American Soldiers	

PLAGUE UNITED STATES.

California, San Francisco	Nov. 10 16	12	6
Washington, Seattle	Nov. 16 30	2	1
China, Hongkong	Sept. 8-21	4	4
Egypt, Alexandria	Oct 15 21	5	3
" Port Said	Oct 11 17	1	1
" Minieh Province	Oct 7 15	5	1
India, General	Sept 15-28	26,388	18,553
" Bombay	Oct 16-22	..	16
" Calcutta	Sept. 22 28	..	9
" Rangoon	Sept. 28-Oct. 5	..	21
Turkey in Asia, Mitylene	Oct. 22 28	..	1

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Original Articles.

SIX CASES OF MALIGNANT ENDOCARDITIS.*

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NEW YORK.

ATTENDING PHYSICIAN MOUNT SINAI HOSPITAL

IN making a study of the following six cases of malignant endocarditis observed at Mt. Sinai Hospital, I have had a considerable hesitancy as to how to designate them. In spite of a few interesting differences, which will be commented upon later, there are clinically many points of resemblance, and they belong to a class of cases which for many years have been designated as ulcerative endocarditis. My first intention was to call them all malignant *bacterial* endocarditis. Firstly, because they were malignant in their course and ended fatally with septic symptoms more or less acute and pronounced; secondly, because I believe the evidence is strong that they were all of bacterial origin, yet bacteriæ were present in the blood cultures of only three of them. In two the blood cultures were negative, and in one, unfortunately, no blood culture was made, and no postmortems were obtained in the cases with negative findings. Five of these cases occurred in my own service. The case E. B. I had seen privately in consultation, and am publishing through the courtesy of Dr. Brill, into whose service she was subsequently admitted.

CASE I.—H. E., male, seventeen years old, single, schoolboy; streptococcus endocarditis, embolic aneurysm of the ulnar artery; admitted April 11, 1906; died July 2, 1906. Has suffered from cardiac palpitation since his second year. Has also had an ear discharge of many years' duration.

Present Illness.—Sudden onset eighteen hours before admission, with loss of power in his left arm, inability to walk, loss of speech during half an hour. No loss of consciousness. Does not know whether he has had any fever, but sweats profusely.

Physical Examination shows (1) facial paralysis on left side; (2) left-sided paresis; (3) *a*, a loud, rough blowing systolic murmur at apex transmitted all over the precordium and to axilla; *b*, systolic and diastolic murmur in aortic area, the systolic murmur transmitted into vessels of the neck; *c*, systolic murmur in pulmonic area; *d*, thrill at apex; (4) pulse Corrigan in type; capillary pulse present and Durozziez murmur present; (5) spleen palpable two fingers below the free border; (6) liver palpable two fingers below the free border, slightly tender; (7) marked cyanosis and clubbing of fingers and toes with incurvation of nails; (8) no petechiæ.

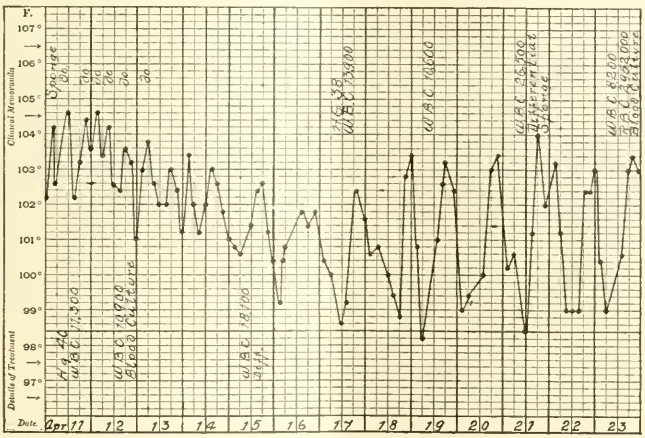

CHART 1.—Patient H. E., Case I.

Fever on day of admission ranged between 102° and 104.6°, pulse between 100 and 132, respiration between 24 and 30. The urine contained a trace of albumin. On May 3 a fusiform swelling was first observed over upper part of left forearm with expansile pulsation, and in which a systolic diastolic murmur could be heard. On May 6 this swelling was the size of a robin's egg. On May 7 and 8, petechial eruption was observed for the first time on lower right lid, on the floor of the mouth, and in the right conjunctival sac. The first blood culture was taken on April 13, amounting to 10 c.c., and streptococcus grown in three days. Subsequent cultures on April 24, 13 c.c.; May 15, 10 c.c.; June 3, 7 c.c.;

*Read at a stated meeting of the New York Academy of Medicine, November 21, 1907.

all showed no growth, but the urine of April 26 showed streptococci. The temperature chart of the first two weeks is shown herewith.

From the third week, and subsequently to the end, the temperature was mostly under 102°. There was progressive anemia with 40 per cent. Hgb. on admission, which gradually fell to 28. The leucocyte count varied between 11,300 and 26,500, with the polynuclears about 55 per cent. The amount of the albumin in the urine gradually increased, and there were varying numbers of red blood cells and casts.

Autopsy.—Lungs: Brown induration; emphysematous. Heart: Right auricle and ventricle enlarged; left ventricle hypertrophied and dilated; old aortic insufficiency with recent friable vegetation on the center of flaps and extending down over entire surface of anterior flap of the mitral valve and chordæ tendineæ; mitral shows moderate o¹d thickening; coronaries negative; heart muscle cloudy. Slight changes at arch of aorta. Spleen congested, fatty. Adrenals, pancreas, and mesentery negative. Kidneys enlarged; capsules slightly adherent; few yellow infarcts. Left ulnar artery: About 6 cm. from

There is headache and anorexia. There was a chill last night, another one this morning, followed by high fever and profuse perspiration.

Physical Examination.—General condition rather poor, complexion pasty. Eyes: Petechiæ in both upper eyelids and right lower lid. Thyroid: Isthmus palpable. Glands: General slight enlargement except the epitrochlears. Lungs: Negative. Heart: Upper border at third space, left border 14 cm. from median line at fifth space, right border 4½ cm. from median line; apex beat 8½ cm. to left of median line; faint thrill palpable; action regular, forcible, and normal in frequency. Murmurs: Prolonged, rough presystolic murmur at apex, followed by accentuated first sound and blowing systolic murmur with faint second sound; the systolic murmur is transmitted into left axilla; the presystolic is well localized; second pulmonic is accentuated; both sounds at the aortic orifice are muffled. Pulses: Equal, small, compressible, no capillary pulse. Liver: Not palpable. Spleen: Just palpable, fairly firm. Abdomen: Negative, save for palpable and somewhat tender right kidney. Extremities: No edema.

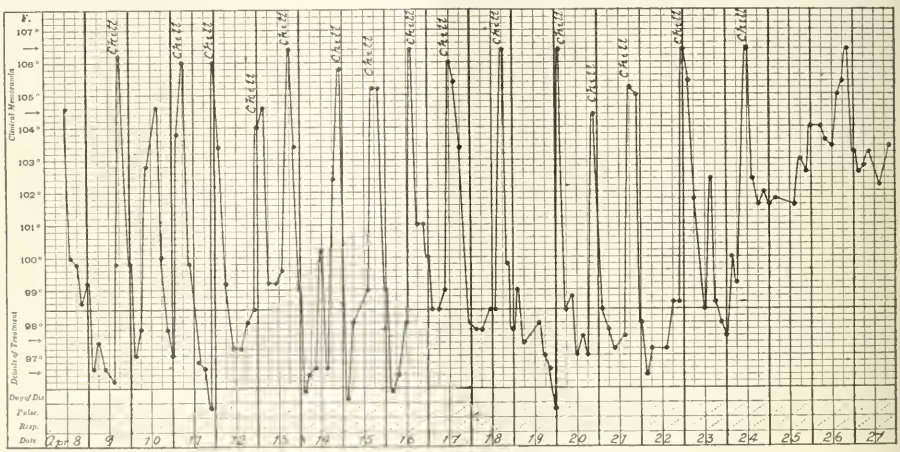

Chart 2.—Patient E. B., Case II.

its origin there is an aneurysm (about the size of a cherry) of the ulnar artery containing dark red clot. Bacteriology of the heart blood: *Bac. muc. capsulatus* and *coli;* no streptococci found.

Case II.—E. B., female, twenty-one years old, single, stenographer. Tricuspid stenosis, mitral stenosis, aortic insufficiency, acute (pneumococcus) endocarditis, chronic nephritis, bladder hemorrhage. Admitted April 8, 1904; died April 27, 1904. Had measles and mumps as a child. No other exanthemata or acute trouble of any kind. No cardiac, pulmonary, nephritic, nervous, or gastrointestinal symptoms; was told, however, that she had had heart trouble when a child. Menstrual history negative.

Present Illness.—Six weeks before admission patient claims to have "caught cold," was sick for five days, and then went to work. A week later she had a chill, followed by headache and fever, and has been in bed most of the time since then, with recurrent chills, slight cough, occasional dyspnea and cardiac palpitation, edema of the feet, and precordial and abdominal pains. No epistaxis or hemoptysis. Has vomited several times in the course of the week. There are three or more loose movements per day.

Fever on the first day ranged between 96.9° and 104.5°. Subsequently, with few exceptions, she had daily chills, the temperature range being between 7° and 10°, on one occasion nearly 11° (95.2° to 106°). The pulse rate varied until the time of her death between 80 and 120, occasionally 70. The last week of her life 40 to 50 (cerebral embolism). Respirations were mostly between 22 and 30. During her last week between 45 and 50. Fresh crops of petechiæ appeared from time to time on both eyelids, on palm of right hand, both lips, and fingers of left hand. Two days before death they appeared over body, including thighs, legs, and dorsum of feet. Three days before death, hemorrhages in both fundi. On April 13 the blood culture showed the pneumococcus 220 colonies to the c.c. The leucocyte count varied between 11,000 and 21,000. The auscultatory evidence in the heart showed no changes in the sounds and murmurs with the exception of the development of a slight diastolic murmur over the aortic orifice. On April 13, five days after admission, patient did not respond to questions, and it was found that she had aphasia and complete right-sided hemiplegia and facial paralysis. She was wholly

unconscious between April 21 and April 23, with but slight improvement before the final coma and her death. The urine, which in the beginning had only traces of albumin, subsequently showed considerable amounts with occasional hyaline casts and some red blood cells.

Autopsy.—Pleura: Some adhesions. Lungs: Right lower lobe congested; upper lobe emphysematous, edematous; middle lobe, emphysema; left lung, brown induration. Heart: Weight, 405 gms.; right auricle dilated; tricuspid flaps show old and recent vegetation; left auricle dilated; sclerotic and calcareous patches; aortic orifice shows marked insufficiency; mitral flaps shortened; yellow-red vegetations in flaps; a few yellow-red vegetations on auricular surface of valve; left ventricle evidences of old dilatation; heart muscles soft, cloudy, interstitial myocarditis; aortic flaps marked thickening and some calcareous deposit. Spleen: Chron. interst. splenitis, anemic infarcts. Kidneys: A few petechiæ on surface; markings poor; few small anemic infarcts; some petechiæ in pelves. Aorta: Fatty degeneration; just above bifurcation, and extending up one-half cm. and into each of iliacs, a firm, granular, thrombus, gray throughout, slightly adherent. Liver: Recent perihepatitis over both lobes; nutmeg. Intestines: Small hemorrhages in wall. Bladder: Hemorrhagic areas. Ovaries: Negative, right tube petechiæ. Bacteriological of spleen: *B. coli, staphyl. aureus, pneumococcus.*

Case III.—E. D., male, twenty years old, single, tailor. Admitted March 24, 1906; died July 31, 1906. Mitral stenosis and insufficiency, aortic stenosis and insufficiency; streptococcus endocarditis. Had measles as a child. Has had a chronic cough without expectoration. No acute illness of any kind, except some slight sore throat.

Present Illness.—Of two weeks' duration prior to admission. Sore throat, night sweats, cough, edema of the face, and weakness.

Physical Examination.—General condition poor, marked pallor. Heart: A presystolic systolic thrill at apex; a slight diastolic impulse is felt at third left intercostal space; a presystolic, systolic diastolic murmur at the apex; at the base a loud systolic diastolic murmur; in vessels of the neck a blowing systolic murmur. Spleen: Just palpable below the free border of the ribs. Liver: Not palpable. Abdomen: Fluid wave present. Glands: General slight enlargement.

The temperature during the first week was nearly normal. Subsequently it was of a septic type, fluctuating mostly between 98° and 102°, but mostly with a range of 6° (98°-104°) in the eighth, eleventh, thirteenth, and sixteenth weeks. The pulse rate varied between 90 and 130 and the respirations between 24 and 40. The first blood culture was made on April 19; 12 c.c. were taken and showed streptococci in seventy-two hours. Petechiæ appeared on April 20 in left lower conjunctival sulcus. Subsequent cultures on May 15 (11 c.c.) and June 13 (1.5 c.c.) were negative. Fresh petechiæ in the lower lid were seen on April 27, May 17, 24, and 29, June 17 and June 22. They were not observed on any other part of the body. On June 26, after the patient had been out of bed for three days walking about, a profuse hemorrhagic eruption appeared on both legs, extending in a day or two above the knee. The spots were the size of a pea and dark in color. July 2, fresh petechiæ in left lower lid and on left upper jaw and behind last molar. July 4 and 5, new spots on conjunctivæ, also on July 11, and on the legs July 20 and 26. Hgb. 60 per cent. on admission, afterwards 45 per cent. Highest leucocyte count, 7,400. The endocardial murmurs underwent no change during the course of the disease. Liver and spleen both increased in size in the course of a few months. On July 19 the liver was palpable 7.5 cm. below free border in mammary line. On April 23 the edge of the spleen could be felt at the crest of the ilium. On July 2 it was palpable in the anterior axillary line 9.5 cm. below the free border. No crepitations audible over it. On April 7, both kidneys were palpable. Red blood cells were found in the urine from time to time, although guaiac reaction was negative throughout. Albumin was only present in faint traces, also an occasional hyalogranular cast. No autopsy.

Case IV.—A. S., male, twenty-three years old, single, tailor. Admitted June 9, 1906; died July 16, 1906. Aortic stenosis and mitral insufficiency. At age of fifteen years had an attack of chorea following trauma on back, and repeated attacks of subacute articular rheumatism, followed by cardiac disease. Then there succeeded palpitation, shortness of breath, and edema of legs. Each winter he would have an attack of fever with temperatures of 100° to 102°, and an exacerbation of these symptoms, occasional attacks of rheumatic pains with swelling and impairment of function in joints of hands, feet, ankles, knees, elbows, and shoulders.

Present Illness.—Of seven weeks' duration, with an increase of the above symptoms associated with a reduction in the amount of urine, ascites, edema of legs and face; tenderness in right hypochondrium.

Physical Examination.—On admission there were no joint symptoms, nor did any develop subsequently. Heart: The heart was enlarged to the right and left; apex beat 12.5 cm. from median line; there was a loud, rough systolic murmur at apex transmitted to the left axilla; pulmonic second markedly accentuated; aortic second accentuated, a systolic blow in aortic area. Liver: Pulsating and enlarged. Spleen: Enlarged, no clinical evidence of infarcts.

Temperature on admission 100° plus, afterwards varying between 97° and 102°. Pulse on admission was 90, respiration 38. Pulse afterwards varied between 80 and 90, excepting for a short time, when it dropped to 36 after the use of digitalone (10 minims q. 4 h.). The slow pulse rate was in part due to imperfect systole, so that at times the apical impulse would be 112 and the radial pulse 90. Respirations ranged mostly from 26 to 28. Petechiæ first appeared on June 26, seventeen days after admission. A blood culture taken on the following day (14 c.c.) proved negative. Second crop of petechiæ appeared two weeks later on the hard palate, abdomen, and retina (the first crop having appeared on back, thighs, and elbow). In neither crop were the eyelids involved. On admission the Hgb. was 72 per cent. and the leucocyte count 13,400. The highest leucocyte count was 18,600 one day after the appearance of petechiæ. At no time did the urine contain any red blood cells; no autopsy.

Case V.—M. H., male, twenty-eight years old, single, tailor. Admitted December 31, 1905; died February 7, 1906. Mitral stenosis and insufficiency. Had measles, scarlet fever, and smallpox in childhood, cardiac symptoms some years before admission, dyspnea, muscular pains, edema of legs one year before admission. First chill six months before admission.

Present Illness.—Probably dates from first chill

six months ago; complains of pain in his joints; took to bed six weeks ago.

Physical Examination.—Marked pallor; fairly well nourished; slight general enlargement of glands. Heart: Apex beat forcible, diffuse and heaving in fourth and fifth spaces; right and left ventricle both enlarged; thrill felt over entire precordium. Murmurs: Presystolic systolic murmur at apex, second pulmon. accent. Veins: Pulsation visible in the neck. Liver: Enlarged and tender. Spleen: Hard and large. Extremities: Slight clubbing of fingers.

Temperature was normal for the first week. In the second and third weeks normal, with single sudden rises to 101° and 102°. In four and fifth week, nearly normal, interrupted by a single chill in each week, and followed by a rise to 104.8° and 103.8°, respectively. No acceleration of pulse or respiration

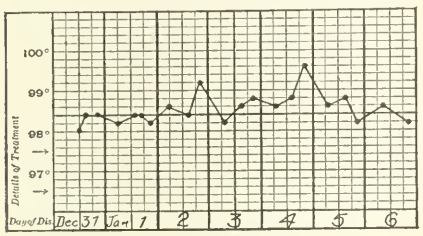

Chart 3. —Patient M. H., Case V.

during whole disease. January 13, pain in right knee, which is hot and red; ankle also painful. February 2, petechiæ in palpebral conjunctiva and skin. Few small hemorrhages in right fundus. Blood culture February 3, 5 c.c. negative. February 3 and 4, pain and tenderness over spleen with friction sound. Urine always contained albumin and casts. Red blood cells not always present, but showing a tendency to reappear after chills. The Hgb. varied from 60 to 35 per cent, white blood cells 7,500 to 7,800. Sudden death, preceded by bradycardia (48) with severe precordial pain not previously noted, except once before, during a chill. These agonal symptoms lasted about four hours. (Embolism of the coronary artery?) No autopsy was performed.

Case VI.—M. F., female, thirty-one years, single, domestic. Admitted October 1, 1902; died October 4, 1902. Mitral stenosis and insufficiency. Had measles in childhood. Acute articular rheumatism one year ago. Fracture of left wrist and left leg by falling down a flight of stairs about same time.

Present Illness.—Of indefinite duration; chief complaints shortness of breath, cough, palpitation, bloody expectoration, swelling of legs, vomiting and chills.

Physical Examination.—Heart: Thrill at apex, presystolic-systolic murmur at apex and in pulmonic area. Petechiæ: On conjunctiva and soft palate day of admission. Liver: Tender.

Temperatures 101° to 104.4°. Red blood cells in urine. Hgb. 72 per cent., white blood cells 21,600. No autopsy was had.

Other authors have had trouble with the nomenclature of cases similar to the six here briefly narrated. Bouillaud (1824-1832) spoke of acute endocarditis with pyemic symptoms. In 1880, Wilkes spoke of arterial pyemia. Osler, I believe, introduced the term malignant endocarditis, because of the proneness to a fatal issue (Goulstonian Lectures, *British Medical Journal*, 1885). Other names applied to such cases have been infective endocarditis, diphtheritic endocarditis, mycosis endocardii, malignant ulcerative endocarditis. Dreschfeld, in "Allbutt's System of Medicine," places them among the septic diseases, yet Litten very pointedly asks (*Deutsche medizinische Wochenschrift*, May 22, 1902), "Are we justified in calling an endocarditis septic because microorganisms are found in the blood?" He thought not, and inquired "What would become of this view if a bacterial basis were established for acute articular rheumatism?" I might add that a possible source of error may lie in the fact that a patient with an old valvular lesion may acquire a bacteriemia from some intercurrent disease entirely independent of the heart condition and without fresh involvement of its structures. On the other hand, it must be admitted, that with the introduction of new and more favorable media, organisms may be found in blood cultures of cases of malignant endocarditis in which at present the results are negative. This may have applied in the past to cases of gonococcal endocarditis.

An exceptional attitude is taken by Gibson ("Diseases of the Heart and Aorta"). He does not discuss the malignant or septic type as an entity at all, but classifies all types clinically into three groups: acute, subacute, and chronic. He believes that most cases of acute endocarditis are of "septicemic origin." Adams, in the *Jacobi Festschrift* (p. 432) also bemoans the confusion in the classification, "the descriptive adjective being subject only to the license of the author." Dreschfeld has described four varieties of infective endocarditis: the septic, the typhoid, the cerebral, and the cardiac. Broadbent ("Heart Disease," third edition, p. 29) protests against this classification as misleading and unsuitable. He says that in the first three types the *essential feature* is the presence in the circulation of pyogenic microorganisms sufficient in number and virulence to destroy their host, and that the affection of the endocardium is secondary and of minor importance and the cardiac symptoms usually ill-marked. He deems it advisable, therefore, not to include these types of septicemia under "infective endocarditis." He wishes the term restricted to cases running a more chronic course, in which the microorganisms attack a valve already diseased and the cardiac symptoms are prominent. To me this protest does not appeal, because it accentuates a difference in the severity, duration, and extent of the infection rather than any difference of underlying cause. This classification makes for convenience of observation, study, and instruction, just as classification into salient types of typhoid fever, pneumonia, and other diseases serves a similar purpose.

Etiology.—A list of different organisms actually recovered from the blood during life, and from the heart lesions (?) after death, is a long one. The most frequent appear to be the pyogenic organisms: Staphylococcus, streptococcus, pneumococcus, meningococcus (Warfield and Walker quoted in the Medical Record, February 20, 1904, p. 302). *Bacillus coli, Gonococcus, Bacillus typhosus, Micrococcus aureus*, and *Streptococcus mucosus capsulatus*. It must have been an oversight for Gibson to say in 1898 (*l.oc. cit.* p. 305) "That it appears doubtful whether diphtheria can give rise to endocarditis," when Howard had already published in 1893 a fatal case of "ulcerative" endocarditis of the mitral valve due to the diphtheria bacillus (Johns Hopkins Hospital Bulletin, Vol. IV). In the discussion which followed the presentation of the case,

Welch characterized it as the first recorded case of "diphtheritic endocarditis." In fact, Gibson contradicts himself on a subsequent page (405) when he says: "The Klebs-Loeffler bacillus may be present in those out-of-the-way cases of endocarditis appearing during the course of diphtheria."

Etiology.—In studying the etiology of my cases the most striking feature is the predisposing influence of preexisting chronic endocardial disease.

Case I.—Cardiac trouble from infancy, clubbing of fingers and toes.

Case II.—Cardiac trouble in childhood, hypertrophied dilated heart.

Case III.—Uncertain.

Case IV.—Chorea, acute articular rheumatism, and cardiac trouble eight years.

Case V.—Blood-tinged sputum four years before, dyspnea, and edema of legs one year, slight clubbing of fingers.

Case VI.—Acute articular rheumatism one year before, uncertain.

This agrees with the experience of other observers. In Kanthack and Tickell's eighty-four cases with autopsies observed in St. Bartholomew's Hospital from 1890-1897, 85 per cent. had old cardiac lesions.

In this connection I would mention the experiments of Wyssokowitch, made under the guidance of Professor Orth, which have been referred to by most recent writers on the subject. He produced endocarditis in animals by injecting staphylococci and streptococci into the blood *after injuring the aortic valve* by introducing a sound into the carotid. I must mention, however, that Ribbert succeeded in producing myocarditis and endocarditis in the rabbit by injecting a potato culture of *Staphylococcus aureus without previous injury*. In both series of experiments the microorganisms appeared to infect the valves directly from the blood current—a type of mechanical inoculation—though Köster had shown (*Virchow's Archiv.*, Bd. 72) the great probability of the *embolic* origin of the process in the human subject when he saw groups of capillaries stuffed full of micrococci and could follow them into the arterial branches.

Age.—All of my cases were young individuals between seventeen and thirty-one years. This is not entirely explained by the fact that I have only an adult service, cases over 14 years of age, for there are many cases of old people with valvular lesions, and they give no contingent to the acute infective type. My experience is also in agreement with that of other writers. I will only mention Dreschfeld's forty-five cases (Allbutt), average age equaled 33 years. Adams (*Loc. cit.*) was able to collect only 47 cases in the whole literature of the subject affecting children under 14 years of age.

In the children's service at Mt. Sinai, out of a total of 527 cases of all kinds in the year 1905, there were 43 cases of endocarditis, and only 1 of these was a malignant endocarditis.

To fix the *cause and time of infection* is attended with a great deal of uncertainty and in many cases it is an impossibility. This is partly because hospital cases come under observation long after such infection has taken place, because the causes of such infection are so manifold and have so many possible portals of entry and because in many cases the infecting lesion is a very slight one.

In Case I. the otitis media may have been the source; in Case II. possibly a slight pneumonia; in Case III. possibly a slight tonsillitis two weeks before admission; in Case IV. unknown; in Case V. unknown; in Case VI. unknown, unless it be fracture of wrist and leg.

Of the symptoms the most interesting are the fever, the petechiæ, symptoms due to infarcts of internal organs, and the glandular enlargements.

Fever is almost always present, sometimes with wide daily ranges. (See chart E. B.) Still exceptional cases occur in which there may be no fever during part of the course, as during the first week in M. H. Fazio reports a case fatal in six weeks without fever (*Gazzetta degli Ospedali*, 1903, XXIV., No. 29). The chart of Case H. E. is probably more characteristic than either of the other two. It is worthy of note that the three cases in which the blood cultures were positive (H. E., E. B., E. D.) were the ones with the most striking septic or pyemic curves, though I do not wish to say that this is always so; in fact in the case H. E. the blood finding was positive at a time when the curve was not pyemic and negative when the curve was pyemic in character.

The *pulse-rate* as a rule varied with the temperature, and no diagnostic and prognostic hints could be obtained from it.

The presence of *petechiæ* in the skin, however, very much strengthened the diagnosis of malignant endocarditis. They were present in all six cases at one time or another. In several cases they appeared in successive crops. They were not always present on admission. In three cases they did not appear until 17, 26, and 28 days later (Cases A. S., H. E., E. D.). There was no regularity in the appearance of successive crops. Thus in one case, E. D., there were intervals of 1, 6, 7, and even 20 days. The presence of conjunctival petechiæ has been mentioned by various authors. The importance of this observation is increased by the fact that sometimes petechiæ are found in the conjunctiva before they occur elsewhere. This was so in Cases E. D. and E. B. In fact, in Case E. D. the eyelids were the only site involved for 2 months and 5 days, at which time they first appeared on the skin.

Relation of Petechiæ to Culture Findings.—Contrary to expectations, blood cultures made 24 hours after fresh crops of petechiæ proved negative on two occasions (Cases A. S., E. D.). It may be that cultures taken immediately upon their discovery might have given a different result. In one of these cases (E. D.) the culture was positive (streptococci) on April 19, a day *before* a fresh crop of petechiæ. Repeated negative cultures (three times each) in two cases (H. E., E. D.), in which the findings had previously been positive, suggest caution in laying too much stress upon negative cultures.

Retinal hemorrhages were found in three cases, once not until three days before death (E. B.). Their presence seems to forebode an early dissolution. Death occurred in five and six days respectively after their discovery in the other two cases.

Proof of *splenic infarcts* from the presence of a perisplenic friction sound was found but once (M. H.). The enlargement of the spleen found in three cases was in all probability mainly due to the old valvular lesion.

The *urine* of five of the cases contained red blood-cells at various times. In one case (E. D.) their appearance coincided several times with that of the petechiæ in the skin—they were probably of embolic origin; in the other cases they may have been due to the accompanying nephritis.

Other Embolic Complications.—Two of the cases were complicated by cerebral emboli, and one by embolic aneurysm of the ulnar artery (H. E.), prob-

ably bacterial in origin. That these aneurysms need not always be of bacterial origin has been shown by Libman in a case occurring in the hospital. Repeated blood cultures had been negative—the autopsy showed no acute endocarditis, but a large mass of calcareous vegetations and a piece of lime in an aneurysm of the iliac artery.

Enlargement of Lymphatic Glands.—This is a symptom not generally mentioned in connection with malignant endocarditis; its occurrence in three out of my six cases (E. B., E. D., M. H.) justifies a more frequent searching for this sign. As a rule the glandular enlargement does not appear to be accompanied by a leucocytosis, as the highest count in one case was 7,400 (E. D.), in another 7,800 (M. H.), and in a third (E. B.) varied from 11,000 to 21,000.

Diagnosis.—Just a few more words about diagnosis. By reference to the histories it will be observed that in all of the six cases here reported there was plain evidence of cardiac involvement. This naturally made the diagnosis easier. But all authors agree that there may be neither auscultatory nor percussion evidence of cardiac disease, and the diagnosis may thus be rendered more difficult. I have seen such cases myself. Romberg says the heart can act quite normally (as it did in 16 out of 42 cases), in spite of enormous endocarditic deposits on mitral, tricuspid, and aortic valves, and offers the interesting explanation that the excrescences are so soft in these cases that they do not disturb the opening and closing of the respective orifices. On the other hand the gradual evolution of a murmur, with progressive changes in its character from day to day and week to week, has been looked upon as strong corroborative evidence of cardiac involvement in cases giving other evidences of sepsis. But this is not always so. I had striking proof of that fact this winter. In a case of cryptogenetic streptococcemia in a girl of 16 years, with chills, fever and sweats, jaundice, repeated positive blood findings (streptococci), multiple thrombophlebitis, and suppurating joints, there was such a progressive evolution of a bleating murmur in the pulmonic area, and at the autopsy the heart and valves were found to be normal. The murmur had been of purely hemic origin.

Elimination of Bacteria.—Churchman has written in *American Medicine* (Vol. XI., No. 3, p. 111) a very complete review of the literature of the bacteriology of the urine in relation to surgery, and concludes that "the normal kidneys, while possibly not absolutely impermeable to bacteria, play a very unimportant rôle in helping to rid the body of organisms. Only when they or their vessels have been injured do the bacteria escape in any quantity. Organisms brought to the normal kidney meet their fate, for the greater part at least, by passing into the gland substance rather than through it into the urine." I am sorry that this question of elimination in the urine was not studied in a routine way; I have only one positive case to report, that of H. E., in which streptococci were found once. This limited finding is, under the circumstances, no criterion of the frequency of excretion of bacteria by the kidneys in such cases.

Treatment.—Most writers agree that at present cases of malignant endocarditis are beyond our control. Treatment was of no avail in any of my cases in averting the fatal issue. Besides the use of a variety of cardiac stimulants (caffeine, digitalis, strychnine, sparteine, digitalone, and camphor), which entered more or less into the treatment of all the cases, sodium salicylate was given to three cases—in one of these as high as 25 grains every 2 hours for one day, in another 20 grains every 2 hours for four days. Broadbent considers salicylates as "worse than useless." To me, however, there appears justification for their use in the fact that they are valuable in benign endocarditis, and in the beginning the differential diagnosis may be uncertain. In two cases inunctions of ungt. Crede were employed—in the case of E. D. b.i.d. for 17 days, then once daily for 30 days, making the whole inunction treatment cover a period of eight weeks. In one case (E. B.) an intravenous injection of 1 c.c. of a 10 per cent. silver nitrate solution mixed with 500 c.c. of water was tried. A number of writers refer to the use of quinine. Romberg (p. 365) mentions prompt improvement after the use of this drug, and ultimate recovery. He is careful to accentuate, however, that this was after and not necessarily because of its use. I believe that a more extended trial of this drug ought to be made in carefully observed cases. It was used in but one of those here reported (E. B.), and it did not appear to be of service; but the administration was not begun until six weeks after the onset of acute symptoms, and this can scarcely be regarded as a fair test.

Much was expected by the profession from the various sera. Thus far the results have been very disappointing, and my personal experience with them in the mixed infection of tuberculosis, in sepsis without endocarditis, and in a private case of pneumococcus endocarditis have not impressed me with their value. Still, Nathan Raw reported recovery in two cases of malignant endocarditis with polyvalent antistreptococcus serum (*Lancet*, April 21, 1906). Theoretically intravenous injections of dilute formalin solutions might have promised some favorable results, but W. H. Park's conclusion that they were dangerous in septicemic rabbits discouraged me from their employment.

For the culture methods employed in these cases I must refer the reader to the report of Dr. Libman of the pathological department, published in Mt. Sinai Hospital report for 1905 and 1906.

785 Madison Avenue.

PERFORATED GASTRIC AND DUODENAL ULCER; A REPORT OF EIGHT CASES.

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The present series of eight cases of perforated gastric and duodenal ulcer, operated upon during the past four years at the Roosevelt and French Hospitals with six recoveries and two deaths, illustrates some of the practical clinical aspects of the condition. Seven of the cases presented acute perforation with more or less extensive peritonitis at the time of the operation, and of these five recovered. Four of the patients are in good health at the present time, the fifth I have been unable to trace. Two died, one having had perforation three days, the other fifty-three hours prior to operation, the cause of death in each case being the extensive generalized peritonitis present at the time of operation. The five acute cases which recovered were operated upon at four, six, eight, thirteen, and twenty-nine hours respectively after the onset of acute symptoms of perforation. In all five there was a more or less extensive escape of the gastric contents with a cor-

responding degree of peritoneal effusion and peritonitis.

The clinical picture presented was quite typical in four of the seven acute cases and the diagnosis was made without difficulty prior to operation. In cases 4, 6, and 8 the signs of diffuse peritonitis, located chiefly in the right half of the abdomen, were thought to be due to appendicitis, the escaped gastric contents having followed the colonic gutter downward.

Case 7, perforation with inflammatory adhesion to the abdominal parietes preventing escape of gastric contents, is of a different type, as the history which is given in detail will show. In six cases the perforation was situated on the anterior wall in the pyloric half of the stomach. In case 6 it was posterior, discharging into the lesser sac, and in case 8 it was in the duodenum, less than half an inch from the pylorus. In case 1 it seemed to be immediately at the pylorus, the dense mass of inflammatory exudate making it almost impossible to definitely locate the pylorus. In the six cases in which the perforation was on the anterior wall, it was usually about midway between the greater and lesser curvatures and always within the limits of the pyloric half.

The size of the perforations varied from that of a pencil point to an opening sufficient to admit the index finger. Leakage of stomach contents had occurred in all seven of the acute type, and except in case 8, where the exudate was chiefly in the right half of the abdomen, all parts of the peritoneal cavity contained particles of food and seropurulent fluid.

Inflammatory infiltration of the stomach wall surrounding the perforation, usually for a radius of 1 to 1½ inches, was marked in all except cases 6 and 8, and rendered closure of the perforation by suture difficult, both on account of the rigidity of the tissues preventing infolding, and the tendency of sutures to cut out.

In spite of this fact, no leakage or gastric fistula occurred in any of the cases. Six of the eight cases gave a distinct previous history of pain after eating, and vomiting, for periods ranging from three weeks to seven or eight years, but only one had ever vomited blood. In six cases the onset of the symptoms of perforation came suddenly and except in case 1, without any immediately preceding exacerbation of the gastric symptoms, while the patients were following their usual occupations. In two cases (2 and 8), the perforation seemed to be caused by lifting a heavy weight; but in none of the others was there any history of unusual muscular effort or of any particular indiscretion in diet. I distinctly recall a case occurring in my service when a hospital interne, in which symptoms of acute perforation followed the passage of a stomach tube by myself. The patient, who was not operated upon, died within a few days of diffuse peritonitis.

As previously stated, the clinical picture in four of the seven acute cases was typical and the diagnosis was made prior to operation. The other three were mistaken for appendicitis with peritonitis. The symptoms were a sudden onset with violent epigastric pain, vomiting, and collapse; progressively increasing pain, tenderness, and board-like rigidity, most marked in the upper half of the abdomen, with a rising pulse and temperature, and in the later cases (3, 4, 5, and 6), abdominal distention. Complete loss of the area of liver dullness was noted in cases 2 and 4; it was absent in cases 1, 5, and 8, and not noted in the other two. Signs of fluid (shifting dullness in the flanks) was noted in all the acute cases except 1 and 8.

Six of the patients were males, and two females; their ages ranged from 22 to 45 years.

The operative procedure followed was similar in all of the cases, and briefly, consisted of closure of the perforation by suture, without attempt to freshen the edges or to excise the ulcer. The friability of the inflamed stomach wall surrounding the ulcer made careful closure difficult, but it was successfully accomplished by using a mattress or purse-string suture passed deeply into the tissues at some distance from the edge of the perforation, and tied just tightly enough to bring the edges of the opening together. The entire area was then infolded by Lembert sutures, which were placed beyond the area of greatest infiltration, and in less danger of cutting out. No leakage or gastric fistula occurred. Black silk was the only material used.

Gastroenterostomy was not performed in any of the cases. The peritonitis was treated by flushing with salt solution through the Blake tube, which was passed to the pelvis, both flanks, the subdiaphragmatic space, and all parts of the peritoneal cavity to insure thorough cleansing. No attempt was made to drain except at the site of the sutured perforation, which was protected in all of the acute cases by one or two cigarette drains.

It is worthy of note that in spite of the fact that gastroenterostomy was not performed nor was any attempt made to excise the ulcer in any of the six cases which recovered, four of them have been followed for periods ranging from eight months to nearly four years without recurrence of serious gastric symptoms. Case 1 was also free from symptoms during the few months in which he was under observation and case 8 is well, but just out of the hospital. While there are too few cases in the series from which to draw definite conclusions, it is at least demonstrated that a certain number of patients suffering from ulceration extensive enough to infiltrate a large area of stomach wall, and to perforate, can make a good recovery without excision of the ulcerated area or the performance of gastroenterostomy. That such is the case is an important fact to bear in mind, for patients with perforated gastric or duodenal ulcer, when presented to the surgeon for operation, are as a rule in no condition to bear protracted operation or prolonged manipulation of the abdominal contents. In my opinion it is preferable to make the operative procedure as simple and short as possible, leaving the question of future trouble, should it occur, to be dealt with by secondary operation, and concentrating our efforts on the immediate recovery of the patient.

Case 1.—Perforated gastric ulcer; operation four hours after perforation; recovery. (History No. 69, 1904, First Surg. Div., R. H.) J. R., male, 23 years of age, teamster, had been troubled with indigestion for two years or more, frequently having about an hour before eating, or two or three hours after, severe knife-like pain in the epigastric region with vomiting. Would produce vomiting by putting finger in pharynx to relieve pain. Never vomited blood nor passed blood by the bowel. Five months before admission was in a hospital for about a week under medical treatment for the pain. Quite marked alcoholic habit. On the evening before admission he ate a light supper about 9 P.M. and had some abdominal discomfort. At 2 A.M. he was awakened by a violent cramp-like pain in the epigastrium and a desire to defecate. He drank a

large amount of water which was at once vomited, and the vomitus contained blood. About two hours later he was brought to the hospital in the ambulance.

On admission, temperature was 98.4°, pulse 124, resp. 28; no leucocyte count was made. There was extreme tenderness and board-like rigidity in the epigastric region. No loss of liver dullness was detected; the breathing was shallow; expression anxious. A diagnosis of perforated gastric ulcer was made, and operation was performed at 5:50 A.M., a little less than four hours after the onset of the acute symptoms.

A median incision was made above the umbilicus, and gas and turbid fluid escaped on opening the peritoneal cavity. The perforation was found on the anterior aspect of the pylorus itself, as nearly as the exact site could be determined, for the surrounding tissues were much thickened and infiltrated, and bound down to the under surface of the liver and the region of the gall-bladder.

The perforation was closed as well as possible by two tiers of silk Lembert sutures, the closure seeming unsatisfactory on account of the friability and thickening of the adjacent stomach and duodenal wall. The turbid fluid and gastric contents were then washed from all parts of the abdomen and pelvis by flushing with salt solution through a Blake tube. A large cigarette drain was placed down to the site of the perforation emerging at the upper end of the abdominal incision, and the remainder of the wound was closed by layers, in the usual way.

Convalescence was rapid and uneventful. There was some vomiting on the second day, and a few saline and nutrient enemata were given. Fluids by mouth were commenced on the third day and soft diet about the eighth day. The drain was removed on the fourth day and all stitches on the ninth day. He left the hospital, cured, on February 1, twenty-two days after the operation. He was followed for some months, remaining well, and was then lost track of. The probability of the development of pyloric obstruction from stricture, owing to the site of the ulcer and the surrounding inflammation, was considered, but there was no evidence of such a result when last seen.

Case II.—Perforated gastric ulcer; operation six hours after perforation; recovery. (History No. 101, 1904, 1st Surg. Div., R. H.) H. Z., male, 22 years of age, had been troubled with pain in the left inguinal region and anterior aspect of left thigh for some months, and had been under medical treatment for it. He had never complained of symptoms of indigestion until about three weeks before admission to the hospital, when he began to have pain after eating and occasional vomiting. He worked as usual on the day of admission, January 21, 1904, until 4 P.M., when, after lifting a heavy weight, he was seized with violent abdominal pain. He was given a drink of brandy, which he promptly vomited. He was brought to the hospital in an ambulance, and on admission had a temperature of 102.2°, pulse 124, resp. 28, leucocyte count 16,000. There was marked general tenderness with rigidity over the entire abdomen, somewhat greater above the umbilicus, but not distinctly localized. The greatest pain was in the left inguinal region, and anterior aspect of thigh, the site of his old pain. There was complete loss of liver dullness and shifting dullness in the flanks; no distention. A diagnosis of perforated gastric ulcer was made.

Operation was performed at 10 P.M., six hours after the onset of the attack. Gas and turbid fluid escaped on opening the peritoneum, and a perforation about a quarter-inch in diameter was found in the anterior stomach wall about two inches from the pylorus, midway between the greater and lesser curvatures, from which stomach contents were escaping. The surrounding stomach wall was much indurated. The perforation was closed with two tiers of silk Lembert stitches, the peritoneal cavity thoroughly flushed with salt solution, removing turbid fluid and particles of food from the pelvis, both flanks, the subdiaphragmatic space, and all parts of the peritoneum, except the lesser sac. A large cigarette drain placed down to the suture line was brought out at the upper angle of the wound, the remainder of which was closed by layers in the usual way. The patient made a good convalescence sitting up on the nineteenth day, and leaving the hospital on the twenty-second day after operation.

Milk and lime water by mouth was commenced on the fourth day and soft diet on the eighth day after operation. There was no leakage from the stomach on removal of the drain, which was done on the fourth day. The last report received from him was in June, 1907, three and one-half years after his operation, at which time he was free from gastric symptoms and in good health.

Case III.—Perforated gastric ulcer; operation 53 hours after perforation; death. (History No. 6, 1905, Surg. Div., French Hospital.) J. L., male, 34 years of age, had suffered from pain after eating, vomiting, and loss of weight for about six months. He was seized with violent epigastric pain and vomiting at about 10 A.M. on December 10, 1904, for which morphine was given hypodermatically.

The seriousness of his condition was not recognized until December 12, at which time he was brought to the French Hospital with signs of advanced general peritonitis. On the typical onset, followed by the rapidly advancing peritonitis, a diagnosis of perforated gastric ulcer was made, and, in spite of the patient's critical condition, an operation was performed fifty-three hours after the onset of the attack. A large perforation on the anterior wall of the stomach, easily admitting the finger, was found, and the peritoneal cavity was filled with purulent serum and escaped gastric contents with many recent adhesions. An advanced stage of general peritonitis was present everywhere. The perforation was closed by silk purse-string and Lembert sutures, the abdomen flushed with salt solution in the usual way, cigarette drains placed down to the suture line, and the wound closed. The patient survived for a few hours only, death being caused by shock and the preexisting peritonitis.

Case IV.—Perforated gastric ulcer; operation 29 hours after perforation; recovery. (History No. 64, 1906, 1st Surg. Div., R. H.) E. B., female, 23 years of age, had been troubled with symptoms of indigestion for several years. In one attack, two years ago, she vomited some blood. There had been no recent exacerbation of her symptoms of indigestion up to about 6 P.M. on the day before her admission to the hospital, when she was suddenly seized with violent epigastric pain, vomiting, and collapse. There was no blood in the vomitus. Symptoms of peritonitis steadily increased from that time up to her admission to the hospital the following evening about 10 P.M.

The abdomen was then greatly distended, there was complete absence of liver dullness, a tympanitic note all over the front of the abdomen with shifting dullness in the flanks. The respiration was rapid and shallow, pulse 138, small and thready, tempera-

ture 102.5°, facies anxious. No leucocyte count was made. A diagnosis of perforated gastric ulcer, with generalized peritonitis was made, and she was prepared at once for the operation, which was performed at 11 P.M. on December 17, 1905, twenty-nine hours after the onset of symptoms of perforation.

On opening the peritoneum through a median incision above the umbilicus, there was a gush of gas and turbid fluid. A perforation large enough to admit the little finger was found on the anterior aspect of the stomach, midway between greater and lesser curvatures, not far from the center of stomach. The perforation was closed with a silk mattress suture, imperfectly buried by Lembert stitches, which were placed with difficulty owing to the friability of the tissue. The peritoneal cavity was then rapidly flushed with salt solution through a Blake tube. Purulent fluid, flakes of fibrin, and particles of food were washed from the pelvis, flanks, subdiaphragmatic space, and every part of the peritoneal cavity except the lesser sac. The abdomen was unusually long and capacious.

Two large cigarette drains were placed down to the site of the perforation and brought out at the upper angle of the wound, the remainder of the incision being closed in the usual way. The patient's condition was critical for some days and the pulse remained high, 115 to 130, for more than a week. There was a rather profuse discharge from the drainage tract for about two weeks, but never any escape of food or gas. Milk was given by mouth at the end of forty-eight hours and soft solids at about ten days. Convalescence was slow, but satisfactory, and patient left the hospital on January 24, 1906, thirty-eight days after the operation. There was still a shallow, unhealed sinus at the site of drainage, and three weeks later a small abscess developed in the abdominal wall, but was soon healed. She has remained in good health up to the present time.

Case V.—Perforated gastric ulcer; operation 8 hours after perforation; recovery. (History No. 479, 1906, 1st Surg. Div., R. H.) J. F., male, 42 years of age, was operated upon five years previously for an abscess in the epigastric region of unknown origin, the operation being performed in one of the large hospitals of this city. He had had more or less trouble with indigestion both before and since this operation, but had not been ill in bed at any other time. There was a moderate, periodic, alcoholic habit. He was taken suddenly ill with violent abdominal pain while walking in the street at 10 A.M. on the morning of the day of his admission to Roosevelt Hospital, June 9, 1906. Signs of diffuse peritonitis were present at 5 P.M., the time of his admission, the tenderness and rigidity being greatest in the right half of the abdomen, and right iliac region. A diagnosis of appendicitis with spreading peritonitis had been made by his family physician, and was confirmed after hasty examination by my house staff and myself.

Operation was performed immediately, eight hours after the onset of the attack. The appendix was removed through an intermuscular incision, and found practically normal. The peritoneal cavity was filled with a milky fluid of aromatic odor containing oil droplets. (Later questioning developed the fact that an aromatic preparation of castor oil had been taken shortly after the onset of the pain.) The incision was closed and a median incision in the epigastric region at once made. There was a perforation on the anterior wall of the stomach about two inches from the pylorus, from which stomach contents were escaping. The perforation was fully a quarter of an inch in diameter, and the surrounding induration had a radius of at least one inch. The pylorus was bound down by old adhesions. The perforation was closed by a silk purse-string suture, buried by two tiers of silk Lembert stitches. The peritoneal cavity was thoroughly flushed with salt solution through a Blake tube. Turbid fluid was washed from the pelvis, both flanks and all parts of the peritoneal cavity except the lesser sac. A large cigarette drain was placed down to the site of the perforation and the remainder of the wound was closed in the usual way.

The patient made an uninterrupted convalescence; the drain was removed about the sixth day; there was no leakage of stomach contents. Signs of peritonitis rapidly subsided, and he left the hospital, cured, on June 28, 1906, nineteen days after the operation. He has remained in good health up to the present time and does not suffer from symptoms of indigestion except when he oversteps the bounds of prudence in his diet.

Case VI.—Perforated gastric ulcer; operation 3 days after perforation; death. (History No. 822, 1906, 1st Surg. Div., R. H.) F. D., male, 36 years of age. Admitted October 27, 1906, and operated upon immediately. Died of general peritonitis on October 30 about sixty hours after operation. Had been ill for three days before admission with abdominal pain, vomiting, fever, and distention. Was too ill when brought to the hospital in the ambulance to give a satisfactory history, and presented signs of advanced generalized peritonitis, thought to be due to appendicitis. Temperature on admission 103°, pulse 132, resp. 32. Under ether an intermuscular incision was made over the appendix, which was removed and found practically normal. The peritoneal cavity contained much free purulent fluid, which seemed to come from above. The wound was covered and a median incision was made above the umbilicus. The anterior surface of stomach, duodenum, and gall-bladder were normal, but much pus was escaping from the foramen of Winslow. The patient's condition prevented prolongation of the operation sufficient to find and suture the perforation. Drains were hastily inserted into the lesser sac through an opening in the gastrocolic omentum, and in Morrison's pouch, and the wounds closed, after flushing the peritoneal cavity with salt solution.

The patient rallied somewhat during the first twenty-four hours, but then failed rapidly. Death occurred on October 30 from generalized peritonitis. As no autopsy was obtained the exact site of the posterior perforation was not determined.

Case VII.—Perforated gastric ulcer; perforation sealed by inflammatory adhesions; recovery. (History No. 1503, Surg. Div., French Hospital.) A. C., female, 32 years of age, had had symptoms of moderate indigestion for seven or eight years. She seldom vomited but had more or less distress after eating. About five weeks before her admission to the French Hospital on February 8, 1907, she was seized with an attack of violent pain in the left upper abdomen, which required morphine for its relief. She did not vomit. Since that time she has had exacerbations of the pain of varying severity, always in the left upper quadrant, one attack requiring a total of 2¼ grains of morphine by mouth for its relief. She had no vomiting and did not think that the pain bore any relation to the ingestion of food. She was confined to her bed for part of the time only, but was unable to attend to her work.

There was some loss of weight, no febrile symptoms, moderate constipation. About five or six days before her admission to the hospital she first noticed a lump in the left upper abdomen. On admission the patient was rather emaciated, abdomen flat and somewhat retracted. Temperature and pulse rate normal. Leucocytes 7,500, polynuclear cells 74.5 per cent., hemoglobin 80 per cent., red cells 4,704,000. Examination of stomach contents showed free HCl 20, combined acid 43; there was no lactic acid, no excess of mucus, and no evidence of food retention.

In the left upper quadrant of the abdomen, two inches above the level of the umbilicus beneath the left rectus muscle, a mass about half as large as a hen's egg was distinctly felt. It was quite fixed, slightly tender, and pulsated so strongly that some of the physicians who examined the patient felt sure that the pulsation was expansile. No diagnosis was made prior to the operation, which was performed under ether anesthesia on February 11, 1907.

Through a 4-inch median incision above the umbilicus, the tumor was found to consist of a mass of inflammatory adhesions, fixing the anterior stomach wall to the anterior parietes beneath the left rectus. Separation of the adhesions revealed a perforation large enough to admit the finger, surrounded by an area of infiltration and thickening of the stomach wall having a radius of 1 to 1½ inches. The perforation was closed by a purse-string suture of heavy silk, buried by two tiers of Lembert sutures. The pylorus and other portions of the stomach wall seemed normal. The lumen of the stomach did not seem greatly enough encroached upon to endanger hour-glass contraction, and gastroenterostomy was not performed. The abdominal wound was closed without drainage. Peptonized milk was given by mouth in thirty-six hours; soft diet commenced on the eighth day. There was no vomiting.

The wound healed by primary union and convalescence progressed without incident. The patient was discharged, cured, on March 4, 1907, twenty-one days after operation. She has been obliged to be careful of her diet since that time, indiscretions being followed by symptoms of indigestion, but with that exception has remained in good health, and has gained a few pounds in weight.

Case VIII.—Perforation duodenal ulcer; operation 13 hours after perforation; recovery. (History No. 851, 1907, 1st Surg. Div., R. H.) B. McA., male, 45 years of age. There was no history of previous gastric trouble except an attack of abdominal pain two years ago, which laid him up for a few days. On the morning of his admission, about eleven o'clock, while lifting a heavy tank of gasoline in the garage where he worked, he was seized with severe abdominal pain. He turned pale, felt nauseated, but did not vomit, and in a short time attempted to go on with his work. The pain continued, however, and he was soon obliged to go home.

On his admission to the hospital at 11 P.M., November 1, 1907, his temperature was 101°, pulse 90, leucocytes 27,000, polynuclear cells 93 per cent. Tenderness and rigidity was general, but most marked in the right half of the abdomen and right iliac region. There was no loss of liver dullness and no free fluid in the peritoneal cavity. The abdomen was not distended. A diagnosis of appendicitis was made, and under ether the appendix was removed through an intermuscular incision and found practically normal. There was a considerable amount of free purulent fluid coming from the upper abdomen. The wound was closed and a median incision made above the umbilicus. A small perforation the size of a pencil point was found on the anterior aspect of the duodenum less than half an inch from the pylorus. There was remarkably little infiltration of the surrounding duodenal and stomach wall, and the pylorus was quite free from fixation. The perforation was closed without difficulty with a purse-string and continuous Lembert suture of black silk.

The peritoneal cavity was flushed with saline solution, the purulent exudate being chiefly in the right colonic gutter and Morison's pouch. A cigarette drain was placed down to the suture line and the wound closed by layers in the usual way.

Convalescence was uneventful. Water by mouth given at the end of thirty-six hours, peptonized milk after sixty hours, soft diet on the sixth day. The drain was removed on the sixth day; there was no leakage; the wounds healed by primary union. About three weeks before the perforation the patient was burned about the face by an explosion of gasoline, but the burn was of the first degree, slight in area, and it seems unlikely that it could have been responsible for the ulcer.

Conclusions.—(1) Perforated gastric or duodenal ulcer should be curable in a good percentage of cases if promptly recognized, the mortality being in direct ratio to the time allowed to elapse prior to operation. (2) Perforation is apt to occur without any especial warning or exacerbation of gastric symptoms, and often without any previous history of such symptoms. (3) The operative procedure should be simple, quick, and accompanied by as little manipulation of intraabdominal contents as possible. Closure of the perforation by suture without attempt at freshening the edges or excision of the ulcer is generally sufficient. Gastroenterostomy is better held in reserve as a secondary operation, and may never be required.

TUBERCULINS AND SERA;

A SYNOPSIS OF THE DIFFERENT PREPARATIONS IN USE.

By WILLIAM MEYER, A.B., M.D.,

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The recent publications on the subject of tuberculosis concern mainly the prevention of the white plague. We shall endeavor to approach the subject from another standpoint, one more useful for those who are afflicted.

Koch, Behring, Maragliano, and Trudeau have from time to time called attention to the specific treatment of tuberculosis. A decided advance has been made in the immunization of animals against tuberculosis, while in man the question of both toxin and bacterial immunization is still *sub judice*. The first preparation to effect immunity was the old tuberculin, which is prepared as follows: The bacilli are cultivated on bouillon with peptone and 5 per cent. glycerin for about three to six weeks, depending on the process of the growth. Shortly there will be formed an abundant, thick, dry, white crumbled layer, spreading gradually over the entire medium. After the growth ceases this layer sinks to the bottom of the flask and breaks up. The fully developed cultures, when microscopically pure, are evaporated on a water bath to about one-tenth of their original bulk; then the mass is filtered through porcelain, and the crude tuberculin thus obtained may be standardized, and contains from 40 to 50 per cent. glycerin, while the medium contained only 4 to 5 per cent. This product retains its activity for an indefinite period of time. Now, when we inject small, increasing doses of this or any other tuberculin, there will come

a time when the patient no more reacts to the tuberculin, and he is said to be immune. This immunity is only a toxin-immunity, not an immunity against the bacillus itself. When this state is reached further injections would be useless until this artificial immunity has passed off.

The reaction which followed the indiscriminate use of old tuberculin lingers still with some of the profession, and no doubt there is some justification in the sceptical view they entertain. Tuberculin in inexperienced hands is more dangerous than any other drug or agent we use. The diagnostic value has been settled in favor of tuberculin by almost all authorities; the therapeutic value may be seen from the fact that the O. T. has been used from the day of its discovery, and is still used, as for instance by Trudeau in Saranac, and in a number of German Sanatoria. However, the dose has been diminished considerably, and the selection of the patient has been carefully attended to.

The next preparation is Koch's new tuberculin, or T. R. In 1897, Koch obtained this product while experimenting to obtain a new immunizing tuberculin. He found a number of tuberculins, an alkaline one (T. A.), an upper or original tuberculin (T. O.), and a residual tuberculin (T. R.). This T. R. is prepared as follows: The bacilli are so pulverized that only the smallest number remains intact. Distilled water is used to make an emulsion which is centrifugated for thirty to fifty minutes. The emulsion separates in an upper, white, opalescent, and translucent layer, containing no bacilli (T. O.), and a lower muddy sediment adhering to the bottom of the vessel (T. R.). The latter is dried, again triturated, emulsified, and finally centrifugated, in order to obtain again a supernatant liquid and another sediment. This second sediment is treated again as before, and so on until the whole mass is an opalescent liquid. The muddy mass was originally called the true tuberculin. By adding enough glycerin to make a 20 per cent. solution, it is ready for use. In order to obtain an active product very virulent cultures are used, and as young as possible, dried rapidly *in vacuo*, and ground only after complete drying.

The initial dose should not exceed 1/800 of a milligram, given three or four times a week, increasing slowly, and avoiding a serious reaction. It is a diagnostic and therapeutic agent.

In 1900, Landmann obtained a tuberculin called tuberculol. This is more powerful than any of the others and free from all by-products. It produces a certain kind of toxin immunity. Tuberculol represents tuberculous toxin quantitatively unchanged and includes the poisonous substances of culture fluids as well as those of the bacterial cells. The dose is variable, as some patients will react to a small dose.

Tuberculol is a tuberculous toxin free from secondary products. It contains the culture fluid and the bacterial cells. It is a powder and diluted with water, used hypodermically in dose of 1/500 mg. to 20 mg. and more; reactions take place sometimes after one dose.

In 1891, Hunter made an analysis of Koch's tuberculin and obtained a series of five precipitates, calling them A, B, etc. The albumoses which he separated by ammonium sulphate were taken up again in water, dialyzed, and washed. This product he called modification B. This preparation was used in several sanatoria, among them in Saranac Lake, with about equal results as the other preparations. Dose from 0.0001 to 0.02 mg.

In 1898, Buchner obtained a substance by hydraulic pressure, which was called tuberculoplasmin. It is obtained as follows: The bacilli are grown on pepton-bouillon; the media are drained off, and the bacilli are washed slightly in water to remove an excess of culture fluid. Next they are mixed with quartz sand, placed in a small bag, put into the hydraulic press, and subjected to fifty tons pressure to the square inch; the resulting fluid is filtered through porcelain. The preparation is variable in strength, and hence in action. Dose from 0.001 to 0.03 mg., but more has been injected at times without untoward effects.

In 1901, Koch produced the *Bacillen-Emulsion*, Tuberculin "New," Koch, *Emulsio Bacilli*. This is a suspension of pulverized bacilli in water, to which an equal quantity of glycerin has been added. This preparation I have used mainly for the last two to three years, both as a diagnostic and as a therapeutic agent, with excellent results. It is used widely to-day all over the world.

A specific tuberculin is obtained from the patient's own bacilli. It was first employed by Haentjens-Putten in Europe. The success with this preparation has been excellent in the few cases where it has been used by the discoverer and by Dr. Krause of Hanover, Germany. Both these gentlemen have used the preparation in third-stage cases that found no relief by sanatorium or other treatment, and who had continuously a rather high temperature. All symptoms improved in a very short time after its use.

Dr. Allen in Saranac Lake prepared a standardized vaccine for tuberculosis; it is called tubercle vaccine, resembling an emulsion very closely. It is prepared as follows: Fresh sputum is washed through six normal salt solutions, then homogenized with an ordinary egg-beater. Now the bacilli are separated from the cells as far as possible, centrifugated and filtered through many grades of filter, cloths, sands, wool, etc. After the homogenization the foam is collected, which is rich in bacilli and relatively poor in cells. The foam is liquefied by means of an exhaust pump then centrifugalized. Now the emulsion obtained is standardized by a modification of A. E. Wright's method. The most concentrated product contained 175,000,000 bacilli per c.c. Then the emulsion is sterilized. This vaccine contains the constituents of the sputum. The bacteria are homologous and noncultivated, and include probably all bacteria of the individual lung. This vaccine avoids the great variety of tubercle bacilli and is restricted to the particular bacilli the body is fighting. It has the advantage of being a vaccine for all the different bacilli present, that is, for mixed infection.

There are a number of other tuberculins on the market, but since their value is not known positively, we shall omit a consideration of those preparations, and go on to describe the most important sera now in use.

Von Behring's Tuberculase.—Preparation: Preparation of tubercle bacilli (RI) into Z and RII. Take of the moist bacilli a fraction with 10 parts of alcohol (96 per cent.); let the same digest twenty-four hours, stirring occasionally. Drain off the alcohol and add fresh alcohol. This is done for four days. The alcoholic fluids are collected and steamed, then their dry substance (Z) is determined at 110°. The bacilli free from Z are washed on a large filter with 96 per cent. alcohol, then with absolute alcohol, and lastly with ether. The substance free from alcohol and ether is dried *in vacuo*. It consists of V, Gl, and C. It is dried as follows: RII is freed from ether between two filters, the residue

collected, pulverized, and spread in glass vessels or containers, and now made air dry and finally *in vacuo* over calcium chloride, 2 or 3 days longer.

Preparation of RII into V and RIII. The dried mass RII is weighed, mixed with distilled water to thirty times its weight, digested with water twenty-four hours, then centrifugalized, when a watery solution of V and a residue consisting of Gl and C are obtained. The liquid containing V is pressed to 1/6 its volume then we add fifteen times its volume of alcohol, dry *in vacuo*, weigh by excluding air, and preserve in a cool place. The residue is washed with distilled water; the water is removed by the centrifuge until the fluid, when boiled with citric acid, gives no opalescence. The dried and weighed residue RIII must be protected against air, humidity, and light.

Preparation of RIII into Gl and C. Digest RIII with 10 per cent. NaCl solution for twenty-four hours. Remove the liquid and weigh the residue. Separate the undissolved residue from the liquid by the centrifuge and 70 per cent. alcohol. Continue thus using stronger alcohol each time, until no chlorreaction takes place. Dry *in vacuo*. The 10 per cent. sodium solution (LIII) contains now the Gl substance, which is liberated by 80 per cent. alcohol and dried. The purified residue contains the residual bacilli, which are converted into TC by pulverization, washing, and extraction.

The C substance immunizes animals against the tuberculous virus. This preparation is used in animals in doses of 0.025 c.c., five days later 0.05, and after five more days O. I. In human beings a modification of this preparation is used in smaller doses.

Thamm's tuberculoalbumin is very much similar to v. Behring's preparation. It is taken by the drop or used as an ointment in tuberculous ulcerations. The results are not sufficiently known to form any definite conclusions.

Von Ruck has a preparation which is closely allied to that of v. Behring. He published his results lately in the MEDICAL RECORD (September 7, 1907).

Denys' tuberculin is about identical with Koch's T.O. It is called *Bouillon filtré*. He had very excellent results.

Klemperer uses a P.T.O. (animal tubercle bacilli prepared) with good results.

Marmorek's serum is prepared by cultivating bacilli upon a medium which contains leucolytic serum and extract of liver tissue to augment the virulence of the bacilli. Marmorek supposes that the presence of leucotoxic serum stimulates the toxin production of the bacilli. Leucolytic or leucotoxic serum is obtained by injecting pepton-bouillon into the abdominal cavity of guinea-pigs and washing the same after twenty-four hours with physiological salt solution. The milky liquid thus obtained is injected into a calf, each calf receiving thirty injections. These bacilli so grown are easily digested by the leucocytes, and cause thus no local abscesses. Horses are made immune in about eight months; the reactions are severe. Dr. Feldt of Russia and many French and German physicians have had excellent results with this remedy in man.

Technique: 5 to 12 c.c. is injected daily for five successive days; then, after three days' rest, again five injections in five days; then comes a pause of three weeks; or inject one dose every other day until ten injections have been made; then stop three weeks and begin again. It may also be employed per rectum. Prof. Hoffa had good results with this method. In mixed infection, Mamorek made a double immunization in horses; then used the serum thus obtained in man with very good results.

Maragliano's serum is prepared by mixing tuberculous toxalbumin (the toxin proper) with watery tuberculin (endotoxin) in the proportion of 1 to 3. Then inject this mixture into horses in increasing doses of from 5.0 to 50.0. The process of immunization lasts from four to six months, after which 3 liters of blood is withdrawn from the horse and examined for the presence of specific bodies. This serum is theoretically ideal. Its content of tuberculous agglutinins is small. The serum further contains agglutinins which are adapted to the human tubercle bacilli, as is seen from the following: When we suspend a four weeks' old culture of tubercle bacilli on glycerin-agar in 5 c.c. antituberculous serum, and remove after some time the bacilli by centrifugation and again test the serum for agglutinins, it will show an agglutination in a solution of 1 to 15. It is therefore evident that the bacilli bound 2/3 of the agglutinins during their stay in the serum. The original dilution was 1 to 50. This preparation is extremely poisonous. It excels TR because it is a chemical preparation absolutely sterile and very active. It is hardly used to-day.

The serum of immunized rabbits has also fallen into disuse, since the effect was not as expected. It is prepared along similar lines as the preceding serum. Among other preparations we may mention PT, TOA, and PTO, all of which have been employed more or less.

DOSES, SELECTION OF PATIENTS, TECHNIQUE, AND DILUENTS.

Tuberculin, Koch (T. or T. O.), a glycerin extract from cultures of the tubercle bacillus. The apparatus needed for its use in hypodermic medication are: A pipette of 1 c.c., graduated to 1/100. A hypodermic syringe, preferably one graduated in the metric system. And, lastly, a good antiseptic solution and distilled water, as well as a 0.5 per cent. carbolic acid solution, containing 0.8 per cent. sodium chloride.

Sterilize both pipette and syringe thoroughly. Then take a sterilized dish or glass jar about 1½ inches in diameter and 1 to 2 inches high. Dip the pipette into the bottle containing the tuberculin, draw the liquid up to the desired mark, in this case to 0.9; drop the contents into the dish until the liquid in the pipette reaches the mark 1 (which is approximately two drops). The rest is thrown away and not returned to the bottle for fear of infecting the contents. To this 0.1 of T. in the dish add 100 c.c. distilled water; stir well, and inject of this dilution 0.5 c.c. (the initial dose), or 0.0005 of pure T. There are three methods of procedure: (1) Give three or four injections one after the other, with intervals of from three to seven days between the injections, and increase the dose from the first initial dose of 0.0005 to 0.001 in the second injection to 0.002 in the third, and to 0.005 in the fourth injection, or even to 0.008 or to 0.01 in the fifth injection; this procedure applies to diagnosis only. (2) One may begin with an initial dose of 0.005, a second of 0.01, and a third of 0.025 (Maragliano). (3) Use but one large dose of from 0.005 to 0.008 (v. Jaksch). All these three methods are used in diagnosis only.

In the treatment of tuberculosis it is best to begin with a dose of 0.0005 and increase the dose every four days by one in the last decimal place, for instance: the first dose being 0.0005; the second would be 0.0006; the third 0.0007, etc. In that way we may avoid a severe reaction, but as soon as a reaction is obtained, even if it be only a mild one, we should go back at once four to five numbers, i.e. if a re-

action takes place with a dose of 0.0008 we must go back to 0.0003, lengthen the interval, and begin again to increase the dose gradually. The maximum dose is about 0.02.

Before the treatment is begun the patient's temperature and pulse should be taken for three days about two or three times a day. I generally take it at 8 A.M., at 1 P.M., and at 6 P.M. Often it is advisable to teach the patient to take his own temperature, especially in private practice. When the patient cannot read the thermometer, let him get two good thermometers and have him insert one into the rectum in the morning for about two minutes, and the other in the evening, and let him keep them until the physician calls to read the temperature. After the injection the temperature should be taken every two hours for 10 to 12 hours, then every four hours for two or three days.

The injection may be made in any part where the skin can be grasped in folds; the interscapular region is as good as any, if not the best. Wash the site with soap and water, then rub in with alcohol or a good antiseptic, and cover the area with cotton, upon which a little chloroform has been dropped, until ready for injection. These precautions are to be observed in all injections and we need not repeat them when considering each tuberculin or serum. The same routine also holds as regards temperature and pulse and pipette and syringe.

A reaction consists of distinct symptoms. In the majority of cases there is a rise of temperature from 1½° to 3° or even more within 24 hours after the injection; a delayed reaction is not infrequently met with, perhaps 30 or 40 hours later. The pulse rate varies, but generally is high and not in accord with the temperature. At times, especially after large doses, a distinct chill occurs, almost immediately after the injection. I had this experience in 6 out of 25 cases. Another accident that may happen is this: When the needle perforates the wall of a vein, a decided cyanosis with dyspnea may set in at once, but this will pass off in a few minutes. To avoid this accident it is well to insert the needle alone and if no blood oozes out to attach the syringe and inject. Other symptoms are: headache, malaise, anorexia, at times vomiting and even diarrhea. Sometimes a distinct pain in the ends of long bones is observed, a constriction in the chest, and pain at the seat of the trouble; local redness and a sore feeling are almost universally noted. The reaction symptoms are, as a rule, the symptoms of rheumatic tonsillitis, minus the throat symptoms.

Selection of cases: Whenever a positive diagnosis can be made, tuberculin should not be used as a diagnostic agent; the presence of bacilli in the sputum, for instance, will establish the diagnosis, without the aid of any other means. In obscure cases or in cases where there is justifiable doubt, tuberculin will give positive signs in 90 per cent. A negative reaction is of as much value as a positive one, for the former excludes tuberculosis in 99 per cent.

Third stage cases should not be treated by tuberculin, unless the physician has had considerable experience in the use of the remedies. It is not altogether contraindicated, but more caution is required. High temperature is, as a rule, a contraindication. If, however, tuberculin is used and the temperature falls, it indicates an amelioration and its use may be continued, but if no fall occurs it is best to leave the case alone.

Second stage cases are very doubtful and do not often receive much benefit, especially if the general condition is bad; but there are some second stage patients who may be greatly benefited. Those who are fever free, who are well nourished, and whose disease runs a rather slow course, may be cured; but harm may be done, especially when too large doses are used. The kidneys and bowels should be in a good condition.

First stage patients are benefited in 90 per cent. of the cases, provided there is no other serious lesion. The heart of the consumptive is generally small, and in 60 per cent. is affected, but it has no bearing on the use of tuberculin. Anemic persons in tuberculous families should receive a diagnostic dose and if the test be positive the treatment will cure them. I have had ten such cases and all of the patients to-day are well and working. These patients had, besides the anemia, a poorly developed chest, were stunted breathers, had lost weight lately, and always felt tired; six hacked now and then, three had moderate expectoration in the morning.

The rules here given are not exhaustive, by any means, and the judgment of the physician is called acutely into play in each individual case. A safe rule to go by is this: "What I am going to do now to my patient, I would also do to myself or to mine." When this rule is followed out conscientiously, and the necessary skill and tact are used, there will not be many failures to record.

Tuberculin "New," Koch (T. R.). This is a real immunizing agent. Koch discovered that the bacilli are covered with a fatty-acid coat which is not easily removed or absorbed. In the process he instituted he succeeded in practically clearing away this layer and thus rendered the bacilli easily digestible. Two products were obtained in doing this, viz., T. O. (tuberculin oberst, upper tuberculin) and T. R. (rest or residue tuberculin). This T. R. is very easily absorbed and produces no abscess or ulceration at the site of injection. The T. O. acts more like the T. A., but the former causes no suppuration, while the latter does quite often.

T. R. has an immunizing effect, even if the patient does not react, while the old tuberculin requires a reaction in order to immunize. When an individual is immunized by T. R. he is also immunized against the action of T. A. and old tuberculin, which proves the immunizing effect positively.

T. R. is used as a curative and immunizing agent. The initial dose is 1/800 mg.; the diluent is 0.8 per cent. sodium chloride solution. No acids or chemicals must be used in diluting T. R. Take 1 c.c. T. R., mix it with 499 c.c. 0.8 per cent. salt solution well sterilized, inject 0.75 c.c. of this as an initial dose, and increase gradually as in T. O. These dilutions should be made daily as they will not keep well longer than 12 to 24 hours. The injection may be made three times a week and increased gradually by 0.05 and then by 0.1. For instance, 0.75 is the initial dose; this increased by 0.05 would make the second dose 0.8, and this increased by 0.1 would make the third dose 0.9, etc. The highest dose is about 20 mg., very often less, occasionally more. If no reaction occurs when 20 mg. is given, it is best to pause for two or three months and then begin a second course. A reaction must not be regarded as necessary for a cure.

New Tuberculin, Koch (Bacilli Emulsion). This is at present my favorite preparation and has been so during the last three or four years. This preparation contains in 1 c.c. 0.005 mg. pulverized bacilli. The initial dose is 0.000,001 mg. of powdered bacilli. (Formerly I gave 0.0025 mg. or 0.000,012.5 mg. of pure substance. This dose is increased by one or two every four to five days; for instance: First dose, 0.000,001, the second would be 0.000,002, the third 0.000,003,

the fourth 0.000,006, etc., until 0.020 mg. is reached or until a reaction sets in; then decrease about five numbers and proceed anew but more cautiously and at longer intervals. The dilutions are made as follows: Take 0.1 c.c. from the original bottle, add 9.9 c.c. salt solution of 0.8 per cent. strength containing 0.5 per cent. phenol or carbolic acid; stir well and take from this dilution 1 c.c., drop into a second dish, and add 9 c.c. of the diluent-salt and phenol solution; of this take again 1 c.c. and place in a third dish and add again 9 c.c. of the phenol and salt solution; stir well, and the preparation is ready for use. Now take 0.2 from this third dish, drop it into the open syringe, and enough salt and phenol solution to make 1 c.c., then inject. When the quantity taken from the third dish has reached 1.0, no more salt-phenol solution is needed to give it quantity, but it may be injected directly from the third dish. Again, if the quantity is large enough, after a while the third dish may be dispensed with and the injections made directly from the second, and so on, finally from the first, but rarely quite pure, as it is always best to dilute somewhat. Should we reach the 20 mg. mark, it will be well to inject in several places instead of one.

Tuberculol. Here dilutions are made with distilled water, sterilized water. The minimum dose is 0.0001 mg., the maximum dose 20 mg. The increase is gradual but more rapid than in the other preparations. The reactions are sometimes quite severe and great care is essential.

Modification B. The dose is begun with 0.0001 and gradually increased to about 18 mg. Injections are made two or three times a week. Dilutions are made as in the preceding case. The increase is made by two and three each time.

Tuberculoplasmin. The dose of this preparation is in the beginning 0.001 mg. and slowly increased to 30 mg. unless a reaction takes place, when, as in all other cases, the dose must at once be reduced considerably. The average injection is every two or three days with the smaller doses, but as soon as larger doses are administered, the interval should be lengthened to once a week or once in two weeks; this rule applies to all preparations more or less. We generally lengthen the interval as soon as a mild reaction is reached, let us say of half a degree to one degree.

The vaccines. The dose of the vaccines depends largely on the amount of bacilli, but is generally larger than that of tuberculin. The doses resemble very much those of the bacterins. In these latter preparations we may give a dose from 20,000,000 to 50,000,000 dead bacilli.

Deny's tuberculin (*bouillon filtré*). The dose is pretty near the same as that of T. O., but it is best to begin with a dose a little smaller than that of T. O.

Klemperer's P. T. O. is used in doses of the T. O.

Timotheus' paratuberculin. Minimum dose 1 to 2 c.m., increased to 10 c.m. or higher. The reaction with this preparation varies somewhat from the other preparations; it manifests itself as follows: Headache, increased cough, dyspnea, rise of temperature and pulse, and quite often a transient cyanosis.

Thamm's tuberculo-albumin. Minimal dose 2 drops per os, gradually increased to 20 and 30 drops and more.

Marmorek's serum. Dose, 1 c.c. to 20 c.c. and more. It is injected undiluted once or twice a week. Symptoms of reaction: Considerable pains in the joints, local erythema, and the symptoms of the other preparations. Its benefits are: Fall of temperature, cessation of night-sweats, and increase in weight.

Maragliano's serum. Minimal dose, 1.0 c.c., increased to 50.0 c.c. and more.

P. T. E. 0.001-0.05; P. T., T. O. A., and P. T. O. 0.01-20.0 and more, vary in their doses. They are diluted with distilled water, salt water or phenol-salt solution, as a rule. The dose being from 0.001 to about 20 mg.

T. P. O., 0.01-100.0; T. Pasteur, 0.1-10.0.

Those are the most useful preparations, and it is needless to enumerate the rest, as they are mostly uncertain and not well tried. There is one more American preparation, the one of v. Ruck, which has been described by v. Ruck in the MEDICAL RECORD of September 7, 1907.

ALCOHOLIC DELUSIONAL INSANITY.

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ALCOHOLIC delusional insanity is a psychosis occurring on a basis of chronic alcoholism presenting a course of varied duration, and characterized by delusions of persecution based upon hallucinations of the special senses of which those of hearing are constant and the most prominent. The above definition is incomplete and imperfect, yet it conveys a fairly accurate idea of the form of insanity included in the series of 104 cases treated at the Connecticut Hospital for the Insane, Middletown, Conn., which form the basis of this paper.

The etiology of alcoholic delusional insanity is alcohol. In some cases an inherited weak, nervous system, sunstroke, or injuries to the head may act as predisposing causes. In these cases the psychosis often develops from a minimum amount of alcohol. In this series of cases the friends gave the following causes in addition to the excessive use of alcohol: sudden withdrawal of alcohol, three; worry, six; injury to head, eight; sunstroke, five; disappointment in love, three; jealousy, two; shock, one; domestic troubles, four, and menopause one; a total of thirty-three. Hence in about one-third of the cases other factors were given as the cause of insanity besides alcohol. These above-named factors when present may have acted to some extent as the cause of the insanity, but the mental symptoms were those of the alcoholic delusional type.

Usually in typical cases of alcoholic delusional insanity there is a history of the abuse of alcohol for years, with marked excess just prior to the onset of the hallucinations. The duration of the alcoholic habit often dates from youth. In this series of cases the following history was obtained: eighteen had used alcohol twenty to thirty years; ten, fifteen to twenty years; fifteen, ten years, and eight for six to eight years. Others stated that they had used alcohol "since they were young," or "many years." In only a few cases was the duration of the habit given as one or two years. In women it was difficult to obtain reliable histories.

In regard to the form of alcohol taken it was commonly noted that beer was used in youth, the stronger spirits being gradually added as years went by. The history of the use of these stronger spirits or mixtures containing them was almost universally present. In an occasional case a mixture of cider with whiskey or rum was the favorite beverage.

Concerning the amount of alcohol necessary to produce mental symptoms no definite statement can be made. It is well known that the amount of alcohol which an individual can bear varies in each case. This is evident both in nonalcoholics and in alcoholics. Some persons by constant use are able to consume the strongest distilled spirits in large quanti-

ties for long periods, and, although they are often in an alcoholic stupor and present the signs of chronic alcoholism, they may never develop an attack of delirium tremens or alcoholic delusional insanity. Others are more susceptible and develop mental symptoms on the minimum amount of alcohol, each attack weakening the resistance and predisposing to subsequent attacks.

An inquiry into the heredity of this series of cases developed the following figures: Insane heredity, 34; alcoholic, 13; unknown, 16; excellent, 41. In the cases with an insane or alcoholic heredity, the course of the disease was essentially the same as in the ordinary case, and there was the same percentage of recoveries. Stigmata of degeneration were noted in 20 per cent. of cases. About 90 per cent. of these patients were men.

In regard to birthplace the following history was obtained: forty-six were born in the United States, twenty-nine in Ireland, eight in Germany, five in Russia, three in Italy, and eleven in various other European countries. Nearly 50 per cent. were of Irish, and over 75 per cent. of foreign parents.

Concerning station in life: forty-eight were married, forty-five were single, seven widows or widowers, and five divorced. Their ages ranged as follows: 16 between 20 and 30 years, 43 between 30 and 40, 27 between 40 and 50, 13 between 50 and 60, and 5 between 60 and 70 years. As is evident from the above figures, the greater number of cases occur during the prime of life, when the individual should be most capable and of use to the State and society. Instead he becomes incapacitated and a burden.

The employments of the patients were varied: machinists, six; laborers, twenty-five; factory employees, sixteen; blacksmiths, three; moulders, four; farmers, nine; housewives, eleven; stonecutters, two; hatters, two; cigarmakers, two; manufacturers, two; letter carrier, boiler maker, teamster, carpenter, wire maker, saloonkeeper, painter, prostitute, sailor, tramp, druggist, butcher, cook, hostler, plumber, gardener, mechanic, tailor, and barber, each one.

An analysis of the above shows nothing remarkable except that those persons who have hard physical work are well represented. Possibly from statistics of private institutions one might draw different conclusions.

It seemed of interest to note the residence of the patients previous to their admission to the hospital, and I find they were divided as follows: forty-five came direct from home; forty-six from jails and almshouses where they had been temporarily confined; ten came from other hospitals, and two from State's prison.

A history of previous attacks of some form of alcoholic psychosis was present in twenty-nine cases, and alcoholic multiple neuritis was associated with the psychosis in two cases. These previous attacks were divided as follows: twelve had delirium tremens once; three, twice; three, three times, and two, four times. Seven had had one previous attack of alcoholic delusional insanity, and two, two previous attacks.

The prodromes of an attack may or may not be present; in the former case they are as follows: The person becomes restless and low-spirited; headache, loss of appetite, and in some cases nausea and vomiting are present. There is extreme nervousness and indefinite pains throughout the body, which are relieved temporarily with alcohol. The person is often suspicious, irritable, and as night approaches is fearful, sleep being disturbed by dreams of a terrifying character. Insomnia is often present, and instead of normal sleep there is a semiconscious state throughout the night with free perspiration from fear.

Daybreak often brings relief, but as night approaches the above named symptoms return again, the person taking more alcohol to keep up his courage and strength, the appetite usually being lost at this period. Even at this early stage temporary disturbance of perception often occurs during the night, disappearing in the morning. The patient may have insight into his mental condition at this time.

The usual physical symptoms of chronic alcoholism are exaggerated tremors of the hands and lips, with tremulous, flabby, furred tongue, and foul breath. The person may continue in this condition for days or even weeks when the onset occurs. It is more usual for it to be sudden (05 per cent.) and manifest itself by a marked disturbance in perception.

Auditory hallucinations appear and are prominent. They are usually condemnatory in character. Voices threaten and curse them; accuse them of various crimes, and especially of unnatural sexual acts. These voices say: "thief," "burglar," "liar," "scab," "sucker," "you are no good as a man," "you have lost your manhood," "you have improper relations with your children," "kill him," "burn him," "crucify him," "you have got to suffer," "your wife is unfaithful." Hears voices balloting his life away. Voices say, "shoot him," "tar and feather him," "bastard," "you have ruined your sister," "you will be electrocuted," "cremated," "tortured," "he drinks pretty heavy," "make him marry a nigger," "we know your record," "he has appendicitis." Rarely, instead of the voices of his persecutors, he hears the voice of God. He is addressed as Christ and has a mission to perform in the world.

Visual hallucinations occur in more than half of the cases, and they are of a terrifying character. They see their friends being killed by electricity. Dead bodies are laid out upon the floor. The devil moves along the wall and peeps at them from behind chairs; see angels and feel them touch their arms. Faces, snakes, the Virgin Mary, appear to them. See their enemies following them and assuming threatening attitudes. Black dogs surround their bed and wink at them.

Olfactory and tactile hallucinations are present in some cases; electricity is used upon their body, gases are forced into their rooms, *x*-rays are played upon them, feel the sheet move under them in bed.

Concerning the source of the hallucinations of hearing, they most commonly ascribe them to their fellow workmen or associates. Sometimes, however, they say the voice seems to come from the top of their head, their chest, or stomach. The latter is the most common, and is quite characteristic of alcoholic delusional insanity.

Illusions of hearing may also be present, especially in the early stages of the disease. The air going in and out of the nose whispers words to them. The sound of footsteps is a curse to them. The sound of a ringing bell or passing train curses them over and over.

Consciousness is usually clear and orientation but little disturbed. About 30 per cent. of this series of cases showed partial clouding of consciousness at the height of the excitement.

In nearly one-half of the cases there is some clouding of memory for events at and following onset. This rapidly disappears. Permanent impairment of

memory is unusual, and only occurs in chronic cases to a moderate degree.

The train of thought is coherent and relevant. Judgment is much impaired. The patient entertains numerous delusions of a persecuting character based upon the disturbances in perception. He thinks that his persecutors are after him constantly and that he is soon to be tortured and put to death. The character of the delusions depends entirely upon the character of the hallucinations. As the voices say they are to be burned at the stake, etc., they have delusions to that effect. Delusions of infidelity are fairly frequent, occurring in about 15 per cent. of this series of cases. Think their wife is unfaithful because voices tell them.

In an occasional case delusions are of a religious character, based upon the like disturbance of perception. Think that they are Christ and have been sent to redeem the earth. Are inspired and all-powerful.

Somatic delusions are present in about 18 per cent. of cases, but are not prominent. It is worthy of note also that in women at the menopause the delusions may have a self-accusatory tinge. The delusions are without system and do not tend to involve the surroundings.

The emotional attitude is one of fear and apprehension. The constant hallucinations keep them in terror both day and night, but especially so at night. Some are profoundly depressed, and seem to have given up all hope of ever being free from their tormentors.

The volitional impulse is increased in practically all cases, the exceptions being those cases which are most depressed.

In conduct these patients are inclined to violence to themselves or others in reaction to their hallucinations and delusions. They are often defiant, and are frequently noticed answering their auditory hallucinations. A few cases appear depressed and resigned to their fate.

In this series of cases suicidal attempts were present in 15 per cent. and attempts at homicide in 20 per cent. Patients suffering from this psychosis are among the most dangerous of the insane. They frequently seek the police for protection from their supposed persecutors, and occasionally, when the hallucinations refer to some disease, they go to the physician for treatment. I recall one case who entered the accident room of a city hospital declaring that he had appendicitis. Upon examination, no objective symptoms being found, he was asked why he thought he had appendicitis. He replied that everywhere he went upon the street people looked at him and remarked, "He has appendicitis." Under restraint at home, with removal of alcohol, this patient quickly recovered.

The cases with delusions of infidelity are often responsible for the wife murders which have become common. Sometimes the hallucination is in the form of a command which goads them on either to commit assaults upon themselves or others, or to destroy property.

As the disease progresses the illusions and hallucinations of sight are apt to disappear, while the more prominent aural hallucinations and delusions continue.

The course of this disease varies. There may be attacks lasting for only a few hours or days and recovery taking place. Cases often exist for a considerable time at large without being detected. Many tramp about, serving frequent terms in jail for breach of peace. As no systematic examination of the mental condition of disorderly persons is carried out, many insane are unjustly punished. Undoubtedly many persons have brief attacks and recover in jails or at home without treatment. The histories given by the patients themselves bear out this statement.

Of the cases admitted to an institution, most recoveries take place during the first year, and it is exceptional to have a recovery after the fourth year. It happened only once in one hundred and four cases.

The following will give an idea of the duration of those cases which recover: five recovered in one month, seven in two months, three in three months, four in four months, one in five months, one in six months, two in seven months, ten in twelve months, seven in eighteen months, four in two years, two in three years, four in four years. Thus 66 per cent. of recoveries occurred during the first year.

Cases with a sudden onset usually run a shorter course and tend more to recovery. Cases which have a gradual protracted onset run a slower course, and there are fewer recoveries. In general it may be said that the prognosis is fairly favorable, and it is especially so in selected cases.

In cases with a sudden onset the result was, expressed in percentages: Recovered, 60; discharged improved, 12; discharged stationary, 4; stationary in hospital, 12; died of intercurrent disease, 2.

In cases with a gradual onset the result was, in percentages: recovered, 16; discharged improved, 4; discharged stationary, 16; stationary in hospital, 60.

In the whole 104 cases the result was, in percentages: recovered, 38; discharged improved, 8; discharged stationary, 10; stationary in hospital, 41; died, 3.

In those cases which have had previous attacks the prognosis is less favorable, and was as follows, expressed in percentages: recovered, 26; discharged improved, 10; in hospital stationary, 54; died, 10.

In those cases which recover the hallucinations become gradually less prominent until they finally disappear altogether, the patient eventually having insight into his past condition. The hallucinations usually first disappear during the day, often returning for a short time each night. Any return to alcohol is almost certain to cause an exacerbation of mental symptoms.

Concerning the 41 per cent. of patients who do not recover and remain in the hospital, a few words may be written. In many the mental symptoms disappear enough so that they are able to be employed upon the farm. Some have, however, exacerbations and periods of excitement at irregular intervals. Nearly all of these patients show gradually increasing deterioration of the mental powers to a limited extent as years go by.

Of those who leave the institution recovered, improved, or stationary, recurrent periods of excitement are frequent, as they usually return to their alcoholic habit. In others there is retention of peculiarities and eccentricities throughout life.

The diagnosis of alcoholic delusional insanity is usually not difficult, for the symptoms of chronic alcoholism, prominent auditory hallucinations of a condemnatory character with delusions based thereon, and retention of clear consciousness form a clear picture.

In the acute period we have to differentiate alcoholic delusional insanity from delirium tremens. First, it is to be noted that in delirium tremens the clouding of consciousness is more marked than in alcoholic delusional insanity. In alcoholic delu-

sional insanity hallucinations of hearing predominate, while in delirium tremens visual hallucinations are the most prominent.

Treatment.—For the benefit of the person affected, and for the safety of the public at large, it is essential that cases of alcoholic delusional insanity be recognized early and placed in hospitals for treatment. These cases are ideal ones for treatment in acute psychopathic wards of general hospitals, if such wards existed. Many cases would abort if treatment and restraint were early applied. The delay too often occurs and the person is allowed to go his way till it becomes absolutely necessary to secure commitment papers and commit him to some State institution. This delay is fatal, and many cases become chronic and many crimes are committed which could easily be prevented.

It is best to withdraw the alcohol immediately, and improvement usually takes place rapidly. Chloral and the bromides are useful in the early stages, and opium and hyoscine may be added at times with advantage. It is best to humor the patient in regard to his hallucinations and delusions. These patients are dangerous, and great care must be used.

After the acute period is passed, employment of some kind is a benefit. Later, in chronic cases, outdoor employment upon the farm will improve their physical condition, and they often become valuable help. Any return to alcohol will almost certainly cause an exacerbation of the mental symptoms.

THE TREATMENT OF JOINT TUBERCULOSIS IN CHILDREN.*

By LEONARD W. ELY, M.D.,

NEW YORK.

This may seem a broad subject for a paper of this nature, and yet possibly, within the limits allowed, we may not only obtain a general oversight of the principles underlying the treatment of tuberculous joint disease, but also consider some of the finer details. If, in the consideration of the treatment of any disease, we can lay hold on the essential idea of procedure, we shall often find our path much smoother than if, starting at the other end, we encumber our minds with a mass of details, and then try to adapt these to a particular case.

Now, such a main essential idea we have in the treatment of joint tuberculosis in children, and that idea is *rest*. We put the joint at rest in the position which experience has taught us is the best one, and keep it in this position until Nature has had time to effect a cure. Various complications may arise, and various circumstances may render necessary a modification of treatment, but this rest is the main idea that we keep always in mind.

Let us now see how this principle is applied, and take up the consideration of the various joints most frequently involved, beginning with the spine.

Tuberculosis of the Spine, Pott's Disease.—The best routine treatment for spinal caries in young children is by the Bradford frame. The frame is made of gas-pipe, covered tightly with canvas laced up the back. It is built six or eight inches longer than the child. To the canvas, in the region of the buttocks, is sewn rubber sheeting, for cleanliness. The child is strapped to this frame by means of an apron across the chest and abdomen. From the apron run straps which fasten to buckles sewn on the sides of the canvas cover. Two felt pads are then sewn on the front of the cover, so that the kyphosis will fit down between them and relieve the spinous processes from direct pressure. The frame is bent backward to provide for superextension of the trunk. The head and legs of the child are left free. A bed pan can be slid under the child as it lies on its back. The parent or nurse is instructed to place the frame, once or twice a day, on a table, to unbuckle the apron, to roll the child off the frame, to clean the back well with alcohol, to powder and dry carefully, and then immediately to replace the child and buckle it back in place. Scrupulous cleanliness is enjoined. When the treatment is begun the parent is warned that the child is never to sit or stand for an instant unsupported. Often we soon hear that the little patient has learned to roll the frame over and goes crawling about on its hands and knees. A small piece of board about two feet long fastened at right angles to the top of the frame will prevent this.

This is the ideal treatment for young children, or for older ones whose parents are able to afford the luxury of a special nurse. Under it less deformity takes place than under any other. The force of gravity aids us in preventing a hump, whereas with any form of appliance in the erect position we are always working against gravity. Where possible the child should lie on the frame for two or three years. At the end of that time it may be put into some other form of support, and may be allowed to go about.

In older children we have recourse to a plaster-of-Paris jacket or to a brace. Probably the former is better for all-around use, and it has the further advantage that we are independent of the brace-maker—a most important point. The chief opponents of the plaster jacket are those who have had little experience in its use. The more one uses it the better one likes it. The jacket is made as long as possible, reaching from a point just below the top of the sternum to one just above the crest of the pubes, and is trimmed out so as to permit motion of the arms and legs. First, a tight-fitting shirt is applied with a bandage running inside called the scratch bandage, to keep the child's skin in condition. The child is suspended by the head and hands, the bony prominences are padded, and the plaster bandages, wrung out of warm water, are then applied smoothly and firmly, each layer being well rubbed in, so as to make a homogeneous mass. These bandages, from 4 to 6 inches wide, are made of Vigilant brand of crinoline, into which fine dental plaster has been rubbed by hand. Good plaster bandages are not to be bought in the shops, but anyone can make them for himself. The jacket should be about one-quarter inch thick. While the plaster is hardening, the jacket is trimmed above and below, and when it is fairly hard the child is taken down and laid for a while on its side until the hardening is complete. No pain is connected with the operation. A child not used to it cries with fright, but later on is liable to go to sleep in the sling.

The nurse is instructed to keep the jacket clean and dry, and to prevent anything from getting down inside it. She must smell it carefully each day, and with the first suspicion of foul odor must bring the child for inspection. A bad smell means a sore under the plaster, and demands instant removal of the jacket. This removal is done by cutting down the front so as to permit of springing the plaster off. After the sore has been dressed new padding is adjusted to prevent pressure, and the jacket is reapplied and is strapped up the front with adhesive plaster. In this way the excoriation may be dressed

*Read at the annual meeting of the Washington County Medical Society, October 1, 1907.

until it is well. Then a new jacket is applied. A good jacket lasts anywhere from one to eight months. The usual time for change is about two or three months. It is remarkable to see how soon a child who has been suffering intense pain, and has been kept awake with frequent night cries, will quiet down when a jacket is applied.

In case of cervical Pott's, or disease of the thoracic vertebræ above the eighth, the jacket is supplied with a so-called jury-mast or head-spring, which removes the superincumbent weight and transfers it, through the plaster, to the hips.

The usual form of brace in Pott's disease is the Taylor brace, but this needs considerable experience for its application and subsequent care. Here let it be said that no patient should ever be sent to a brace-maker with instructions to "get a brace." The brace-maker must be told exactly what to do, and then must be watched in order to see that he does it. We cannot shift the responsibility to his shoulders. As well send a patient with gonorrhea to a druggist with instructions to get an injection.

A good brace, carefully applied, constitutes an excellent form of treatment, but it needs constant supervision, and is liable to frequent breakage. Besides this, we never can tell, when the patient is out of our sight, just how much time he spends outside of his brace. With a skilled nurse, and under the best possible surroundings, a brace may be said to be as good as a jacket, otherwise it is inferior. There is one exception to this. In cervical or high thoracic Pott's, the brace provided with a chin-piece or head support is superior to the jacket.

Abscesses.—These, if deep and not very large, should be let alone. When they approach the surface, or increase rapidly in size, they may be opened under strict asepsis, wiped out carefully, and then sewn up tight, and dressed snugly. A patient with a good-sized abscess should be kept quiet.

Psoas Contraction.—Rest in bed or on a frame, perhaps, if necessary, with weight and pulley extension.

Paraplegia.—The patient with this complication should be stretched out on a Bradford frame, with his spine in superextension, and should be kept there until the paraplegia has disappeared. This will usually require about a year. Medicines are useless.

Hip-Joint Disease.—Until seven years ago the treatment of hip-joint disease in this country was almost universally by braces. Then, at least in New York, the short plaster spica of Lorenz was introduced in the clinics, and the battle between plaster and the brace was on. It is still raging merrily and bids fair to endure for some time. Let us see what we hope to gain by appropriate treatment, and then we can better make a selection of our weapons of warfare. When we have made our diagnosis, two questions will almost invariably be asked: How long will the treatment take? and What will be its results? Under favorable conditions we look for a cure in three years; that is, at the end of that time the hip will be ankylosed in a position we choose for it, and experience teaches us that the best functional posture is extension and slight abduction. Motion in a cured tuberculous hip is rare. It may occur, and does undoubtedly, but not often under any form of treatment. Good motion in an old tuberculous hip usually means a wrong diagnosis.

The advantages of the plaster spica are numerous. It dispenses with the aid of a brace-maker; it does not require constant supervision; it cannot be removed by the patient; it is not unsightly; it permits the patient to use the limb in walking, and so avoids the extreme atrophy that always accompanies the use of the extension splint. Two objections may be urged against it; first, that it can rarely be used when an open abscess is present with much discharge, and, second, that it requires some skill in its application. But to measure for a brace, and then to apply it, also require skill. In the old days the opinion prevailed that by the use of a traction brace we could pull the head of the femur away from the acetabulum, but now we know that, unless the head has been eaten away, this is impossible. Our experience seems to show us that motion is harmful to a tuberculous hip, but that weight-bearing is not. True, every time a patient with a spica steps on his affected limb he drives the joint surfaces together, but this is only a reversal of what takes place with a traction brace. In case of profuse suppuration the spica is impracticable.

Before a brace or a spica is applied any existing deformity must be reduced, slowly by weight and pulley in bed, or rapidly under ether. Never try to reduce a deformity by any form of appliance. A support, whether metal or plaster, is only intended to hold a position which has already been attained. When the thigh has been brought down into full extension and slight abduction we are ready to put on our plaster or brace.

In measuring for a brace, take the distance from the anterior superior spine to the sole of the foot held at right angles with the leg, and add about two inches for extension. This is the stem. Then measure the distance from the trochanter to the opposite anterior superior spine for the anterior limb of the pelvic band, and add an inch for the posterior limb. If a thoracic extension is required measure the distance from the anterior superior spine to the nipple.

For a plaster-of-Paris spica we need some good plaster bandages, 4 to 6 inches in width, some piano felting or sheet wadding (so-called interlining), ordinary canton flannel bandages, a one-legged pair of pants, so to speak, made out of ordinary shirting, a pelvic rest, and a rest for the head and shoulders that may be easily improvised. The shirting is first applied, and should reach from the ankle to the axilla. Then the child is laid out in the horizontal position on the two rests, with one assistant holding the legs and another the shoulders. The pelvis and the knee are well padded, and the whole dressing is firmly bandaged. Then the plaster bandages, wrung out of warm water, are quickly applied, carefully moulded over the pelvis and knee and covering in the buttocks. The plaster is built up very thick across the lower part of the belly and over the groin where the strain comes. Just above the pubes it should be almost an inch thick, and from this it shades down to about one-quarter inch at the knee. When it begins to harden it is trimmed out at the borders, going wide of the genitals and anus for cleanliness, and leaving the knee free. Above, it takes in the crests of the ilia and is cut concave in front so as to expose the navel. Thus the spine is left almost entirely free and motion in its joints takes the place of that at the hip. Finally the padding is trimmed away, and the shirting is turned down so as to make a covering as well as a lining, and the part so turned down is sewn to the lining near the edges of the perineal border. The whole makes a very neat dressing. If an ordinary bandage is pushed up beneath the spica, or, better yet, is put inside the shirting before the latter is applied, it may be drawn back and forth every day, and so will serve with a liberal use of powder to keep the child's skin

in condition. This is called a "scratch bandage." A spica, if well cared for and kept clean, will last for two to six months, and in it the child walks about comfortably except in the periods of acute exacerbation.

The treatment of hip-joint disease in childhood is always conservative. Resort is rarely had to cutting operations on the bone except to save life. The use of the curette alone is almost invariably a useless and harmful procedure in this as in other tuberculous joints, and may be likened to groping about in a grab-bag. In desperate cases we resort to excision, but, bearing in mind the resulting shortening, we postpone excision as long as possible.

The Knee.—The same general rules hold good for the knee as for the other joints, but here the brace constitutes the treatment of election, and the usual form of brace is the Thomas. This consists of a padded ring to fit around the top of the thigh, and two uprights running from this on the inside and outside and joined together below by a foot piece. It is made about 2½ inches longer than the extremity, and the foot on the sound side is supplied with a high sole. By the use of this brace the leg is swung free of the ground, and the patient bears his weight in walking on his perineum. Plaster-of-Paris may be used instead of the brace, but it has two disadvantages: first, it is applied necessarily upon an inverted pyramid, and so has a tendency to slip down unless made to fit very snugly; and, second, its hold above is only upon soft tissues, and therefore it allows considerable motion. The duration of treatment is, roughly, two years, often longer. On account of the great growth taking place in the ends of the bones forming this joint, no cutting operation should be done on them except to save life.

The Ankle.—In tuberculosis of the ankle and tarsus, the best plan of treatment is by plaster-of-Paris and a brace. The foot is held in proper position by the plaster, and then is swung clear of the ground by a Thomas brace. Suppuration is very apt to occur in tuberculosis of this joint. When it does, a window may be cut in the plaster and the sinuses dressed through this. The temptation to curette this joint is usually strong, but is to be bravely resisted. More harm than good is done by it. Conservatism is the rule here also.

The Wrist and Elbow.—Disease of the wrist and elbow, rare in either joint, is best treated by plaster-of-Paris. For disease of the shoulder joint an excellent appliance is the Ely brace. This consists of a girdle about the chest and one about the arm, joined by two arched flat metal rods. These girdles are provided with laces, and the one about the chest is prevented from slipping down by two straps which, starting in front, pass over the shoulders, cross, and attach to the girdle behind. (*Medical News*, July 23, 1904.)

So much for the local treatment. The general treatment may be summed up under two heads: *Fresh Air* and *Feeding*.

A child with a tuberculous joint should be in the open air during the entire day, and should have the maximum amount of fresh air at night. No particular air is specific. Abroad the present tendency is to regard the seashore as peculiarly adapted to these cases; but this, in my opinion, is incorrect. The seashore is probably the best place for them, merely because children in general thrive best at the seashore.

At the Sea Breeze Hospital, where children with tuberculous joints have been treated for some years, we obtain excellent results. Children sent down there receive the best of care and show the results of this care almost immediately. They gain in weight, and often become fat and rosy while their sinuses are still discharging, but the disease process seems to run the same general course and to take about the same time. With their excellent hygienic condition their abscesses are not so apt to be troublesome, and probably heal more quickly; but this is merely a supposition on my part. To establish the value of seaside hospitals, as compared with those in other country places, would require an analysis of very voluminous statistics. The personal element of those in charge would also enter into the calculation. With all our care cases have been admitted which have healed up promptly under potassium iodide and mercury. It is the writer's opinion that, in contradiction to the general idea, syphilitic bone and joint disease in children is rather frequent, and often very difficult to diagnose off-hand, especially as many children with unmistakable tuberculous joint disease show the notched teeth and other stigmata of hereditary syphilis. If these and other mistakes were included in our cures we should show an excellent record. In due time we shall have some records that will be of value.

The day's routine at Sea Breeze is as follows: The children rise at 6 A.M., the little ones retire at 6 P.M., and the older ones at 7:30. During the school term lessons are held from 9 to 12, with three-quarters of an hour intermission, which is spent out of doors. In the schoolroom the windows are always open. Kindergarten is held from 9:30 to 11:30, with thirty minutes' intermission. In the afternoon, classes in carpentry, sewing, cooking, and raffia work are held for one hour. The bed cases are given instruction while the other children are playing. All the older children have certain tasks to perform. Those who are able are given an ocean bath daily from the middle of June to the middle of September.

The following is a typical diet sheet for one day:

Breakfast, 7 A.M.—Cereal, milk, toast, bread and butter.

Lunch, 10 A.M.—Bread and butter and milk.

Dinner, 12 M.—Beef, lamb, or chicken, vegetables, bread and milk, dessert.

Lunch, 3 P.M.—Fruit.

Supper, 5 P.M.—Stewed fruit, toast, bread and milk.

During the winter the children have cocoa once a day.

On account of the terror which the hypodermic needle inspires in young children, we have given up the use of tuberculin among them until its value shall have been demonstrated.

167 WEST SEVENTY-FIRST STREET

THE SURGICAL ASPECTS OF MALIGNANT ENDOCARDITIS.*

BY JOSEPH A. BLAKE, M.D.,

NEW YORK.

It has seemed best to me, in speaking of the surgical aspects of malignant endocarditis, not to treat in detail of the origin and treatment of what may be considered the strictly surgical lesions at times accompanying the disease, but, in view of the shortness of time at our disposal and the comprehensiveness and greater value of the other papers upon the subject, to confine myself to a rather general consideration of some points which have particularly appealed to me.

In the first place, while all forms of acute endo-

*Read at a meeting of the New York Academy of Medicine, November 21, 1907.

carditis may be considered infectious, the so-called malignant or ulcerative is more commonly caused by infection by the pyogenic organisms, including the pneumococcus and gonococcus, and consequently possesses a certain amount of surgical interest, particularly in its etiology and, to a less extent, in its treatment. The treatment of those cases in which the only demonstrable lesion is in the endocardium and which progress with all the evidences of a profound general intoxication, is manifestly beyond the pale of surgery. There are, however, a number of cases in which, as a result of the lodgment of infectious emboli abscesses develop in the tissues or organs, which may be reached by surgical intervention. The more vascular organs are most prone to these invasions, namely, the kidneys, spleen, and parotid. In a number of these cases it may be difficult to decide whether the formation of the abscesses is dependent upon a pre-existing endocarditis or whether the cardiac and other lesions are simply parts of a general systemic infection.

In another series of cases a definite local suppurative process is the point from which the infection of the blood and endocardium originates, and it may be possible, by surgical treatment, to stop the continuous infection of the blood and thus modify the process in the endocardium; for it must be granted that there is in the endocardium, as elsewhere in the body, a definite resistance and effort to overcome infection.

This postulate leads us to the consideration of the possibility of at least a low grade of valvular implication being present in more cases of general pyogenic infection than is usually supposed. During the past summer, I had in my care a young man in whom a gonorrheal prostatitis was followed by a mixed staphylococcus infection. The resulting prostatic abscess had not been drained but had ruptured spontaneously into the bladder. In the week following the rupture of the abscess he was seized with sudden pain in the left hypochondrium and an elevation of temperature. Examination revealed an enlarged, fixed, and sensitive spleen. At this time there was an indistinct systolic murmur at the apex. The splenic abscess was drained and the murmur disappeared. Later, an abscess beneath the right deltoid was opened, and still later an abscess in the right groin beneath the adductor muscles. He finally recovered. The presence of the murmur before the abscess of the spleen was opened led, at the time, to a diagnosis of malignant endocarditis with an embolic abscess in the spleen. Later, the total disappearance of the murmur suggested that there had been only a slight inflammation of the endocardium and that it was simply a local expression of a general infection. It is perfectly possible that affections of the heart valves in the course of a general pyogenic infection oftentimes escape notice, particularly when we consider that surgeons seldom examine the heart repeatedly.

The objection may be made, with perfect propriety, that such slight affections of the cardiac valves do not constitute a malignant endocarditis and that the term is applicable only to those cases in which the lesions in the valves are progressive and produce death either by local elaboration of toxins or by causing infectious processes elsewhere. If we accept this definition, the surgical aspects of the disease are practically nil. If, on the other hand, we take the other view, that suppurative lesions of the endocardium may resolve, provided the initial focus and all secondary foci of infection are removed, there is a distinct surgical aspect to the disease.

Assuming this view to be possible, the term malignant is unfortunate, as it means nothing other than a condition regularly producing death. On the other hand, the term infectious or infective is too broad, inasmuch as it is also used to include the so-called simple forms of acute endocarditis regularly observed in rheumatism and chorea.

In the cases of malignant endocarditis, coming to autopsy, there is, according to Osler, a distinct loss of substance in the heart valves; yet, while ulceration is generally absent in simple endocarditis, it is often present in chronic endocarditis, so that for this reason alone the term ulcerative endocarditis would be objectionable, and, furthermore, in view of the fact that we have no information as to the anatomical character of the lesions in the valves unless death supervenes, we are not in the position to state that necrotic processes occur in all cases. It seems to me that, in so far as possible, the terminology of disease should rest upon an etiological basis and, if a distinct mycotic origin can be proven, as seems to be the case for this disease, it, rather than its clinical or anatomical end results, should be indicated in its title.

601 Madison Avenue.

The Toxin of Dysentery.—In a recent monograph on the "Toxin of Dysentery" (Das Dysenterietoxin), Dr. Robert Doerr draws a broad distinction between the Shiga-Kruse and Flexner types of organisms associated with bacillary dysentery. The former type secretes a genuine soluble toxin, whereas the latter does not. This toxin is found in high concentration in the germ-free filtrates of young broth cultures, the lethal dose being 0.01 c.cm. or less. A toxin may also be prepared from young agar cultures by extraction with salt solution and subsequent filtration. The intensity of the toxin production is dependent partly upon the individual characteristics of the strain of bacilli employed, and partly upon the degree of alkalinity of the culture medium. As the alkalinity of the medium is raised within certain limits, there is a corresponding increase in toxicity, the optimum result being obtained with broth which, after being made neutral to litmus, has received an addition of 3 grams of crystallized soda per liter. Under anaërobic conditions of growth or in albumin-free media no specific toxin is formed. Against heat the toxin is relatively resistant; it withstands a temperature of 70° C. for an hour, but is quickly destroyed by a temperature as high as 80° C. It resists the action of trypsin, bile, and enterokinase. Mineral acids neutralize the toxicity of broth culture filtrates, but though they combine with the toxin they do not destroy it, since the toxicity is again demonstrable when the medium is brought back to an alkaline reaction. The toxin of dysentery is pathogenic for rabbits, cats, dogs, and monkeys, but guinea pigs, white mice, fowls, and pigeons are refractory. In susceptible animals which have been inoculated either intravenously, subcutaneously, or intraperitoneally, there is often produced an inflammatory condition of the intestinal mucosa, characterized by hemorrhagic necrosis. It is also found that the toxin regularly produces lesions of the nerve centers to which the animals succumb. The most useful animal for experimental purposes is the rabbit. In about a third of these animals a hemorrhagic membranous typhlitis is produced, whilst the small intestine, as in man, remains unaffected. The excretion of the toxin takes place through the intestine, and also, though to a relatively small extent, through the kidneys; the liver, on the other hand, appears to take no part in the excretory process.—*British Medical Journal.*

MEDICAL RECORD.

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THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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DOCTOR SHRADY, the founder of the MEDICAL RECORD and for nearly forty years its editor, is dead. He had reached the Psalmist's limit of three score years and ten, yet his heart was young, his frame was active, and his mind had lost none of its acumen. Medical journalism had in him a brilliant writer and an editor who had no rival. In his death surgery has lost a wise and conservative counselor, and on occasion a fearless and successful operator; those who knew him have lost a witty and entertaining companion; his friends have lost a comrade, loving and beloved; the world has lost a man who made it better for having lived in it.

SERUM TREATMENT OF TYPHOID FEVER.

AFTER the reintroduction of hydrotherapy, under the influence of Brand, deaths from typhoid fever began to diminish, the mortality varying from seven to twenty per cent. During the past few years army reports from the British and German colonies show a still further reduction of the mortality after the use of typhoid-serum. Similar good results were obtained by Brunon of Rouen, Josias of Paris, and the medical officers at the French military hospital of Val-de-Grâce where the mortality was reduced from ten or twelve to three or five per cent. after the use of the serum.

A recent report by A. Chantemesse in the *Klinisch-therapeutische Wochenschrift* of October 14, 1907, offers a good opportunity for comparing the serum-therapy with the ordinary typhoid therapy. He does not compare the results obtained with serum in one epidemic with those obtained by the ordinary treatment in another epidemic, for such a comparison would be misleading since the mortality varies in different epidemics. His report covers all the typhoid cases in the Paris hospitals for a period of six years, patients in each epidemic having been treated by both methods. From April, 1901, to July, 1907, 5,621 typhoid patients were admitted to the Paris hospitals of whom 960 died, a mortality of 17 per cent. During the same period Chantemesse cared for 1,000 patients in his own hospital, and of these forty-three died, a mortality of 4.3 per cent., their treatment having been identical with that employed in the other hospitals, with the one exception that they also received an injection of typhoid serum.

The clinical course was changed by the use of the serum, the injection having been followed in each case by a stage of reaction, lasting from five to six days, during which the temperature dropped but little or not at all, and by a stage of decline, also lasting five or six days, during which the temperature came down to normal. The general condition improved, and instead of the pale face, cold nose, hands, and feet noted while the temperature was high, these became red and warm, the blood pressure rising to 12 and 15 cm. mercury, so that stimulants were often unnecessary. The fact that the disease is shortened and the mortality is low, no patient having died who was injected during the first seven days of the disease, is in itself proof that the complications are rare. Among the forty-three deaths there were four due to hemorrhage and nineteen due to perforation, showing that the serum is less efficacious in preventing the latter than in preventing the other complications, probably because the ulcers are among the first pathological changes and are usually present before the serum is injected; in no case in which the serum was given during the first seven days of the disease did a perforation occur. Late complications, such as periostitis, orchitis, and mastoiditis, were readily cured by injecting some serum directly into the diseased parts. The serum injected into the veins of healthy animals in doses from thirty to forty times larger than those used in man caused no symptoms. Animals which received two c.c. of the serum subcutaneously and which twenty-four hours later had typhoid bacilli injected into an ear vein, lived while a similar injection of bacilli killed the control animals which had not been previously injected with the serum. The blood in the ear of the serum animals that had been injected with bacilli showed the latter inclosed in phagocytes five hours later, while the bacilli were found multiplying in the ear of animals not treated with the serum, the latter thus acting as an opsonin. But the serum also acts as an antitoxin which Chantemesse proved experimentally by injecting typhoid toxins into animals. After the injection the animals lost weight and displayed a hypoleucocytosis and died if the dose was large enough; if the animals had previously received some serum the toxin had hardly any effect; in fact, it could be given with impunity in doses of sufficient size to kill the control animals in thirty-six hours.

Chantemesse found that the opsonic index rose above normal in every typhoid patient, but that it varied, depending upon the severity of the disease. Taking one as the normal index, it rose to two in mild cases, while in severe cases it rose only to one and a fraction. In patients treated with the serum the index always rose above two and remained so for three or four days after the injection, this observation furnishing another proof of the protective action of the serum. During the three or four days after the injection there is a marked destruction of bacilli causing an increase of toxins in the blood, hence only small doses of serum should be given in severe forms of the disease. The baths are necessary to counteract the reaction caused by the bacteriolysis.

CARCINOMA FOLLOWING X-RAY DERMATITIS.

Since 1896 the literature on the effects of *x*-ray has grown each year. The earliest articles dealt with dermatitis and burns which were found to differ from similar lesions caused by heat in that they were most excruciatingly painful and extremely slow to heal; further experience showed that some lesions closed with great difficulty only to break down again and again, finally forming chronic ulcers. Then came the first report of cancer developing in a chronic ulcer and finally the first death from metastatic cancer. The slowly increasing list of *x*-ray carcinomata emphasizes the great danger of all persistent *x*-ray ulcerations.

In the November number of the *Annals of Surgery* Drs. C. A. Porter and C. J. White have gone into this subject thoroughly and have added another case of multiple epithelial carcinoma to those already published. Their patient was a young man who first began *x*-ray work with a large static machine in 1896, but after a few months used a twelve-inch coil. He exposed himself several hours each day at a very short distance from a low vacuum tube. After eight months his hands became dry, red, painful, and swollen; the dermatitis subsided under treatment and work was continued. Five months later a second attack occurred with the formation of blisters and ulcers. The latter refused to heal and after three months' local treatment, were finally cleaned up surgically and skin-grafted. The majority of these grafts adhered and epithelioma never developed in any graft which completely took at this time. Though all *x*-ray work was stopped for a year, ulcers again developed and refused to heal under ordinary treatment, so that in 1902 they were again excised, but the specimens this time showed unmistakable evidence of carcinoma, requiring an amputation of the fingers involved. During the period from October, 1902, to June, 1905, a dozen or more operations were performed, including amputations and excisions of keratose areas on the dorsum of the hand, until finally in June, 1905, he was, for the first time in eight years, free from pain and dressings. This favorable condition, however, did not last long, for in a few months new lesions had to be excised, some of them again showing typical epithelioma. To-day, after ten years' treatment, the patient has only a few useful fingers left, ten different epitheliomata having been removed during that time. The microscopical examinations were made by White and almost every phase of epidermic deviation was encountered in the several specimens.

This and other experiences have led Porter to believe excision and skin-grafting to be the best treatment in all chronic *x*-ray lesions (keratosis, warts, recurrent fissures), as it relieves pain and results in cure. As his and all other reported cases of carcinoma were always preceded by persistent ulceration for from three to six months, he advises excision and microscopical examination of the ulcers if they remain open after three months of ordinary treatment, the subsequent treatment (skin-grafting or amputation) depending upon the result of the examination.

FORMALDEHYDE DISINFECTION.

Formic aldehyde vapor has long been recognized as one of the most efficient germicides available for disinfecting rooms, but there has always been a difficulty in devising a safe, economical, and effective method for obtaining the gas from solutions or from its dry polymeric form, which would not require expensive apparatus and a skilled operator. G. F. Johnson first drew attention in 1904 to a new means of obtaining the gas without external heat, by the simple addition of permanganate crystals to formaldehyde solution. Since the appearance of his paper many experiments have been made for the purpose of determining the relative proportions of each which will yield the best effect.

E. M. Houghton and L. T. Clark publish, in the *Therapeutic Gazette* for July, 1907, the results of their experiments on this method of liberating formic aldehyde from aqueous solution. They found that when 240 grains of crystals of permanganate of potassium was placed in an ordinary three-gallon pail and 480 c.c. of formol added, sufficient gas was evolved to disinfect 1,600 cubic feet of space. As the ebullition set up was very violent, occasioning much foaming and spattering over the pail, the authors tried various experiments to retard the reaction sufficiently in order to do away with this disadvantage. They eventually succeeded, by mixing the crystals with 15 per cent. of Portland cement and enough water to give sufficient consistency for making small blocks. After being moulded, these briquettes are left to dry, and can then be readily handled. The charge of formaldehyde is poured into the pail, and three briquettes, each containing eighty grams of permanganate crystals, are dropped into the liquid. The reaction is slower and less violent. The authors claim that formic aldehyde disinfection is simply and quickly accomplished by means of the permanganate briquettes; no expensive apparatus is necessary, and no outside heat is employed, thus lessening the danger of fire; more thorough disinfection is accomplished, because the whole volume of gas and moisture is liberated during a very short time. The usual sealing up of the room is necessary, and the operator must leave the room directly after the permanganate is put into the liquid.

Relapsing Fever.

While in this country relapsing fever is so rare that most practitioners have never seen a case, in Russia it is constantly present and more or less widespread outbreaks take place at comparatively frequent intervals. In Kieff, for example, a city of 300,000 inhabitants, cases of the disease have occurred during every year of the decade ending with 1906, the greatest number of cases reported being 489 in the year 1898, and the smallest 8 in 1904. Early in 1906 an epidemic of very considerable proportions began, and up to the end of May, 1907, 4,080 cases had been recorded. This epidemic has been made the subject of investigation by Robinovitch (*Berliner klinische Wochenschrift*, November 11, 1907), who in a preliminary communication expresses the belief that the widely held view that the disease is often transmitted by the bites of insects, notably bedbugs, is erroneous. A number of arguments are advanced by the author, the most

striking being that afforded by his experimental work. Twenty bedbugs were kept without food for eight days in a glass dish which was then tied against the arm of a patient suffering from the disease. An hour later all the insects were seen to be distended with blood and the dish was fastened in a similar way to the author's thigh. In spite of severe bites no infection followed, though living spirilla were still present in the bodies of the bugs five days later. This experiment was repeated several times, and then, in order to afford opportunity for any possibly necessary adaptation in the body of the bug to take place, the insects were kept for seven days before being applied to the test person. Living spirilla were present at the end of this period, but no infection followed. Robinovitch suggests that numerous considerations, notably the filthy habits of the abjectly poverty-stricken classes among whom the disease is most often seen and the fact that physicians are rarely infected, makes it likely that transmission takes place by way of the alimentary canal. This supposition is strengthened by the observation that gastrointestinal symptoms, such as vomiting and diarrhea, are ordinarily the earliest manifestations of the disease. The injection of the spirochetes into the circulation of laboratory animals did not produce symptoms, but severe gastrointestinal disturbances followed when the infectious material was introduced into the stomach. Further investigations in this direction are being carried on by the author.

Apophysitis in Growing Children.

In any child who complains of his knee, or heel, or spine, the last thing usually thought of is apophysitis. It is always difficult to diagnose it from tuberculosis, as the age of the patient, the slow appearance of symptoms, variations in the pain, and its increase after walking, are symptoms common to both diseases. An exact diagnosis, however, is important from the point of view of treatment, and therefore cases of apophysary osteitis are of undoubted practical interest. In *La Presse Médicale* (No. 34, 1907), R. Romme contributes an article on this subject. His patients were anywhere from nine to eighteen years old, owing to the different time of ossification; the most frequent cases were those involving the anterior tuberosity of the tibia. He describes tibial apophysitis as beginning suddenly with pain of variable intensity, but sometimes very acute, in one or both knees. On palpation the pain is found strictly localized to the anterior tuberosity, which is felt to be thickened. General symptoms are absent unless the condition, instead of remaining a hypertrophic osteitis leading to the formation of a hyperostosis, should begin to suppurate. Tibial apophysitis is easy to diagnose, but diagnosis is extremely difficult when the disease affects the posterior part of the os calcis. In this case the patient may have been lame for some time with pain at the back of the heel; some improvement may follow rest and the administration of sodium salicylate, but the pain and lameness reappear, and now the posterior third of the bone is found enlarged and tender at the insertion of the tendo Achillis. Usually the other side is also affected, but to a less degree. It differs from tuberculosis of the os calcis, inasmuch as the latter usually occupies the anterior third of the bone, does not lead to bony hypertrophy, and is generally unilateral. The diagnosis of vertebral apophysitis is more easy. An abnormal and painful swelling is formed by the hypertrophied tuberosity of the spinous apophysis of the vertebra, the pain is strictly localized; the absence of contraction and curvature is sufficient to eliminate Pott's disease. The treatment of all forms is simple, rest with counterirritants generally being sufficient to bring about a quick recovery, unless the apophysitis suppurates, when incision and curettage becomes necessary.

A Diagnostic Aid in Tuberculosis.

The physical signs of pulmonary tuberculosis have been so exhaustively studied that it is interesting to find a new clinical aid described even though it must perforce be regarded with some judicial skepticism. Francke (*Münchener medizinische Wochenschrift,* November 12, 1907) has found that careful observation often reveals in the skin over the apices of the lungs minute striations which are sometimes blue but more often red in color. These he considers are capillaries that have become very much distended as the result of inflammatory changes in their walls. As long as they remain permeable their color is red and they may be obliterated by pressure, but if thrombosis supervenes they become converted into blue markings that do not change on pressure. The striations were present in over 75 per cent. of 200 patients with pulmonary tuberculosis of all grades of severity examined by the author and in 27 per cent. of persons coming under observation for other conditions and not manifesting any evidences of pulmonary changes. Francke believes that these capillary lesions of the skin are the result of tuberculous processes in the pleura and the adjacent parts of the lung and that their absence in cases in which there are signs of pulmonary disease indicates that the lesion is a deep seated one. The number and distribution of the striæ show the extent of the tuberculous focus while their color and arrangement permit conclusions to be drawn regarding the intensity and duration of the process. The detection of striæ in persons apparently not suffering from pulmonary disease points to the existence of latent lesions. It is evident that considerable experience and caution are necessary in interpreting these capillary markings, and as they also occur in other parts of the body such as the face, along the costal borders, and about the ankles, where their formation must be due to other causes, their direct connection with tuberculosis demands rather more convincing evidence than Francke gives in his paper.

Malingering in a New Form.

It has often been pointed out that the advances of practical science are frequently accompanied by corresponding ingenuity in perverting their benefits to illegitimate uses. Thermite and the electric arc aid the up-to-date safe breaker, the modern burglar carries an electric pocket light instead of the traditional dark lantern, the most advanced photomechanical processes are employed by counterfeiters, gambling apparatus is equipped with highly ingenious devices for electrical and magnetic control, etc. Even in medicine the abortionists—at least some of them—have learned the advantages of asepsis, and perhaps certain new anesthetics are destined to supplant the less elegant administration of knock-out drops. The subterfuges resorted to in European countries by those who would avoid military service are many and devious, but perhaps the most ingenious is that of

having artificial new growths produced by the subcutaneous injection of paraffin. Three such cases are reported with photographs by Goldenberg in the *Deutsche medizinische Wochenschrift* of November 14, 1907. In each instance a very good imitation of a mass of tuberculous cervical glands had been produced, though in one case the operator had overshot the mark by adding as a finishing touch a flat subcutaneous tumor of the back that resembled nothing so far recorded in the annals of pathology. Goldenberg brings up the point of whether a surgeon acts properly in correcting such a disfigurement, self-inflicted for an unlawful purpose, and concludes that he is justified in so doing, but is not obligated to, and states that in future any patients of this sort that may present themselves will not be treated at the Breslau Hospital with which he is connected.

News of the Week.

Anniversary Meeting of the Academy of Medicine.—At the sixtieth anniversary meeting of the New York Academy of Medicine on November 29, Col. W. C. Gorgas, Chief Sanitary Officer of the Isthmian Canal Commission, delivered an address on the sanitary problems encountered in the canal zone and the results that had been obtained in practically exterminating yellow fever and reducing malaria to a minimum.

Low French Birth-Rate.—The statistics just published by the *Official Journal of the Republic* show that the birth-rate in France during the year 1906 was the lowest on record. During recent years there has been a steady decline in the number of births and the average yearly figures from 1896 to 1905 were 839,843. In 1906 the births fell to 806,847, while the deaths were 780,196.

Fewer American Students in German Universities.—The number of American students at the University of Berlin has fallen to the smallest figure on record. Only sixty-eight men and twenty-seven women from America are enrolled on the university books, as compared with a total of more than two hundred three years ago and more than four hundred ten years ago. A similar state of affairs is said to exist at Heidelberg, Göttingen, Jena, Leipsic, Halle, and other prominent universities.

County Medical Society.—At the annual meeting of the Medical Society of the County of New York held last week the following officers were elected: *President*, Dr. J. Riddle Goffe; *Vice-Presidents*, Dr. H. Seymour Houghton and Dr. John E. Weeks; *Secretary*, Dr. John Van Doren Young; *Assistant Secretary*, Dr. J. Milton Moffat; *Treasurer*, Dr. Charles H. Richardson.

Cornell University Medical School.—The Faculty of the Cornell University Medical College announces it has been decided that the usual "high school" education, commonly accepted as sufficient preparation for the study of medicine, is inadequate. Therefore, on and after 1908 candidates for admission to the Cornell University Medical College must be (1) graduates of approved colleges or scientific schools; or (2) seniors in good standing in Cornell University or in any other approved college or scientific school whose faculty will permit them to substitute the first year of a professional course for the fourth year in arts and science, and who will confer upon them the Bachelor's Degree upon the satisfactory completion of the first year of the course in the Cornell University Medical College; or (3) persons who, while not possessing a Bachelor's Degree, give evidence by examination that they have acquired an equivalent education and a training sufficient to enable them to profit by the instruction offered in the Medical College. In and after 1909 all candidates for admission to the Medical College must have at least such knowledge of physics and inorganic chemistry as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. In and after 1910 all candidates for admission must possess a similar knowledge of biology.

Medical Society of the County of Dutchess.—The annual meeting of this society will be held in Poughkeepsie on January 8, 1908.

A Health Clearing House for Chicago.—The Commissioner of Health in Chicago is seeking to establish what may be termed a health clearing house for Chicago and all its suburbs. In order to control as far as possible the sources and means of transmission of infectious diseases it is proposed that Chicago and all communities within a radius of fifty miles should cooperate in maintaining necessary laboratories and a smallpox hospital, in obtaining and publishing health data, in purchasing supplies, and in taking precautionary measures, ordinary and extraordinary, against the spread of diseases.

Fire in the New Jersey State Hospital.—A fire in the State Hospital at Morris Plains, N. J., did $20,000 damage and almost entirely destroyed the nurses' building erected six years ago. No lives were lost, but several of the nurses were injured in jumping from the windows of the burning building.

Plague and Religion.—It is reported that the efforts of the Indian Government to stamp out the plague up to the present time have been enormously hampered by the refusal of the Mohammedans to evacuate infected villages, on the ground that they were forbidden by the Koran to "flee from the wrath of God." Fully 250,000 deaths from the plague among Moslems are estimated to have been caused by adherence to this belief. Now the heads of the Moslem faith, urged thereto by the Government, have issued a proclamation pointing out the untenability of this idea and declaring that the Koran expressly enjoins Mohammedans to quit places smitten by Allah with this disease. The Government is publishing the proclamation widecast.

Quarantine in St. Vincent's Hospital.—By order of the Health Department the boys' ward in St. Vincent's Hospital was quarantined last week because of a case of scarlet fever, which developed in a patient who had been in the ward eighteen days before the diseases manifested itself.

Florence Nightingale Honored.—Florence Nightingale, the heroine of the Crimean war and founder of the Nightingale Home for the Training of Nurses in London, now in her eighty-eighth year, has been decorated by King Edward with the Order of Merit. This was founded by King Edward in 1902 for the recognition of especially distinguished services in all walks of life and is regarded as one of the highest honors within the gift of the sovereign. It has been bestowed on nineteen men, but this is the first time it has been conferred on a woman.

Nobel Prizes in Medicine and Physics.—The Nobel prize in medicine is to be awarded to Dr. Laveran of Paris, who is well known for his work on tropical diseases, and Professor A. A. Michelson of Chicago is to receive the prize in physics. Dr.

Michelson is the inventor of a new method for measuring the velocity of light.

Two Centenarians.—Mrs. Margaret Horn, an inmate of the Home for the Aged and Infirm on Blackwell's Island, died last week at the age of one hundred and two years. Her husband died twelve years ago at the age of one hundred and three years. W. R. Chambers, thought to have been the oldest resident of Pennsylvania, died on November 24 at his home in Cecil, Washington County, aged one hundred and five years. Up to the time of his death he is said to have been in full possession of all his faculties. He leaves a sister aged one hundred and three years and over a hundred descendants.

A Fatal Banquet.—Three men have died, four others are not expected to live, and over twenty are seriously ill as the result of eating tainted oysters at a Masonic banquet held in Dover, Mich., early in November.

Society of Sanitary and Moral Prophylaxis.—The next meeting of this Society will be held at the Academy of Medicine on Thursday, December 12. Papers will be read on "Police Methods of Dealing with Prostitution in Germany," and on "Statistics of Prostitution in New York City."

Cincinnati Hospital.—The following appointments have been made to the staff of the Cincinnati Hospital: Dr. R. W. Thomas, pathologist; Dr. D. I. Wolfstein, neurologist; Dr. M. L. Heidingsfeld and Dr. A. J. Markley, dermatologists; Dr. W. H. Lewis, assistant in the laboratory.

The Cincinnati Academy of Medicine passed a resolution on November 25 requesting the city council to take the power of a board of health from the Board of Public Service and place it in the hands of a Board of Health consisting of five members appointed by the Mayor.

Psychiatrical Clinic in Brooklyn.—Dr. O. M. Dewing, superintendent of the Long Island State Hospital, announces that a psychiatrical clinic will be held at the hospital, corner of Clarkson St. and Albany Ave., Borough of Brooklyn, at 9 A.M. every Friday. At this clinic interesting cases will be presented by members of the medical staff and an opportunity will be given for the personal examination of these cases, and for general discussion of them. All physicians are cordially invited to attend.

A Cancer Exhibition in Brussels.—In September, 1908, a cancer exhibition is to be held in Brussels in connection with the Second International Surgical Congress. The exposition is to comprise exhibits of all sorts relative to the nature, occurrence, investigation, and treatment of malignant new growths and will be under the direction of the general secretary of the Surgical Congress, Professor Denage of Brussels.

Smallpox in Iowa.—Eleven cases of smallpox are reported as having occurred among the students in Ames College, Ames, Ia.

Tri-State Medical Association.—At the meeting of the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee held in Memphis on November 22, officers were elected as follows: *President*, Dr. Eugene Johnson of Yazoo City, Miss.; *Vice-Presidents*, Dr. R. E. Howard of Durant, Miss.; Dr. C. M. Lutterloh of Jonesboro, Ark., and Dr. Herman Hawkins of Jackson, Tenn.; *Secretary*, Dr. Richmond McKinney of Memphis; *Treasurer*, Dr. Marcus Haase of Memphis.

Lectures on Orthopedic Surgery.—Dr. Russell A. Hibbs, Surgeon-in-Chief of the New York Orthopedic Dispensary and Hospital at 126 East Fifty-ninth Street will give a course of clinical lectures on orthopedic surgery at the institution, on Tuesday and Friday afternoons, at 4:30 o'clock, from December 3 to January 3. The course will be free to physicians and students.

Meeting of the Red Cross.—The annual meeting of the American National Red Cross Society was held in Washington on December 3, thirteen States being represented. Secretary of State Root delivered an address, in which he paid a tribute to the work done by the Society during the past year. Officers were elected as follows: *President*, William H. Taft; *Treasurer*, Beekman Winthrop; *Counsellor*, Alford W. Cooley; *Secretary*, Charles L. Magee. Mrs. Marshall Field of Chicago and Miss Helen Gould of New York were elected members of the Board of Incorporation of the Society.

Obituary Notes.—Dr. Walter J. Norfolk of Plainfield, N. J., died on November 25 at the age of fifty-nine years. Dr. Norfolk was a native of Salem, Mass., and after his graduation from Harvard University and Harvard Medical College he was a resident of Boston till about fourteen years ago, when he removed to Plainfield.

Dr. William G. Russell of Brooklyn died on November 29 at the age of sixty years. He was born in this city and was a graduate of the Long Island College Hospital. He had practised in Brooklyn for over thirty years.

Dr. Edward S. Gates of Cincinnati was instantly killed on November 27 while on his way to a patient. Dr. Gates was alone in his automobile and in crossing a railroad track the car was struck by the locomotive of a train.

Dr. Thomas Wildes of this city died suddenly of apoplexy on November 29 at the age of sixty-eight years. He was graduated from the New York Homeopathic College in 1876 and was connected with the Health Department.

Dr. William S. Bowen of East Greenwich, R. I., died suddenly on November 24 at the age of sixty-five years. He was graduated from Harvard Medical School in 1867 and served for a time as surgeon in the navy. He then practised for some years in Providence, but later gave up his medical work and became a journalist, serving as foreign correspondent for numerous newspapers.

Dr. Sidney I. Small of Saginaw, Mich., died of apoplexy on November 23 at the age of sixty-five years. He was born in Maine and had been a resident of Saginaw since 1874.

Dr. William H. Lamar of Jasper, Ala., died on November 18 at the age of eighty years. He was born in Augusta and had lived in Auburn for over thirty years.

Dr. James E. Kirkpatrick of Los Angeles, Cal., died on November 19 at the age of eighty-two years. Dr. Kirkpatrick had practised in Oregon for twenty-five years before retiring to Los Angeles ten years ago.

Dr. O. D. Norton of Cincinnati died on November 29 at the age of eighty-six years.

Dr. J. P. Oberndorfer of this city died on December 1 of appendicitis. He was a graduate of the College of Physicians and Surgeons in the Class of 1874 and afterwards spent two years in postgraduate work in the University of Leipsic. Of late years he had devoted himself exclusively to dermatology. He had been connected with the German Dispensary for over thirty years and several years ago was a candidate for the office of coroner.

GEORGE FREDERICK SHRADY, A.M., M.D.

JANUARY 14, 1837—NOVEMBER 29, 1907.

In the death of Dr. Shrady there has ended all too soon a career of full and well-rounded achievement, and there has gone from us a personality quite unique in its type and charm; for there was no one quite like Dr. Shrady in his qualities as a man and companion. His geniality of temper, his ready humor, his curious adroitness of expression, and his surprising feats of mimicry and story-telling made him a distinct character among his fellows. As he grew older these personal qualities became more widely known; perhaps they ripened a little; his friends increased, his enemies fell away, till now that the end has come he will be thought of by all as one with whom it was a joy to have companionship and converse.

But Dr. Shrady did not succeed in his career without showing that he had real strength of character and firmness of purpose behind an engaging exterior. He began life equipped with a sound education and a thorough medical and surgical training in college and hospital. He had a manual dexterity which made surgery attractive and easy to him, but which also through his mastery of short-hand led him into medical journalism. And this latter seemed really to be his gift, for he achieved his great success here only by showing that he had special talent for it, as well as courage and initiative. In his early years, and often later, he was visited by eminent medical men, alone or in bodies, who informed him that the policy he was pursuing was wrong and would end in damage to himself and his journal, but he smiled in his inscrutable way and kept at his purpose. No man was more *tenax propositi* when settled on a course, and no man ever succeeded in worsting him in argument over his policies. He would simply smile and joke, and tell a story, but he never really argued. So he always won. He had thought out his view, and that settled it for him. This constancy of purpose was accompanied with a very wise and even cautious conservatism, but he had also a sound judgment and a very penetrating knowledge of his brother man and of the best way to deal with him; he was a wise man in the conduct of affairs, and he knew how to use his wisdom tactfully. He was a student of human character, and he rather loved to dwell on the weaknesses of his fellows; for he had had occasion to see a good deal of the under side of the medical world; but his policies and ideals were all practically high and good. He never advocated a bad or low cause, and if he showed on rare occasions a personal bitterness, it was but a small thing in his whole career.

Dr. Shrady believed that the doctor should be in a saner and closer relation with the public than professional custom formerly allowed. He was often criticised for his interviews with journalists, but this point was always clearly held in his mind, viz., that he was an interpreter and teacher, and that a doctor of experience and authority ought to tell the public those things about his profession that would be helpful to human progress.

Dr. Shrady's literary work, like that of most journalists, is mainly buried in anonymous editorial writing. Here he was most skillful in presenting his point of view clearly and smoothly, yet with a certain elusiveness that made it difficult to controvert successfully any particular position. He wrote strategically, leaving no point that he could not either strengthen or evacuate according to the needs of the situation. He was a sort of medical Henry James when he set out to do his more elaborate tasks, and he did not lack in a subtle humor. His Pine Ridge Letters must be read with the recollection of the state of medicine in New York twenty-five years ago. Dr. Fordyce Barker said that they were worthy of *The Spectator*. Perhaps the best specimen of his really masterly art was his last contribution, entitled "Professional Reminiscences" and published in "The Charaka Club Book." He wrote easily, yet with corrections; he worked easily also and never with a fuss; he worked with a clean desk.

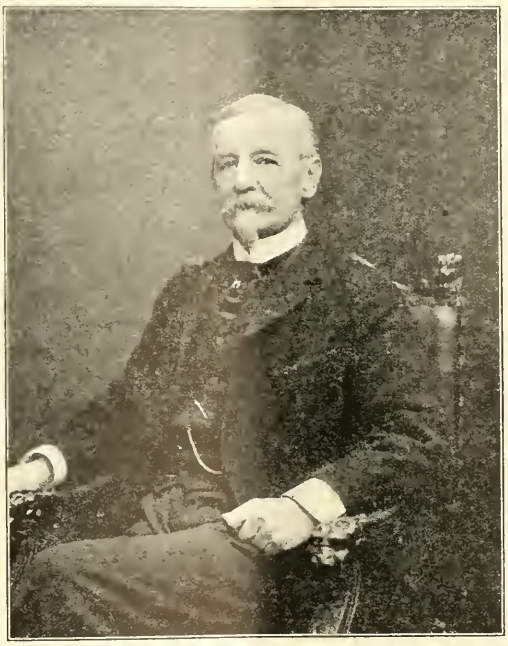
Of Dr. Shrady's surgical achievements I am not competent to speak. He did some excellent plastic surgery; he was skilful as an operator, and the only criticism of him was directed to his conservatism. He was slow to decide on an operation, but when he did decide his work he did it rapidly and well. His contributions to surgery covered a wide field, but had more especially to do with plastic and abdominal surgery and tumors.

After all, Dr. Shrady will be best remembered for the work he did in establishing and maintaining a modern medical journal, which had as its special purpose helpfulness to the general practitioner and the encouragement of whatever was for the best interests of the profession. He always felt that he stood rather as champion of general practitioners, and he tried to do everything possible to secure their interests and promote their welfare. He lived and worked at a time when his policies caused antagonism from some of the medical schools and when an ethical schism disrupted the profession of this State. The problems of the State care of the insane, the sanitary work of this city, and of the State, the questions of medical education, of public schools, the extraordinary developments of laboratory science, all received his sympathetic interest and wholesome support. He stood for high ideals, though he made no parade of such. His achievements as a medical journalist deserve more space than I can give them now. He was listened to by both medical readers and the laity. Before him we had medical journals, but he made them influential and respected, and a force in the community. This distinctive quality of medical journalism is found only in this country and England.

He had a most equable nature, and, though he had many antagonisms to meet, much harsh language to endure, and criticism to overcome, he pursued his way with serene front and ever ready jest. Even in tumultuous times a visit with him was a refreshment to the soul. He was always a lovable man; he grew more so in his age, and it is pleasant to know that in his last years he lived a happy life, and died with the knowledge that he had troops of friends to lament his loss and comment upon a life which gave out much of happiness and was filled with such real achievement.

CHARLES L. DANA.

DR. GEORGE F. SHRADY died at his residence in this city on November 29 of pyemia following an attack of gallstones, after an illness of only two weeks' duration. He was born in the family homestead on Rivington street, New York City, on January 14, 1837. His early training was in the public schools and his academic education was obtained at the Free Academy, which was even then of collegiate rank, but did not until later receive its present title of the College of the City of New York. He was graduated in medicine from the College of Physicians and Surgeons in the class of 1858. His surgical skill was foreshadowed during his undergraduate career by his special predilection for anatomy, and in the same year that he received his degree he was also awarded the Wood Intercollegiate Prize for proficiency in anatomy. After graduation he served a term as interne in the surgical division of the New York Hospital, and in 1859 began the practice of his profession in this city. Upon the outbreak of the Civil War he offered his services to the Government, and was detailed as assistant surgeon in the military hospital in Central Park, in the building now known as the "Arsenal." Later he saw service in field hospitals in Virginia, and on one occasion nearly lost his life in a wreck while in charge of some wounded soldiers who had been sent by sea to hospitals at the north. Shortly before the close of the war he returned to New York and resumed private practice. He was a proficient stenographer, and this led in his early days to employment in reporting the meetings of medical societies for the *Medical Times*, of which journal he later became editor. In 1866 the MEDICAL RECORD was founded with Dr. Shrady as editor, and for thirty-eight years he gave his best thought and his skill as a writer and executive manager to the conduct of this journal. He was an indefatigable worker, and for many years conducted the journal almost single-handed, reporting society meetings, writing editorials, abstracting articles from other papers, collecting news items, and doing whatever the occasion demanded to make the RECORD a worthy representative of medical opinion. One of the "hits" which attracted much attention at the time was the publication of a series of articles, entitled "Pine Ridge Papers," purporting to be written by a country practitioner, in which he treated with the satirical wit of which he was a master, of the foibles and the tendency to charlatanism of certain practitioners of the time. He resigned the editorial management of the journal in July, 1904. In addition to his anonymous contributions to the editorial pages of the MEDICAL RECORD, Dr. Shrady wrote many papers from time to time on surgical subjects, nearly all of which were published in his own journal. The following is a list of these papers, many of which were read at meetings of the Medical Society of the State of New York, and of the Practitioners' Society, of which he was a founder and always an enthusiastic member.



Geo. F. Shrady

"Ligation of the Lingual Artery near its Origin, as a Preliminary Procedure in the Extirpation of Cancerous Disease of the Tongue," September 14, 1878. "A New Subcutaneous Saw, Knife, and Bone Rasp," January 11, 1879. "The Curved Flap in Plastic Operations on the Face," January 25, 1879. "Reproduction of the Shaft of the Humerus, after Excision for Acute Necrosis," April 24, 1880. "Intraparietal Hernia," May 7, 1881. "Surgical and Pathological Reflections on President Garfield's Wound," October 8, 1881. "Removal of a Large Naso-Pharyngeal Tumor, with Extensive Attachments to Base of Skull; Unexpected Brain Complication; Death," September 16, 1882. "Successful Tracheotomy for Diphtheritic Croup in a Child Eleven Months Old," November 4, 1882. "Case of Strangulated Hernia, with Remarks on Treatment," November 29, 1884. "The Subcutaneous Saw and Knife," January 17, 1885. "The Surgical and Pathological Aspects of General Grant's Case," August 1, 1895. "The Curability of Cancer by Operation," January 22, 1887. "Some of the Abuses of Etherization," February 23, 1889. "Some Observations on Cancer of the

Breast," November 12, 1892. "Operative Relief for Deformity after Potts' Fracture," April 1, 1893. "A Simple Method of Closing Large Operation Wounds by Sliding Skin-flaps," December 2, 1893. "Some Points in the Diagnosis of Appendicitis," January 6, 1894. "Dr. J. Marion Sims—Surgeon and Philanthropist (an Address Delivered October 20, 1894, on the Unveiling of the Sims Statue in Bryant Park)," October 27, 1894. "Some Plain Rules for Operating in Appendicitis," January 9, 1897. "Shock in Modern Surgery," July 22, 1889. "Early Diagnosis of Mammary Tumors," January 26, 1901. "Hip and Thigh Amputations for Sarcoma of the Femur," April 2, 1904. The "Pine Ridge Papers" appeared in 1874 and 1879.

When the Medical Society of the State of New York, in 1882, voted to do away with the antiquated Code of Medical Ethics and proclaimed a new emancipation proclamation, Dr. Shrady threw his personal influence and that of his journal on the side of reform, and labored heart and soul for the cause of individual and professional liberty. Intimate friends fell away, for feeling ran high in those troublous times, and influential members of the profession in the city and the State urged him to maintain a position of neutrality at least, even threatening him with professional ostracism and the ruin of his journal if he persisted in his advocacy of independence. Such considerations, however, had no weight with a man of his character, and he refused to swerve from a course which his reason and his conscience told him was right. He lived to witness the triumph of the cause he advocated and to see the American Medical Association itself reject the Code as it then was and adopt as a compromise a revised Code which should be not binding upon any member, but only advisory, in order to win back the allegiance of the profession in New York State, without which its claim to be a national body was untenable. The American Medical Association owes the fact that it stands to-day as the representative of a free and united profession very largely to Dr. Shrady.

Dr. Shrady was also a frequent contributor of papers, of a popular character, to the magazines and other lay publications. He was for many years a member of the editorial staff of the *New York Herald*, devoting his attention especially to matters of public health and to medico-sociological subjects. When the bubonic plague broke out for the first time some years ago in San Francisco, its existence was vehemently denied by the Mayor and other officials. This policy of concealment had its usual effect, and wild rumors were about that an extensive epidemic was raging in Chinatown. That the country might know the facts, Dr. Shrady went to San Francisco, commissioned by the *Herald* to find out the truth and publish it. In spite of the many obstacles placed in his way by the municipal authorities, who had heard of his coming, he made a thorough investigation, going into the infected district and examining the suspicious cases. He announced as the result of his inquest that the disease was actually present, but that the cases were few, and that the small epidemic, if such it could be called, was under control by the health officers. He thereby exposed the duplicity of the men who denied the existence of the plague, and at the same time allayed the apprehension of those who had been led to fear that the situation was more serious than it really was.

As a surgeon Dr. Shrady was a skilful operator, but never achieved the reputation in this respect that he might have done, because of his conservatism. He was conscientiously opposed to the use of the knife when he believed life could be saved by more gentle measures, and never yielded to the temptation to perform a brilliant operation when a cure without mutilation was possible. Perhaps for this reason, as well as because of his reputation as a wise counselor and acute diagnostician, he was frequently sought as a consultant by his colleagues, both medical and surgical. When President Garfield was shot Dr. Shrady was consulted as pathologist, and he was requested to make a report to the profession and the public on the surgical and pathological reports of the case. He was also one of the surgeons in attendance on General Grant during his last illness, and when Emperor Frederick of Germany was suffering from an apparently similar affection of the throat, Sir Morell Mackenzie sought an opinion by cable from Dr. Shrady. In 1890, when Kemmler was put to death by electricity, the first murderer to receive capital punishment by this method, Dr. Shrady was one of the medical experts appointed to witness the execution.

In 1869 Yale College conferred upon Dr. Shrady the honorary degree of Master of Arts in recognition of his eminent services in the cause of medical literature.

Dr. Shrady was visiting surgeon to St. Francis' Hospital for twenty years, and was consulting surgeon there for over six years past. He was also consulting surgeon to the Hospital for the Ruptured and Crippled, the Columbus Hospital, the Fordham Home for Incurables, the General Memorial Hospital, the Red Cross Hospital, the Vassar Hospital at Poughkeepsie, and the Hackensack Hospital, New Jersey, and was at one time attending surgeon to the Presbyterian Hospital. He was consulting physician to the hospitals of the New York Health Department and one of the managers of the Hudson River Hospital for the Insane.

From 1861 to 1879 Dr. Shrady was secretary of the New York Pathological Society and president of that organization in 1883-84. Upon his retirement from the office of secretary in 1881, the society presented him with a silver pitcher and salver in recognition of his unselfish labors, Dr. Jacobi making the presentation speech. He had been president of the Practitioners' Society of New York and of the American Medical Editors' Association. He was a member of the Medical Societies of the County and of the State of New York, of the New York Academy of Medicine, of the Practitioners' Society of New York, of the New York Pathological Society, of the Harvey Society, of the American Medical Editors' Association, and of the American Academy of Medicine; and of the Metropolitan, the Ardsley, and the Jekyl Island (Ga.) clubs. He is survived by his widow, three sons, and a daughter.

Correspondence.

OUR LONDON LETTER.

(From Our Special Correspondent)

BRADSHAW LECTURE—SIR JAMES BARR'S TREATMENT OF PLEURISY—PROFESSOR GOLDMAN AT THE ROYAL SOCIETY OF MEDICINE, SURGICAL SECTION—TERRITORIAL ARMY MEDICAL SERVICE—NOTES—OBITUARY.

LONDON, November 15, '07.

THE Bradshaw lecture at the Royal College of Physicians was delivered on the 5th inst. by Sir James Barr of Liverpool, who took for his subject "The Pleuræ: Pleural Effusion and Its Treatment." This he treated with a breadth of view and fullness of knowledge to be expected from one whose clinical experience is so extensive and scientific reasoning exact. As it is impossible to travel over the whole course of his discourse in a letter, it will be best perhaps to note what he had to say respecting the treatment of pleurisy by the method which he has originated of injecting the cavity with adrenalin and sterilized air. This more particularly inasmuch as his method has been misunderstood by some who have followed it imperfectly. In 1903 he exhibited his apparatus for introducing sterilized air and adrenalin into serous cavities and from that time the plan of thus treating pleurisy and empyema has been discussed. In the Bradshaw lecture he told how he came to try it in his first case. That was one of a lady who in 1902 was suffering from secondary cancerous deposits in the pleura, with effusion. The fluid had to be drawn off every four days and reaccumulated so quickly that she had scarcely a day free from distress in breathing between the aspirations. Seeing this could not last long and considering how to lessen the secretion, he came to the conclusion to try injection of suprarenal extract. This was so successful that the remainder of the patient's life was spent in comfort so far as concerned the chest. Since then he has injected 1 dram of adrenalin solution into every pleura which he has tapped and in only two cases has he had to aspirate a second time. So much for this part of his treatment, which is quite original. As to the addition of air to replace the fluid withdrawn, he was led to adopt it by the distress so often caused by withdrawing all the serum; by the rapid reaccumulation, especially when there was negative pressure left in the pleura or a large cavity owing to the lung being unable to expand; by the risk of collateral hyperemia or edema of one or both lungs, and by the fact that in tuberculous cases there is apt to be dissemination through the lung when pleural pressure is removed. The air pad tends to prevent adhesions; the nitrogen of the air is only slowly absorbed. The adrenalin solution is better diluted with two or three times as much normal saline solution.

When to tap is often a rather anxious question. Sir James admitted he was reluctant to interfere unnecessarily with a natural process, which the effusion is, and which if it continue till inflammation has subsided lessens the risk of adhesions and keeps the lung quiet—a very important thing in tuberculous cases, as so many are. In them early tapping causes vascular turgescence of the lung and hastens dissemination—a fatal result. Since he began to replace the serum by air Sir James has become less chary of tapping and now removes the whole of the effusion even in tuberculous cases at an early stage with perfect impunity. The recognized danger of removing all in elderly patients with rigid chest walls he said arose from establishing too great a negative pressure, which led to hyperemia and edema. But this result, he held, can be obviated by the introduction of air. He now recommends complete withdrawal in all cases, but before the negative pressure is established, before the patient feels any discomfort, he introduces an equal quantity of air. Afterwards he re-establishes the siphon and completes the withdrawal. Then he mjects 4 c.c. of adrenalin solution (1 in 1,000) diluted with 8 or 10 c.c. sterile normal saline, and if necessary more sterile air, so as to make the amount equal to half or three-fourths of the bulk of the liquid withdrawn—the larger quantity in tuberculous cases. The siphon is better than the aspirator, as the negative pressure is so much less and therefore the risk of hyperemia or edema. A manometer introduced into the air tube enables the operator to avoid any positive pressure in the pleura. Of course, aseptic precautions are to be taken. The lecturer showed his apparatus. He declared that by his method it is practicable to operate early in any case—even in the febrile stage, and under no circumstances should the fluid be allowed to so accumulate as to cause collapse of the lung. Tap before the patient feels respiratory distress. By the removal of the fluid an enormous number of microorganisms are also removed and by the introduction of sterile air a light innocuous fluid is substituted for a heavy and deleterious one.

Following up my last week's account of the work of the Royal Society of Medicine, the Surgical Section began its work with a most interesting address by Professor Goldman of Freiburg on the growth of malignant disease in man and animals, with special reference to the vascular system, and this was followed by a brilliant demonstration by the same professor on the diagnosis by the help of the *x*-rays of abdominal malignant disease, subphrenic abscess, and appendicitis. Previous contributions to the relation of the vascular system to cancer by Professor Goldman are no doubt well known to your readers. In the present address he gives some deductions from his researches which will give rise to much discussion among pathologists and surgeons. He recalls that tumor cells constituting a thrombus or an embolism might multiply within a blood-vessel and spread along its branches without forming adhesions to the vessel's coat. If such adhesions should form, *i.e.* as soon as infiltrative growth occurs, the mass of cells is organized in the fashion of a blood-clot, the cells often degenerating so far that their cancerous nature is obliterated. From his experience the professor held it to be certain that similar conditions frequently prevailed in lymphatic glands apparently the seat of secondary cancer. Careful examination in serial sections would show that the gland contained isolated cancer cells, but the bulk of the cells had degenerated. These facts showed that the body commands the power of combating and healing cancer. Reference was made to Lomer's collection of above 200 cases of spontaneous cure; in some of these blood changes induced by infectious diseases and other causes preceded the cure; in others the cut surface of the incompletely removed growth was cauterized by heat or chemicals. It would appear that the body's first line of defense is on the boundary of the growth. In some cases the professor suggested that the knife did harm by removing the barrier of defense which the body had raised up during the tumor's existence. In all recoveries there was the same reaction of the body, viz., the formation of a stroma. Extensive local hemorrhage was a common precursor.

Leaving this subject, I turn to Professor Goldman's demonstration on *x*-rays. He regarded the method as a useful aid to the diagnosis of suppuration in the abdominal cavity, of calculus in the appendix, and of cancer in the abdomen. He mentioned two cases of appendicitis complicated with subphrenic abscess which other methods failed to diagnose. In one secondary empyema had already taken place, but did not interfere with the subphrenic shadow. So a pyopneumothorax might exist and the gas in the cavity would modify the skiagram. As to appendicitis, though some pathologists did not consider a calculus important, in 55 per cent. of chronic cases in which perforation or gangrene occurred a calculus was found. The calculus was easily seen, but it was necessary to exclude the "pelvic blotch." It was of the greatest importance to differentiate between calculus in the appendix and in the ureter. To diagnose cancer in the abdomen they must empty the bowels and inflate with air where the cavity became translucent for *x*-rays, and cancer was distinctly shown.

Mr. Haldane, the Secretary of State for War, attended, as I predicted he would, the meeting at the Royal College of Physicians, convened by Sir Alfred Keogh, Director-General of the Army Medical Service. Sir Alfred repeated the account he gave at Manchester of his scheme for providing a medical service for the new Territorial Army. I noticed this in my letter of the 1st inst., so need not add much as to the exposition of his scheme, which elicited the encomiums of the War Minister on Sir Alfred's lucidity, which showed clearly the great strides brought about in the last few months by Sir Alfred Keogh's work. By means of diagrams Sir Alfred explained to the audience the relation which the modern organization of the R. A. M. C. bore to an army in the field. He called particular attention to army hospitals attached to each division, which in war would be at the head of the line of communications. The medical organization of the volunteer army, he added, was very incomplete. There was no hospital organization. Under the scheme the country would be divided into definite areas with medical officers, ambulances, general hospitals, and a sanitary branch. A guiding and directing staff would be provided. Physicians and surgeons were to be asked to lend their aid. About 23 hospitals of 520 beds would be established, each capable of extension. It was also proposed to establish a medical school for the Territorial Army.

Mr. Haldane then made an appeal to the patriotism of the profession as men of science to help them with the

scientific organization. They were trying, he said, to bring the army to the nation, to root it in the nation, to bring the two together, and as part of their plans had come to seek the co-operation of the profession. He ought to be gratified with the success of his appeal, for on the motion of the president of the Royal College of Surgeons, Mr. Henry Morris, the scheme was unanimously approved, and further on the motion by Sir F. Treves, the presidents of the two Royal Colleges were requested to form a small committee to confer with the Director-General on the best way of carrying the proposal into effect.

Some cases of plague are reported as having occurred in Glasgow in the same locality where in 1900-1901 there were 36 cases. Every precaution is again being employed to prevent its spread.

The action brought by Dr. Dakhyl against *Truth* has ended in a triumph for the journal, which had the courage to denounce him as a quack and expose the doings of the notorious Drouet Institute under his direction.

The German Emperor, to whom we are giving a hearty welcome, has conferred on Professor Koch the title of Excellency and Privy Councillor for his work on sleeping sickness. His Majesty's promptitude must be rather a shock to some of our officials, for what honors are bestowed here for scientific work are usually too late to benefit the recipient and are not infrequently delayed until death has stepped in to prevent the recognition.

Among the honors conferred on the King's birthday, Professor Clifford Allbutt is given a K.C.B., Dr. Allchin and Dr. W. J. Thompson of Dublin receive Knighthoods. Dr. Beatson, C.B., of Glasgow is promoted to the K.C.B. Col. F. L. Stephenson, M.B., receives a C.B.

Cinematograph illustrations of various nervous diseases were introduced at the annual meeting of the Middlesex Hospital Medical Society and liquid air experiments were also shown

Haddonsfield has made a successful campaign against infant mortality. For the 39 completed weeks of this year the infantile mortality was 85, as against 138 during the corresponding period last year and an average of 135 for the previous ten years. The ratio is considerably less than in the 76 great towns of the Registrar General's returns.

The death of Mr. Woodhouse Braine, F.R.C.S., removes a pioneer anesthetist, who at one time divided with Clover the practice of this specialty in London. He was one of the first to use nitrous oxide, which he continued to use in combination with ether, of which last he was an earnest advocate. For some 18 years he lectured at Charing Cross Hospital and taught practically the use of anesthetics there and elsewhere. But his interest extended over the whole of medical work. He was a vice-president of the Medical Society of London, which he for a long time served as secretary. He was president of the Society of Anesthetists for its first two years. He was also many years connected with the Royal Dental Hospital. Hosts of friends and admirers will miss him.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 21, 1907.

Underfeeding and Its Associated Ills.—D. Roberts considers this question with reference to gastric, intestinal, anemic, and nervous types of cases. He notes that the matter of underfeeding is generally overlooked. In the first place the present tendency of medicine is toward diagnosis of abnormalities existing in each and every organ. Underfeeding induces innumerable abnormalities of this nature, the fundamental cause of which is not considered. In the second place, underfeeding is corrected in some of our most valued forms of treatment and the true cause of the trouble is thus unknowingly removed. It is a difficult problem to decide just what constitutes underfeeding and what is the best method of determining it. The author has found that the caloric value and nitrogen contents of certain bulks of food as eaten may be accurately determined if the patient can state under cross-examination his usual habits for each meal, using simple units of bulk as measures of quantity. There are three chief causes of underfeeding, effort to save time and money, loss of appetite, and complaints referred to the stomach. The clinical picture of underfeeding is necessarily that of the various functional conditions to which it gives rise. The part of the body most affected by the general undernourishment depends on the constitution of the individual mind and body and on the work each part is called on to perform. The nervous system is most commonly affected as would be expected from its highly organized character. This is shown by deficiency or aberrancy of innervation or by some irritability or weakness

New York Medical Journal, November 23, 1907.

A Study of Sago Bodies and other Vesicular Elements in Massage Urine in their Relations to Diagnosis.—The conclusions of De Santos Saxe's paper are as follows: (1) Neither the occurrence of semi-solid masses nor the increased amount of massage material from the vesicles necessarily indicates the presence of vesiculitis. (2) The semi-solid bodies in massage urine derived from the vesicles include "sago bodies," "sugar granules," "skins," vesicular casts, and vesicular shreds. (3) Sago bodies, sugar granules, and skins occur in normal massage urine, when there is a hypersecretion and a certain (physiological?) amount of stagnation of secretion (spermatostasis) due partly to retention and partly to the absorption of the fluid portion of the vesicular contents. (4) Vesicular casts indicate a more marked degree of spermatostasis in the vesicle, due to an atony of the walls, and favoring infection, but do not indicate inflammation unless they contain pus cells, considerable numbers of vesicular epithelia and bacteria. (5) Shreds from the vesicle containing a mucoid matrix, pus, epithelia, and many spermatozoa occur in chronic vesiculitis. (6) The diagnosis of chronic vesiculitis is incompletely founded unless *stained smears* from the semi-solid vesicular bodies (when such are present) show the presence of sufficient number of pus cells, of vesicular epithelia, and of bacteria. The latter are usually streptococci, less frequently gonococci, occasionally staphylococci, and bacilli resembling morphologically the *Bacillus coli.*

A New Staining Method for Microorganisms.—H. G. Piffard calls attention to the effect of passing slides through a flame, in shriveling bacteria and thus obscuring their detailed structures. He has therefore devised the following method: A solution is made of the following: distilled water 100.0, pure cyanide of potassium 1.0, dry C. P. carbonate of potassium and rectified methylene blue of each 0.5. A small drop of this fluid is placed on the slide and a loopful of the desired bacterial or other culture added. The bacteria are gently mixed with the stain, the drop form of the mixture being preserved as much as possible. At the end of a minute a clean coverglass is laid on and pressed down, the excess fluid being absorbed with blotting paper. The preparation is now ready for immediate examination. Inasmuch as the above solution deteriorates it is better to dissolve the potassium cyanide in one-half of the distilled water and the other ingredients in the other half and mix when wanted. Comparative photographs show the great superiority of the new solution over those in common use.

The Use of the Parathyroid Gland for Paralysis Agitans.—W. N. Berkeley considers this question from the three viewpoints of laboratory work, autopsy findings, and clinical results. Only properly identified glands should be used. Most of the material on the markets is worthless. Human glands gotten at autopsy and ox glands alone are serviceable. Small doses must be given and continued over a long period. The author estimates that some seventy-five patients under his own care or that of his friends have been treated, but he has notes of only thirty cases. Of these two declined to continue the remedy; two have not been heard from; five denied any benefit; three showed temporary improvement only, and eighteen were progressively benefited during the entire period in which they were under treatment. The benefit consisted in diminished rigidity, lessened pain, salivation cured, shaking diminished or cured, voluntary control of the muscles greatly increased, and restlessness and insomnia nearly or quite abolished. The early cases in younger patients responded with more speed and completeness, but unfortunate bedridden patients who had suffered for fifteen years with the disease have quite often been remarkably helped. One man of fifty-five years, with a rapidly progressive type of the disease, bedridden for six months, restless, sleepless, and greatly discouraged, was able to sleep again in three weeks, and is now for nearly a year back at his work, going downtown every morning on the trolley alone.

Journal of the American Medical Association, November 30, 1907.

Opsonins in Normal and Pathological Sera.—N. B. Potter deduces substantially the following conclusions: 1. Wright's method of estimating the opsonic indices in bacterial infections is hardly accurate enough to compensate for the amount of time it requires. There is a general parallelism, however, between the opsonic indices and the clinical course in most cases, so that these determinations should be made when the results of inoculation cannot be controlled by the ordinary clinical methods of observation, when there are several

organisms present, and when the patient does not improve under the usual method of inoculation. 2. Its variations depend on (a) difference in normal sera, so that even with counts averaged from two, three, or more supposedly normal sera, it is not possible to prevent variations of from ten to thirty per cent.; (b) differences depending on the sources of the leucocytes, and (c) differences depending on counting different areas of a slide. 3. The leucocytes from patients, the subjects of bacterial infection, do not always agree in phagocytic activity with those from supposedly normal individuals. During recovery from some infections their activity surpasses that of the leucocytes of some supposedly normal persons, and during convalescence from some infections it falls to or below that of the normal leucocytes. 4. The inoculation of dead cultures of homologous or heterologous bacteria is helpful or curative in many local infections. Some patients with septicemia, however, recover without inoculations, so we must be careful in attributing recoveries to this cause. Some general and local infections are too severe to be thus helped. Some very chronic and obstinate local infections may be helped by inoculations, but it is probable that their response can be easily exhausted by too large, and perhaps by too frequent doses, and it is very doubtful if such advanced cases can be completely cured by inoculation.

Acute Unilateral Ascending Paralysis.—C. D. Camp reports a case of suddenly appearing and rapidly progressing unilateral paralysis in a patient given to alcoholic excesses. The paralysis appeared first in the left leg and passed upward to the arm and face of that side; there was mental confusion, but no aphasia, and the patient died in coma ten days after his admission to the hospital. Sensation seemed to be retained, so far as could be judged in the mental condition. The paralysis was preceded by a temporary spastic state, but later the limbs were flaccid. The patellar reflexes were exaggerated on both sides and tapping the tendon also produced a crossed adductor reflex (later lost on the left side), showing that the sensory routes were intact. The autopsy revealed no lesions to account for the symptoms except degeneration of some of the cells in the anterior horn in the lumbar region of the left side. Though the peripheral nerves were not examined, Camp is inclined to favor the diagnosis of a peripheral neuritis in this case.

A Fatal Liver Affection in Children.—T. D. Parke describes a disease of which he has seen eighteen cases, twelve fatal, within the last four or five years and which he has not seen described elsewhere. The characteristic symptoms were rapid abdominal breathing (air hunger), fast pulse, cessation of bowel movements, enlargement of liver and lowered temperature, restlessness, and expiratory moan. The symptoms were usually preceded for a few days by mucous or bloody mucous discharges. Tympany was marked in some cases, vomiting was present in a good proportion, in only one case was there any loose bowel action without purgatives, the temperature was subnormal at some time after the attack in most of the cases, in some it was at times very high. The only two constant symptoms, save in one mild case that did not show enlargement, were the type of breathing and the liver swelling. The latter was usually very marked. The urine was generally normal. There was no jaundice. A leucocyte count of 25,000 was noted in one case. Convalescence was slow. The intestinal mucosa in autopsy cases was hyperemic, the liver enlarged, and showing fatty degeneration. Bacteriological findings have been negative. Parke thinks that the disease was not confined to Birmingham. The treatment used was eliminative, but it seemed that no treatment was of any avail after the poison had gained a sufficient hold. The patients were apparently all infants. A number of cases are reported in detail.

The Cytology of Gonorrheal Discharges.—R. W. Taylor describes the cell forms met with: the predominant polymorphonuclear neutrophile, the occasional eosinophile which never contain gonococci and which may appear according to him at any stage of the disease, and the comparatively infrequent mast cells and other varieties. He notices the degenerative changes and the peculiar segmentations of lobes of the leucocytes, the "ball nucleated" white cells, the phagocytosis which may occur, etc. Although the literature of the subject is rather extensive, he does not see in these findings anything that is valuable as clinical aid or for therapeutic guidance. The detailed study of the cellular elements of gonorrheal discharges has contributed very little to our practical knowledge of the disease.

British Medical Journal, November 9 and 16, 1907.

Subcutaneous Injections of Air as a Means of Relieving Certain Painful Manifestations.—A. S. Gubb's experience is based on seventy-seven cases of sciatica and several cases of neuritis of the brachial plexus. The summarized histories are given of nine cases of sciatica. In nearly all of them excellent results were obtained. The pumping apparatus consists of the double-bulb arrangement familiar in the Paquelin cautery. Its capacity should be known. The air is pumped through a glass bulb containing sterilized cotton, and enters the tissues through an irido platinum needle carefully sterilized. The skin over the painful area having been sterilized, the needle is inserted through the skin, and as soon as it is evident that no vessel has been punctured, the insufflation is commenced. A rounded swelling forms around the seat of puncture, and when the air reaches a vascular or nervous sheath it rapidly spreads along it, and secondary swellings may form at a distance. These secondary ramifications are specially apt to form in the limbs, where the sheaths are more numerous. The skin at first becomes blanched, but this soon gives place to a pronounced redness, which persists for some hours. The air takes several days to undergo complete absorption, and under the influence of muscular contraction travels far and wide, so that the characteristic crepitation of "surgical emphysema" may be felt at spots distant from the seat of the original injection. No pain whatever is experienced, even when comparatively large quantities of air are injected, at most a sensation of distention, "pins and needles," or pin pricks. Cutaneous sensibility is at once diminished, the skin becoming more or less numb. The needle having been withdrawn and the puncture sealed by a drop of collodion, the next step is to massage the part. The subcutaneous air must be alternately dispersed and brought together again, especially over the painful spots. This massage is an indispensable part of the procedure, and must be conscientiously carried out; indeed, patients should be directed to repeat the process daily as long as any resonance remains. It is believed that the foregoing procedure causes elongation of the finer nerve ramifications, where they leave the subcutaneous tissues to enter the derma proper.

The Origin of the Facial Nerve.—N. B. Harman combats the theory advanced by Mendel in 1887 that the nerve supply of the facial musculature did not spring from the seventh nucleus alone, but contains a partial contribution from the oculo-motorius nucleus as well. The author's anatomical researches show that in the early vertebrates there is no facial musculature. With the development of eyelids and nictitating membrane, first observed in the sharks, the nearest available musculature is adapted for the service of these new eye appendages; this musculature is the muscles of the spiracle (the spiracle is the first gill-cleft behind the eye, and has its representative in man in the ear tube). In those sharks which have a small development of eyelids the filching of the spiracle muscles is of the smallest; in those sharks where the eyelids and nictitating membrane are highly developed, nearly the whole of the spiracle muscles have gone over to the service of these appendages, and the spiracle has become atrophied, and only remnants of the muscles proper to the lost gill can be traced. In these sharks the author traced the development of the spiracle musculature in a series of embryos; it was that common to every gill, and in more developed embryos the growth of the new eyelid musculature from the spiracle musculature was followed. In all these fish the nerve supply could be traced from the conjoined nucleus of seventh and fifth, a nucleus known to anatomists as the facial complex. The progressive growth of the stolen spiracle muscles in the service of the face can be traced to their full development in the facial muscles of man. From earliest to latest conditions they are arranged in two layers, superficial and deep, and there is always a most marked intercommunication of the many muscles of the face; in fact, the facial musculature is not made up of so many distinct muscles, but of two sheets of muscle which have many slips, and to these slips we give, for convenience of distinction, names, for example, orbicularis palpebrarum, levator anguli oris, orbicularis oris, etc. The incorrectness of this separative nomenclature cannot be better shown than by citing the orbicularis oris, which has been demonstrated to be nothing but the interlaced endings of the levator labii superioris, depressor labii inferioris, levator anguli oris and buccinator muscles, and not a separate entity at all. Harman declares that the Mendel theory contravenes the above anatomical findings in three respects: (1) the splitting of the muscular sheets which are a morphological unity into arbitrary areas, (2) the shifting of a primitive nerve sup-

ply, and (3) the shifting of nerve cells from a cranial nucleus of one order to nuclei of quite a different order. He therefore declares that Mendel is wrong.

Pleural Effusion and Its Treatments.—Sir J. Barr enters into an elaborate discussion of the physics of the pleural cavities, and then takes up the etiology of the disease. He believes that every case is due to microorganisms or their toxins. Those cases which follow cold or trauma have only thus been rendered vulnerable. The vast majority of cases are tuberculous, but some are rheumatic, due variably to pneumococci, streptococci, staphylococci, the *B. coli*, *B. typhosus*, or the organisms of influenza. Even cases of dry pleurisy are frequently tuberculous, though not necessarily so. In such cases there is a small effusion of plastic lymph, which is gelatinous in appearance and consistence, and contains a large number of cells with a relatively small amount of fibrin. This effusion quickly organizes, and joins the two pleural surfaces together. In tuberculous cases accompanied by effusion there is not much fibrin, and even the cellular elements may be small in amount. In pneumococcal pleurisy there is usually a large amount of fibrin whether there be much fluid or not. Those cases associated with streptococci, staphylococci, and *Bacillus coli* are frequently purulent or seropurulent, and contain a large number of cells, and in the case of the *Bacillus coli* the fluid is very offensive. In cases of transudation, the liquid contains a few endothelial cells and not much fibrin, and the specific gravity is below 1,018. There are many cases, such as those arising in chronic Bright's disease, when the effused fluid is a mixture of a transudate and an exudate. The questions of symptomatology and diagnosis are passed over, and that of treatment is then taken up. The author is not an advocate of too early tapping, and introduces air to take the place of a certain amount of the fluid—say one-half to three-fourths. He completes the operation by throwing in, to contract the vessels and lessen secretion, 4 c.c. of adrenalin sol. 1-1,000, diluted with 8, or 10 c.c. of normal saline. Salt should be eliminated from the diet. In cases with much effused fibrin, decalcifying agents, such as lemons, the citrates, etc., may be given. Injections of trypsin may hasten the solution and absorption of this fibrinous effusion. Injections of liquid paraffin may prevent adhesions. For empyema, the usual surgical intervention under eucaine anesthesia is commended. The variety of organisms in the pus should be ascertained, and an appropriate vaccine, according to the Wright method, should be employed. Cases of pneumothorax are best treated by drawing off the fluid and filling the cavity with sterile air or oxygen. Tuberculous cases are the most troublesome, and usually when the fluid becomes purulent there is a mixed infection. The paper of Barr is interesting throughout and well worthy the attention of every medical practitioner.

Red Light and Iodine Paint.—J. D. Brunton declares that if iodine be painted on the skin in the dark and only a red light be used, such as is given by an ordinary photographic lantern, there will be quick absorption. The skin will be neither discolored nor blistered even under prolonged use. The part painted should be immediately covered up, as exposure to any white light fixes the iodine in the skin.

The Saccular Theory of Hernia.—R. W. Murray discusses hernia and comes to the following conclusions: When absolute demonstration is impossible our opinion should be guided by what is most probable, and it seems that if the etiology of femoral hernia be considered in the light of common sense, the saccular theory offers the only satisfactory explanation. The etiology of abdominal herniæ is not merely of academic interest, but has an important bearing upon the question of treatment. A surgeon who believes that the chief factor in the production of the hernia is the presence of a preformed sac, would, in operating for a radical cure of the complaint, adopt less complicated measures than would be adopted by one who believes that the muscular and aponeurotic structures of the abdominal wall are primarily at fault. Direct evidence as to the exact manner in which a hernial sac is formed in the femoral or other regions is not obtainable, "but the conclusion forced upon the mind by an unbroken train of circumstances pointing in the same direction is often more forcible than positive direct testimony, for witnesses may be mistaken, deceived, or deliberately false, while circumstances 'cannot lie.'"

A Simple Operation for Uncomplicated Oblique Inguinal Hernia in Young Adults.—The operation proposed by G. L. Chiene is thus described: An incision is made half an inch above and parallel to the middle third of Poupart's ligament, the center of which corresponds to the position of the internal abdominal ring. This incision exposes the external oblique muscle which is incised in the direction of its fibers and retracted, thus exposing the lower portion of the internal oblique muscles and the upper portion of the cremasteric. The fibers of the latter are divided in the same direction as those of the external oblique muscle. The lower edges of the internal oblique and transversalis muscles are then retracted upwards and outwards and the transversalis fascia exposed. This fascia is dealt with in the same manner as the external oblique and cremasteric muscles. The neck of the sac is thus exposed at the internal ring. It is freed from the cord, opened, and divided. The neck is ligatured and fixed to the under surface of the abdominal wall, above and external to the internal abdominal ring, the rest of the freed portion being cut off. This concludes what is sometimes termed the "first stage" of the operation. The second stage consists in suturing the split fibers of the external oblique by the overlapping method and closing the skin incision. In some cases the fibers of the cremasteric muscle are drawn together with a single stitch, but in the majority they will fall into apposition naturally. It will be noted that the internal oblique and transversalis muscles are left untouched, also that the sac, with the exception of a small portion at the internal ring, is left *in situ*.

Motile Elements Seen in Certain Cerebrospinal Fluids.—F. C. Eve notes that when certain pathological cerebrospinal fluids are examined fresh under an oil immersion lens there may be seen minute filaments with very active lashing movements simulating spirochetes. These may be seen to originate from the degeneration of leucocytes, which extrude finger-like processes, which become long filaments, which in turn run into rows of spherical beads. These three stages are to be regarded (presumably) as surface tension effects, the first two stages being in unstable and the last in stable equilibrium. The motility of the filaments, though very lifelike, may possibly be explained as the resultant of the Brownian movement of a number of beads on a string, each bead trying to oscillate independently. Motile globular bodies consisting of one or more spheres variously linked by filamentous junctions are often seen in cerebrospinal fluids, sometimes in large numbers. These originate in the same way as the filaments. The occurrence of these filaments and motile globular bodies may prove worthy of note clinically when found in quite fresh cerebrospinal fluid, as they may then afford evidence of cell degeneration *intra vitam*, or be an index of degenerative changes in the central nervous system.

Congenital Weakness.—P. Budin says that prematurely born children are not easy to bring up. The internal organs are not well developed and not capable of functioning properly. The lungs inhale air only into the bronchial tubes, not into the alveoli. The gastrointestinal system does not act properly and assimilation is poor. There is marked muscular weakness, a soft transparent skin, of a bright red color, that allows the blood-vessels to be seen through it. Temperature is subnormal, and they are subject to attacks of cyanosis ending in death. The weight is less than normal, and those that weigh less than 2,000 grams are pretty sure to die. At the same time, some infants of small weight are perfectly developed and their organs function properly. Others are undeveloped on account of hereditary conditions such as syphilis and tuberculosis. It is most important that such children should not be allowed to cool even to the normal temperature of the air, since a condition of hardening of the tissues comes on that is generally fatal. To keep them warm they are wrapped in cotton under their clothing, though allowed free movement, and they should be placed in an incubator kept at a temperature of 28° to 30°C. The feeding is most important, and mother's milk is absolutely necessary, and must be given with a spoon, since the weakness of the infant prevents him from drawing the milk from the breast. Every two hours the child should be removed from the incubator to feed and change it. If too much food is given, diarrhea and gastrointestinal troubles will end the patient's life. In case of cyanosis, artificial respiration becomes necessary, gently performed. They must be guarded against contagious diseases, since they easily succumb to them. *Annales de Médecine et Chirurgie Infantiles.*

Book Reviews.

Foods and Their Adulteration. Origin, Manufacture, and Composition of Food Products; Description of Common Adulterations, Food Standards, and National Food Laws and Regulations. By Harvey W. Wiley, M.D., Ph.D. With eleven colored plates and eighty-six other illustrations. Philadelphia: P. Blakiston's Son & Co., 1907.

While scientific readers are well provided with technical literature on the subject of food sophistication, the layman has received but little attention at the hands of the writers on this topic. The present era of investigation of the character of the food stuffs presented for sale is likely to arouse more or less curiosity in the minds of all intelligent persons, and Dr. Wiley's experience has fitted him to be an excellent expounder of the sins of omission and commission that have been laid at the doors of the purveyors of what we eat and drink. The present volume represents only half of what is in contemplation, however, for another volume is to be devoted to the beverages and their adulterations. This volume will probably serve well its purpose of instructing the average reader, for it is written in clear language, with avoidance of technical terms and with an interesting manner of presentation. In fact, the author's hope expressed in the preface, that the consumer and the manufacturer, the scientific and the general reader will all find in it something useful is more than realized and the book is one that would form a useful adjunct to every physician's library. No doubt the problem of elimination has been a difficult one, but we fear that at times the author's anxiety to make the work suitable for general perusal has caused him to forget for the moment that it will also be expected to serve as a guide by many special workers in this field. For example, in the section on the identification of the different sorts of meat the precipitin method, which is undoubtedly the most reliable, deserves at least a mention. The chapter on milk, which should certainly, owing to the importance of the subject and to public interest in it, be one of the strongest, is one of the weakest in the book. The subject of milk adulteration is very inadequately dealt with, there is no description of the use of the lactometer, the Babcock fat testing method, the detection of the many widely used preservatives—often containing formaline—that are added to milk, no discussion of the differences in the product yielded by cows of different breeds, etc. For the most part, however, the volume is both interesting and instructive and will no doubt do much toward educating the public in regard to a most important subject.

Einführung in die gerichtliche Medizin für praktische Kriminalisten. Vier Vorträge von Dr. Hugo Marx, I. Assistent der Unterrichtsanstalt für Staatsarzneikunde an der Universität und II. Arzt der Untersuchungsgefängnisses Moabit in Berlin. Mit 14 Textfiguren. Berlin: Verlag von August Hirschwald, 1907.

The titles of the four lectures comprising this little book on criminology are as follows: The place of the deed; methods of violent death; crimes of specifically sexual character; and in the laboratory. The author maintains that medical investigations of crimes should be conducted by competent medical men or under their direction, and not left, for example, to chemists, whose field should be restricted. The methods of investigation to be pursued are carefully and logically described; and the book, used in connection with larger works, will be found both convenient and practical by the criminologist.

A System of Medicine, by Many Writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; Fellow of Gonville and Caius College, and Humphrey Davy Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital and to the Victoria Hospital for Children; Sometime Fellow of St. John's College, Cambridge. Volume II., Part II. Tropical Diseases and Animal Parasites. London: Macmillan and Co., Limited: New York: The Macmillan Company, 1907.

This volume, which is the third in the series of the new edition of Allbutt's System, is devoted to tropical diseases, but includes also a consideration of the animal parasites, some of which, especially the helminths, are more or less cosmopolitan, their habitat having a tropical temperature in whatever part of the world their hosts reside.

The volume opens with an introduction by Sir Patrick Manson, following which is a very interesting series of articles on Protozoa and on Mosquitos, Blood-Sucking Flies, and Ticks, which are known or likely to be concerned in the transmission of the pathogenic agents of disease. In the section on tropical diseases and those originating in the tropics and subtropics and prevailing at times in temperate regions during the warm season, are articles on Trypanosomiasis, Sleeping Sickness, Kala Azar, Malaria, Blackwater Fever, Tick Fever, Spotted Fever of the Rocky Mountains, Yellow Fever, Dengue, Japanese River or Flood Fever, Plague, Malta Fever, Cholera, Dysentery, Sprue, Hill Diarrhea, Tropical Liver, Tropical Abscess of the Liver, Ponos, Beriberi, Epidemic Dropsy, Leprosy, Yaws, Verruga, Ulcerating Granuloma of the Pudenda, Oriental Sore, Climatic Bubo, Ainhum, Goundou, Tropical Diseases of the Skin, Latah, Sunstroke, and Snake-poison and Snake-bite.

In the list of names of the authors of these articles are found those of all the best-known British authorities on tropical diseases, including Manson, Sambon, Leishman, Davidson, Cantlie, the late Sir Joseph Fayrer, Sandwith, J. W. W. Stephens, and many others. Two American authors contribute to the volume: W. S. Thayer of Johns Hopkins, and Flexner of the Rockefeller Institute, the first writing on malaria, the second on dysentery. The article on Rocky Mountain Fever is not by an American; it is a good article, but it would have been more authoritative had it been penned by one familiar with the disease from personal observation.

The articles on the animal parasites are: Psorospermosis, by W. Bullock, Worms, by Sir Patrick Manson and A. E. Shipley, Bilharziasis by F. L. Sandwith, and Hydatid Disease by E. C. Stirling and J. C. Verco.

The volume is extremely interesting and contains a vast amount of information, not only of value in a practical sense but stimulating also to the searcher after the curious. For example, it is interesting, and somewhat terrifying, to learn that there are at least 82 genera of mosquitos, with no end of species, though fortunately not all of them are credited with the power of transmitting disease, only eight genera (with their many species) being as yet known to be of medical interest—but nearly all of them bite. The sections on the disease-bearing insects and on the animal parasites are well illustrated. The white man's burden includes not only civilizing the natives of the tropics and introducing among them the vices of the superior race, but also relieving their physical ills and curing their diseases, and as a means to the latter end this volume will be found most serviceable.

Diseases of the Rectum; Their Consequences and Non-surgical Treatment. By W. C. Brinkerhoff, M.D. Chicago: Orban Publishing Co., 1907.

This little volume of two hundred pages represents the author's views on the injection method of treating hemorrhoids and is evidently written for the layman as well as the practitioner. The writer takes occasion to flay the profession at large for their slipshod diagnoses and their too frequent recourse to surgery. He is of the opinion that his method is the best in the vast majority of cases and he cites case histories galore where he has succeeded and others have failed. He tries to prove that the Andrews report on the injection treatment was based on inexpert evidence. A few pages are apportioned to apoendicitis, constipation, polypi, abscess, and fistula, and there are four plates, three of which illustrate the author's instruments.

Diseases of the Intestines and Peritoneum. By Prof. Dr. Hermann Nothnagel, late Professor of Special Pathology and Therapy, University of Vienna. Edited, with Additions, by H. D. Rolleston, M.A., M.D., F.R.C.P., Physician to St. George's Hospital, and to the Victoria Hospital for Children, London; Sometime Fellow of St. John's College, Cambridge. Second Edition, Thoroughly Revised. Authorized Translation from the German, under the Editorial Supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1907.

It is certainly a compliment to a work which deals with such a limited portion of the human anatomy to have the demand necessary to require a second edition within three years. The changes in this issue do not materially alter the text; in fact, the editor has, quite rightly, respected the author's work and has confined his changes to only such subjects as demanded it. The march of science compels certain additions, while the omissions are limited to dropping a few case histories. The author again has as collaborating editors Mr. D'Arcy Power and Dr. A. Jex-Blake, who have dealt especially with the subject of intussusception and the introductory sections.

The new edition is brought thoroughly up to date and the editor quotes extensively from the English authorities, particularly where they differ from the continental writers. The general attitude on the subject of operative interference in appendicitis is, as in the first edition, more conservative than it is with the leading American surgeons. The work is thorough and exhaustive and makes an excellent reference work, but by virtue of its bulk and many-sidedness loses some of the directness in its teachings.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held November 21, 1907.

THE PRESIDENT, DR JOHN A. WYETH, IN THE CHAIR.

Six Cases of Malignant Endocarditis.—Dr. ALFRED MEYER read this paper. (See page 925.)

Some Surgical Aspects of Malignant Endocarditis.—Dr. JOSEPH A. BLAKE read this paper. (See page 943.)

Malignant Endocarditis in Children.—Dr. WM. P. NORTHRUP presented this communication. He said he had been asked to report regarding the frequency of malignant endocarditis in children. It had been his privilege to serve as pathologist to the Foundling Hospital for twelve years; this hospital had an annual death rate of 300 or 400, and during that time he had encountered but one case. Dr. J. Lewis Smith saw a mysterious case which was brought to the hospital with the history that the patient had been very sick, but with manifestations that could not be determined. At autopsy the house physician carelessly threw the parts into a bottle of Müller's fluid, but fortunately the heart was in good condition for examination and he found it to be the seat of an ulcerative malignant endocarditis. The condition of the other viscera could not be determined. The heart lesion was typical, with the little nipple hanging from the mitral valve. This was the only case at the Foundling Hospital, and it occurred during his first two years' service there as pathologist; during the following ten years he knew of no case, although he had been constantly on the lookout for one. Dr. Northrup said he had searched the literature for other cases and he had also looked over the records of the Presbyterian Hospital. There he had found records of three cases more or less incomplete. In some blood cultures were obtained with growth, but there had been no autopsy; in others there had been no autopsy and no growth, but the characteristics of the disease were almost typical. These three cases were not worth while dwelling upon. Dr. Northrup wished to emphasize the scarcity of cases of malignant endocarditis in children; they were very rare. In all the cases examined, with one exception, he had failed to find a valvular lesion. The ages of the patients at the Presbyterian Hospital were 9, 11, and 12 years, respectively; those at the Foundling Hospital were four years and under. It might be safely stated that malignant endocarditis was rare under four years of age.

Practical Significance of Our Knowledge of Bacteria in Their Relation to Malignant Endocarditis.—Dr. AUGUSTUS WADSWORTH read this paper. He said the lesions in malignant endocarditis varied greatly, but were usually situated in the left side of the heart. At autopsy the lesions often showed all degrees of infiltration, hyperplasia, and necrosis. The etiology of endocardial inflammations had long been studied and was the seat of vague speculation. The trend of opinion was that acute endocarditis was an infectious disease, symptomatically and anatomically, with wide variations. The results of bacterial examination in malignant endocarditis were well known; there were to be found pneumococci, streptococci, staphylococci, and gonococci. With malignant endocarditis and its bacterial excitants various other diseases were associated. Pneumonia and sepsis of puerperal form were most commonly associated. Practically all the more common infectious diseases of man might complicate an endocardial affection. Whether they extended from the blood stream, or from the endocardial supply, or developed as a secondary bacteriemia or pyemia infection arising in previous infectious disease, was not definitely known. The infectious diseases acted as predisposants in the etiology of malignant endocarditis. It was remarkable the rapid and complete recoveries from injuries that took place when the interior of the heart was injured by passing an instrument into it through the aorta. Definite clinical and experimental evidences had suggested the development of malignant endocarditis in the course of infectious diseases in man and was determined by previous lesions of the endocardium. This might be of recent development or of long standing. Hence the occurrence of infectious processes in the individual with the simplest valvular lesion was of practical interest both to the surgeon and the physician. Fever in malignant endocarditis might be considered as conservative on the course of the disease. The administration of serum from immunized animals had practically failed to be of material value. Such methods now were little used, or only in an experimental way. Recently the administration of vaccines to secure the maximum immunity by the body cells had been revived. As yet, however, they had no reliable specific treatment that was available. In the present state of our knowledge each case was a problem by itself.

DR. DAVID BOVAIRD, JR., said that much objection had been made to the term "malignant endocarditis" as not being properly applicable to the cases they were dealing with. They were dealing with endocarditis as well as an infection of the blood. Therefore, these two elements were concerned in every case of malignant endocarditis, the endocarditis, and the blood infection. So far as their present knowledge went endocarditis was a primary affection. In these cases the more one studied them the more was one convinced that the patients were suffering from chronic endocarditis, and that in some way the already injured cardiac valve had become infected by the lodgment upon it of bacteria; in other words, it was an infective endocarditis. There was an endocarditis that had become secondarily infected. These two conditions formed the so-called malignant endocarditis. With regard to the petechial eruption, he believed that was a reliable sign in the development of malignant endocarditis, especially when found in the conjunctiva. This observation, first brought out by Dr. Janeway, was of great interest and distinctly helpful. As to the chronicity of the disease, at the Presbyterian Hospital three cases lasted six months and one practically covered one year.

DR. N. E. BRILL said that "malignant endocarditis" did not constitute a pathological or clinical entity. It was not a pathological entity, because all of its manifestations might be produced by a number of entirely different microorganisms as the streptococci, pneumococci, gonococci, staphylococci, and others. It was not a clinical entity because its entire symptomatology might be reproduced by a bacteriemia superimposed upon an old cardiac valvular lesion without the diseased valve being affected, and from which bacteriemia it was possible for the patient to recover. It was possible that such cases might represent the "recoveries" from malignant endocarditis. Dr. Libman had reported a patient with post-partum sepsis in whom a blood culture showed a bacteriemia. She had a cardiac murmur, together with the characteristic signs of "malignant endocarditis." After death the heart showed an old valvular lesion, but with not the slightest signs of a recent endocarditis either on the old diseased valve, where it might be expected, owing to the fact that a diseased valve is especially liable to bacterial infection, or elsewhere in the heart. In the light of present opinion one must accept that almost all cases of acute endocarditis are secondary to a bacterial infection. While it was true that the offending organism had not been recovered in all the cases, and that in some cases the primary focus of infection might be concealed, yet their absence did not necessarily invalidate the conclusion, especially where there was such a vast accumulation of presumptive and prima facie evidence to support this view. The difference between the non-fatal and malignant types of acute endo

carditis was one of degree, depending to a large extent on the type and virulence of the organism and its toxins, and on the resistance of the endocardial tissues and their defenses against bacterial invasion. One might say that the grave or so-called malignant type of endocarditis was the result of a greater malignancy of the systemic and local cardiac infection. Clinically it might present itself in relation to the degree of bacterial virulency and tissue resistance in an acute, subacute, or chronic form. There were two distinctly clinical types depending upon the ascendency of the heart lesion, or the predominance of the signs of systemic reaction to the bacteriemia. The one was the type in which the heart symptoms were the prominent clinical features and the septic symptoms not markedly obtrusive. These cases were not infrequently secondary infections superimposed upon an old valvular lesion. The other was the type in which the chief symptoms were those of a violent septicemia, with or without a heart murmur. It was possible to have a marked valvulitis with soft vegetations without a cardiac murmur being demonstrable. A number of such cases with post-mortem proof had been reported. The signs of sepsis might vary, as they did in other forms of systemic infections, so as to present either prominent cerebral symptoms, like a meningitis, or typhoid-like symptoms, or symptoms of pyemia. Embolic processes might occur in all the types and give rise to suppurative or non-suppurative infarcts with their additional regional or focal symptoms. A symptom occasionally present and not touched upon was the painful swelling along the course of some of the smaller arteries which might be due in some cases to mycotic aneurysm formation from an embolic piece of bacterium carrying heart vegetation, in others to embolic aneurysms, and perhaps in the third class to a focal arteritis and periarteritis. As the superficial lymph nodes enlarged in many other forms of systemic bacterial infections, they should be looked for in all cases of suspected grave endocarditis. Not infrequently were the bronchial lymph nodes, especially at the root of the lungs, found to be enlarged and swollen. Leucocytosis might or might not be present in this disease. In fact, a diminished number of leucocytes in the blood might be noted. He asked if one might not infer, as one did in pneumonia, a much more rapidly fatal termination when leukopenia was present. In the light of what had already been said and published in regard to the presence of conjunctival and palmar petechiæ in assisting in a diagnosis, it should be remembered that such petechiæ did occur in other conditions than malignant endocarditis. He had recently seen a case of acute pneumococcus endocarditis which presented painful hemorrhagic infiltrations in the depths of the skin of the feet and hands, a very uncommon symptom of the disease. In conclusion he said he wished to insist upon blood cultures being taken in all cases of acute endocarditis as a routine practice. Bacteriemias with heart murmurs, chills, pyrexia, petechiæ, and other signs of sepsis did not necessarily constitute the malignant form of endocarditis. A bacteriemia might occur as a secondary affection in a chronic case of endocarditis and recovery follow. There existed a form of chronic endocarditis which might be accompanied by an irregularly intermittent fever and other acute symptoms which might last for months without a demonstrable bacteriemia and which might be fatal either on account of the perverted dynamic circulatory disturbance or from the result of the pyrexia.

Dr. E. G. Janeway said he had been interested for many years in this subject of malignant endocarditis, or septic endocarditis, or bacterial endocarditis, or simply "endocardial fever." He had seen cases running eight months and even one and a half years before death. He reported one case, a man who came to his office complaining of chill, fever, and sweating; the temperature was from 105° to 106°. No plasmodium was found in the blood. The man returned and had no fever and no plasmodium. At his third visit he had a temperature of 100° and a pulmonaric systolic murmur added to a pulmonic regurgitant murmur. He was sent to St. Luke's Hospital, where he was treated. He finally recovered. He now had a pulmonic insufficiency. This was an infection from the gonococci. Since then he had had another case and he felt sure would recover from his septic endocarditis because it was of gonorrheal type. He said it was well to bear in mind the type with hemorrhages, because of the difficulties encountered in diagnosis; this type was likely to be mistaken for hemorrhagic types of the infectious diseases, particularly cerebrospinal meningitis, purpura variolosa, and typhus fever. He reported an instance of malignant endocarditis occurring in a young lady who died the day after he saw her. She had been having hemorrhages from the nose and a plug had been inserted; the infection was from this source. He saw in consultation with a fellow of the Academy a gentleman who had an apparent cough, heart murmur, and a temperature of 103°. He lived three months. The blood culture revealed a streptococcic infection. A point of interest was that he had been insured three months before and the doctor found no heart trouble at all. He had taken to violent bicycle riding. The diagnosis from typhus fever was very difficult, but the development of the petechiæ on the conjunctiva was of great service. But at times one met with cases that were not easily diagnosed. He reported one case of malignant endocarditis resulting from an ulcerated tooth; there was a little abscess at the root. Another case was treated for months as one of malarial fever; the chill, fever, and sweat occurred regularly every day. In this case the question of ulcerative endocarditis was never considered. Dr. Janeway emphasized the fact that because a man had an embolism, heart disease, fever, petechiæ, etc., did not necessarily mean that he was going to die. With regard to making blood cultures, this might do very well in hospital practice, but it would not be tolerated in private practice; it hurt somewhat the feelings as well as the sensibilities of friends. He could not report any satisfactory results from the serum treatment, but he hoped for a more sure plan of treatment soon.

Dr. F. P. Kinnicutt said that his conception of acute endocarditis was that it was always of infective origin and nature, was almost always secondary, and provoked under varying circumstances by different microorganisms, the pyogenic bacteria being the most common. This conception of the nature of endocarditis did not admit of a sharp line of division between the so-called malignant endocarditis and the less acute and grave forms. There was, moreover, no essential anatomical difference, as all gradations were met with. The malignancy, the severity, the benignance of the individual case was one of degree rather than of kind and seemed to depend upon the varying virulence of the infective agent and the varying natural body resistance to the different pathogenic microorganisms and their toxins. The clinical history of many cases of chronic endocarditis as seen in the hospital wards was one of apparent recurrent or reinfections of presumably nutritionally weakened and sclerotic valves. Here again, he believed, in proportion to the varying virulence of the infective organism and the varying natural body immunity, they observed the malignant type, presenting all the symptoms and signs of grave septic infection; a less severe type with a temperature curve somewhat resembling that of typhoid fever, commonly, however, exhibiting a slightly lower range. The fever might extend over a period of several months and was often followed by a long interval of fair health. Finally they saw a comparatively mild type in which fever was the only symptom. The curve resembled that associated with slightly active tuberculous processes in the lungs. The morning temperature might

be normal and the diurnal rise not more than one or two degrees. As in the former variety the fever might be of very long duration and be followed by long periods of good health. According to his conception, even the mildest forms represented a toxemia of bacterial origin. In regard to the use of vaccines in the treatment of the gravest types, he said that in four recent cases of malignant endocarditis in the Presbyterian Hospital vaccines prepared according to Wright's method had been used without appreciable benefit. Nevertheless, since they possessed authentic reports of several cases treated by Wright and his colleagues with entire success, when all other methods had failed, it seemed to him proper that further trial should be made of the vaccine treatment in similar cases. As he understood Dr. Wadsworth, he believed that the opsonic index was impracticable and untrustworthy as a guide in the use of vaccines. He was prepared to admit that it was impracticable for general use. As he saw it used a few weeks ago by Wright in his service at Westminster Hospital, he was not prepared to admit that it was an untrustworthy guide. That some guide was necessary for the intelligent and efficient use of vaccines he thought would be generally admitted.

Dr. A. G. Gerster said that there was one heart affection which was apt to lead to confusion, an undetermined general septic endocarditis which was to be diagnosed from pyclophlebitis, or an infection of the renal vein. So far as the practical side of the question was concerned, septic endocarditis as it affected the surgeon, there were certain groups of infections in which the surgeon's opinion might be called for. First, the infarcts. These generally occurred in the lungs or the various glandular organs; sometimes they affected the intestines. Secondly, there were the embolisms which might produce aneurysms, or necroses of extremities. The question arose, was it worth while to do something for such an aneurysm? Was it a true septic or an ordinary form of endocarditis? They should do something if the indications were well made out and if the patient suffered. If the aneurysm was ready to burst, something should be done. Again, if they were dealing with necrosis of an extremity, something should be done. Third, there were the various forms of suppuration, and perhaps these were most frequently encountered by the surgeon. Here the same principles obtained. If the sufferings of the patient demanded it, interfere. One must individualize in these cases in answering the question, whether or not the surgeon should interfere. Dr. Gerster related his personal experience in one case, where he interfered in a case of septic endocarditis. In this patient bacteria were found in the blood. The patient had the characteristic cardiac lesion and an osteomyelitis. The joint was incised and the patient seemed to improve. The fever diminished, the general condition became better, and he was hopeful after all that recovery might ensue. Suddenly symptoms of empyema of the pericardium set in and rupture occurred into the mediastinum. This was a true case of ulcerative malignant endocarditis.

Dr. M. Nicoll, Jr., said that, in the Foundling Hospital, he had never seen a case with valvular involvement, and in many thousand autopsies the only case he knew of was the one reported by Dr. Northrup. At the North Brother's Island hospitals the records were not complete and could not be relied upon. Therefore, septic endocarditis was an extremely rare disease either with or following diphtheria, scarlet fever, or measles in childhood. They met with many heart murmurs, but the children died from sepsis.

Dr. Harlow Brooks said that if routine blood cultures were made in those cases in which heart murmurs were associated with fever, one would be surprised to learn the number of cases in which they would prove positive. The prognosis of bacterial endocarditis was not so terrible as believed. The absence of bacteria in the blood as shown by the ordinary methods must not be taken as negative evidence. He did not believe they could determine the toxicity of the disease by counting the bacteria found. The mildest case he saw was one in which he isolated the streptococcus; because the case was so mild he asked for another count and found the streptococcus. Therefore, because one found the streptococcus in the blood, one should not throw up the hands and expect an autopsy. As to the time for taking the culture, it was best taken when the fever was high. With regard to finding bacteria in the urine, he thought that the urologist could teach them something; in doing ureteral catheterization bacteria were found quite commonly in the urine. It should be borne in mind that death in endocarditis was due to one of two conditions, either a toxemia from the growth of the bacteria or the products of metabolism, or from an embolism.

Dr. James Ewing said that an injury first to the valves of the heart was first necessary before a malignant endocarditis could develop. Prudden had shown that it required but a slight traumatism to develop endocarditis when bacteria were present in the blood. He asked what should they call malignant endocarditis. The term should be limited to those cases in which the heart condition and valvulitis were more or less in the background and septicemia in the foreground.

Dr. Thomas W. Hastings said that, with regard to the possible use of the bacterial vaccines, he was glad to hear Dr. Janeway and Kinnicutt say they would continue using this form of treatment. In Wright's cases he seemed to get good results. The use of the vaccines gave no bad results. But one should give them carefully, after they had been properly prepared, and then no untoward results would follow. This harmlessness was a point that should be more emphasized.

Dr. E. Libman said that the term malignant was one that was applied to a type of disease that led to death, and the disease they were dealing with was endocarditis. To show the relation of bacteria to endocarditis, he said that among 150 cases there were 60 that showed bacteria in the blood and 90 that did not. The results of bacterial invasion of the blood gave rise to different types. A person might have many bacteria in the blood, with symptoms of malignant endocarditis, but at post mortem nothing would be found. There might be a bacteriemia with but a slight effect upon the endocardium. Another type was that in which bacteria might be found in the blood, and an endocarditis, the disease lasting days or weeks. Here the valve was attacked by the bacteria and the clinical picture depended upon what happened. Either they multiplied in the blood or became localized on a heart valve and set up trouble, with the clinical picture of an endocarditis. Very often one found a large number of bacteria in the blood and a lesion of the valve. When there were a great many bacteria in the blood there might be an enlargement of the lymph nodes all over the body. This was an acute type of the disease. One might meet with a chronic endocarditis with fever and no bacteria demonstrable in the blood. There was also a very important set of cases that had not been studied thoroughly in recent years, a chronic endocarditis in which one found the organism covering a period of weeks or months. Here the heart symptoms were the predominant symptoms. The organisms in acute cases were mostly the pneumococcus, staphylococcus, and streptococcus. He had seen one case the result of a diphtheroid bacillus. In those cases that ran weeks or months they found a peculiar attenuated streptococcus or diplococcus. As to the terminology, they called the cases acute, subacute, or chronic endocarditis. They added the word grave if it was a bad case. If they found a certain organism, they called it by name. In this way the name applied gave an insight into the nature of the disease. As to the diagnostic value of

bacterial findings in these cases, in the acute cases he did not think one should make a diagnosis unless bacteria were found in the blood. It never took more than two cultures to make a diagnosis. In the subacute or chronic cases it might be necessary to make more. In an extensive pyelophlebitis no bacteria, as a rule, was found in the blood. In the severe forms of endocarditis one always found bacteria in the blood. This was an important differential point. As to treatment it did not seem to him that the vaccines were indicated in the acute types of the disease, but in the subacute or chronic types; these he believed to be the ideal diseases for treatment by vaccines if the vaccines were ever useful.

Dr. Northrup said there were clinically four diseases which in their beginnings simulated each other, typhoid fever with early hyperpyrexia, typhus fever, cerebrospinal meningitis, and ulcerative malignant endocarditis. As for the production of petechiæ, he asked if the pathologists thought they were due to emboli, to toxin, or to both. It seemed to him that toxins could account for some petechiæ.

Dr. Wadsworth closed the discussion.

SECTION ON SURGERY.

Stated Meeting, Held November 1, 1907.

DR. JOHN F. ERDMANN IN THE CHAIR.

Abscess of the Frontal Lobe.—Dr. FIELDING LEWIS TAYLOR said that the patient whom he had intended to present was operated on nearly fourteen months ago by himself and Dr. A. B. Tucker, for a very large chronic abscess of the right frontal lobe, due to an injury received four months previously. Except for a persistent optic neuritis of some severity, he appeared to have recovered completely. He lived in an inaccessible place about one hundred miles away, so that he had seen him only once during the past year, although he received most satisfactory reports concerning him on several occasions. Yesterday he was disappointed to learn that he had been taken ill suddenly with convulsions and died two days later. He will report the case in full later.

Large Cavity in Skull.—Dr. C. A. MCWILLIAMS presented a woman who, as the result of a fall, had a large cavity in her skull about two inches deep. He brought her before the Section in order to obtain suggestions as to the best method of closing it.

Dr. ROBERT T. MORRIS said that in such head injuries the use of peroxide of hydrogen was invaluable as a preliminary step for sterilizing the field. Curetting should then be done, dissecting up the margin of the skin and filling the cavity with blood clot; there should be no question of filling in the cavity completely without difficulty, provided one used Lister's oiled silk. When Schede first saw this demonstrated, he was skeptical; but after seeing the results in a number of cases, he employed the method in even larger openings than the one presented. Another method might be used, that with decalcified bone and iodoform. It was very essential that the skin should be dissected up so that the epithelium could shoot across.

Dr. CHARLES H. PECK said he would be inclined to cover in the opening with a pedunculated skin flap, and cover the surface left with a skin graft.

Intussusception (Adult) Caused by Papilloma of the Sigmoid. Resection.—Dr. C. A. MCWILLIAMS presented this patient, a woman, forty-five years old, who was admitted to the hospital May 10, 1907. She had been sick off and on for four weeks. At first she had dysentery, passing some blood; she also had pain. This attack lasted one week. One week before admission she began to have pain in the back and left lower abdomen. During this week her bowels moved but once, although she had a discharge of blood. There was much nausea. During the first part of the week she vomited, but not during the last two days. Dr. DeWitt C. Romaine, her attending physician, in a letter to Dr. McWilliams, said that one month ago she had eaten heartily of cream cheese and ice cream, which was followed by an attack of acute indigestion, treatment of which relieved the symptoms. A similar attack followed later after eating freely of hash. The treatment failed to relieve the diarrhea; it continued three or four days, and then stopped suddenly, May 8. That night she had a moderate hemorrhage from the bowels, which was followed by intermittent colicky pains in the abdomen, constipation, tenesmus, and the passage of mucus and blood from the rectum. The abdomen was slightly tympanitic and tender. The digital examination of the rectum was not made until May 10; this disclosed an invaginated bowel in the rectum. The patient was operated on at midnight of May 10. When under the anesthetic one could feel the mass in the left iliac fossa, apparently rising up from the pelvis and extending from just below the left anterior spine to the median line. It was smooth and about the size of an orange. The finger in the rectum felt a rounded projection about three inches from the sphincter ani; it felt like an open cervix uteri; this seemed to be attached to the invaginated bowel. This mass was flat and seemed to be about one-half the circumference of the bowel, and to obstruct it completely outside the invaginated bowel, but its walls and those of the rectum permitted the passage of the finger all about without encountering any adhesions and without reaching the upper limit. At operation the small intestine was found to be almost collapsed. On passing the hand into the pelvis a mass was felt about the size of a fist. The large intestine was seen to go into the lower dilated piece of bowel. It appeared as though the sigmoid had gone into the rectum, the upper end of the lower segment corresponding about to the upper end of the rectum. In their efforts to reduce the intussusception a transverse slit was produced which permitted the finger to enter the lumen of the gut and a growth was felt there. Traction and squeezing reduced it all. It was then found that there was an enlarged growth about three inches long on the circumference of the gut, opposite the mesenteric border; it was hard and puckered up. A resection of the gut was made, Murphy buttons were tried but failed to work, and, therefore, an end-to-end anastomosis was made with silk sutures. After washing the pelvis with salt solution, four cigarette drains were used in the wound and two in the pelvis. The patient had a weak pulse, but otherwise was in good condition. Patient made an uneventful and good recovery. The pathologist reported that the lumen of the gut was entirely taken up by a projecting nonulcerating growth. It was a papilloma, possibly malignant, but with no definite indication of the muscular coat having been invaded.

Dr. JOHN F. ERDMANN said that last summer he saw a patient, sixty-five years old, with a suspicious tumor in the iliac fossa. He suspected malignant disease of the cecum. On the following day he discovered an intussusception of the cecum and ascending colon, which was readily reducible, and the patient made a perfect recovery.

Perforated Gastric and Duodenal Ulcer; A Report of Eight Cases.—Dr. CHARLES H. PECK read this paper and presented three of the cases included in the reports. (See page 930.)

Dr. GEORGE E. BREWER called attention to some introductory remarks of Moynehan, expressing his opinion of the condition found in gastric or duodenal ulcer, that "of all the surgical catastrophies that occurred to the human being, none was equal in suddenness and intensity to gastric or duodenal ulceration." It had been shown in a large series of gastric and duodenal ulcerations that the recoveries were directly in proportion of the time after the accident to the operation. He could recall a number of patients that died, but it was only within the last two years that he could save cases of gastric ulcer. During the last year

two patients were brought in earlier and both were remarkably free from symptoms. One had a perforating gastric ulcer and was operated on ten hours after the onset of symptoms. This patient had but little in his stomach at the time, and, although there was a well-marked irritation and peritonitis, yet there was no great extravasation of the stomach contents. The patient was in such a condition that he hesitated in stating positively that a perforation was present, or that a gastroenterostomy should be done. The duodenum was found to be as large from infiltration as the closed fist, and he did not believe there was much lumen left in the gut. After inverting the edges of the ulcer the question arose whether or not he should shut off all the lumen, and he decided to take a chance and a gastroenterostomy was not done. There was such a variation in the symptoms of gastric ulcer that he was not surprised that an early diagnosis was not more often made. Within the past three weeks he saw a patient at Roosevelt Hospital, brought there one and a half hours after the onset of violent abdominal pain which marked the time of perforation. This was the earliest case he had ever seen. The condition was different from that usually seen. The temperature was 97° in the rectum, pulse 68 and feeble. The abdomen was scaphoid. The only sign present was the board-like rigidity of the abdominal muscles. The last meal had been taken six hours before the perforation. With the exception of a small amount of gastric juice there was practically nothing to wash out. The perforation was closed in the usual way and here also arose the doubtful propriety of doing a gastroenterostomy. As the walls were infiltrated he had to use a great deal of tissue in closing the perforation by inverting it. He said he was inclined to endorse absolutely what Dr. Peck had said regarding secondary operations. Here were two cases in which he felt sure that a decided obstruction would occur from the operative work; but in neither case was there the slightest evidence of pyloric obstruction subsequent to operation.

Dr. Alexis V. Moschcowitz asked what the real objection was to performing a gastroenterostomy operation in these cases; if there arose serious doubt that there might occur a stenosis at the pylorus there might be some great danger. In similar cases he always performed a gastroenterostomy, and this did not prolong the operation by any great length of time. He used Murphy's button. In other respects he said he was in accord with Dr. Peck's remarks except that in cases of diffuse peritonitis he did not wash out the abdomen until there were distinctly present large pieces of foreign matter or food. Personally he always drained by a small counter incision over the pubes and inserted a cigarette drain into the pelvis. In all of the cases presented by Dr. Peck it was universally noted that the lesser peritoneal cavity was not involved. He thought it might interest the members to have reported a case in which the peritonitis was limited to the lesser peritoneal cavity. A young man was admitted to Mt. Sinai Hospital a year and a half ago with a perforated gastric ulcer. He was at once operated on and, much to his surprise, he found the entire peritoneal cavity free. He then made a median incision in the gastric region, elevated the stomach and duodenum, and looked for some other cause for the sudden onset of the pain. But nothing was to be found in the abdomen. He then raised the stomach up and found behind the colon and stomach a large mass of exudate. Upon entering the lesser peritoneal cavity there was quite a gush of seropurulent fluid, and he found a perforation situated near the fundus of the stomach. The patient made a good recovery, and was discharged from the hospital. Three weeks later he was operated on for an intestinal obstruction and made an uneventful recovery.

Dr. A. Ernest Gallant related two cases of gastric perforation. The first he saw four years ago. A man was working in a store lifting boxes, when he felt something give way in his stomach. This was accompanied with vomiting and pain. Dr. Gallant saw him on the day following. The second day after he made the diagnosis of gastric perforation and the man was sent to the hospital. He was kept there for five days and was then operated on for appendicitis. Upon enlarging the incision an opening into the stomach was discovered. The patient died that night. He had had no previous symptoms of indigestion. The second patient was seventy-six years of age, and gave a similar history. He was a farmer, and was lifting bags of potatoes when he felt a sudden pain which was accompanied with vomiting. He said he felt very sick. His temperature ranged from 100° to 102°, and his pulse from 90 to 100. The abdomen was quite distended and board-like. He decided to make an incision in the median line below the umbilicus, which was done under cocaine. When an opening was made gas escaped. He was then given chloroform and made an opening in the upper curvature, when the patient turned black in the face and collapsed. A roll of gauze was inserted and the man did nicely. He was out of bed on the eighth day, and in two weeks was out of doors. The daughter had since told him that he was doing well and in good health. These two cases illustrated the suddenness of onset without previous symptoms. These cases he did not believe were in condition for a gastroenterostomy operation, as a rule. The location of the ulcer had very much to do with the seriousness of the peritonitis; the higher up the perforation the better chance did the patient have.

Dr. C. A. McWilliams asked how many had noticed the characteristic odor of the gastric contents in gastric perforations. In the three cases he had had he could not detect this characteristic odor of the escaped gastric fluid in the abdomen.

Dr. Fielding Lewis Taylor remembered one case at the Hudson Street Hospital in which there was a perforation; there was a distinct odor of root beer.

Dr. Charles H. Peck said that in his first case the perforation was on the anterior aspect of the pylorus itself, and there was a great deal of inflammatory thickening about it, so much so that he expected he would have to do a secondary gastroenterostomy. He was much gratified to find no evidences of retention of gastric contents or pyloric obstruction. The inflammatory thickening must have been absorbed quickly. As regards not doing a gastroenterostomy, this was an added procedure which meant more trauma and the consumption of additional time. Then, too, in his cases it was shown that this was not necessary. In answer to Dr. McWilliams he said in one case there was a pronounced odor of aromatic castor oil.

Lantern-Slide Demonstration of Radiographic Findings in Syphilis of the Long Bones.—Dr. Martin W. Ware gave this demonstration. He presented a series of slides, demonstrating some of the findings in syphilitic bone disease. Attention was directed to the constancy of periosteal involvement and its absence in tuberculosis. The value of the radiograms was emphasized in differentiating tuberculous from syphilitic dactylitis. The aid of the x-ray might be called into requisition when it was necessary to differentiate a traumatic subperiosteal swelling, or a callus formation of a fracture, from a suspected gumma. Sclerotic changes in bones, absorption of bone, and bowing of the bones were clearly reproduced in the shadows of the radiograms; they afforded an index for operative interference, and the extent of the denudation of those shadows marked the progress of favorable treatment.

Dr. George E. Brewer asked Dr. Ware if these syphilitic cases, particularly where the x-ray showed large areas of rarefaction, were accompanied by much pain.

Dr. Ware said that was not universally so. Some such cases were very painful, while others were not.

Dr. Henry W. Frauenthal said that the acquired syphilitic cases suffered considerable pain.

Surgical Suggestions.

Stricture of the Urethra.—The habit of looking for a stricture with a small sound is a pernicious one. Begin with a large one and use smaller calibers until the size is determined. Small sounds are very apt to have their points engaged in the glandular crypts of the urethra.—*American Journal of Dermatology.*

A New Symptom of Basedow's Disease.—Gifford (*Wiener medizinische Wochenschrift*) found that in three patients suffering with Basedow's disease he had some difficulty in everting the upper lid, and after the eversion had been successfully performed it was very difficult to keep the lid in that position. This is one of the earliest symptoms of the disease, and is probably produced by an unusual irritability of Muller's muscle; this symptom might have some connection with Dalrymple's (Stellwag's) symptom. Another early sign is the thickening of the tissues beneath the eyebrows; the skin appears solid and thick; the lids seem to be swollen.—*Ophthalmology.*

Proctoscopy.—Sultan (*Deutsche Zeitschrift für Chirurgie*) brings up two new points: The first is the danger of bursting the rectum by an extreme inflation with air. This is to be feared in persons of reduced vitality, with marked relaxation of all the muscles, in the presence of old inflammatory conditions. The accident has been reported several times. Such cases must be excluded from proctoscopic examination. The second point to which he draws attention is a new instrument for obtaining small pieces of tissue from the rectal mucosa for microscopic study. It consists of a handle bearing a shaft twenty-two inches long, which has at its outer end two small rings like ring curettes, which can be placed at any angle to the handle; after introduction these are brought together, seizing a bit of tissue between them. The instrument differs from similar instruments largely in its length.—*The Therapeutic Gazette.*

The Prophylaxis of Syphilis.—Maisonneuve, after submitting himself to a careful personal examination, in order to preclude definitely any evidences of syphilis, allowed himself to be inoculated in the sulcus coronarius on each side from the virus of two initial lesions from two well-defined cases of primary syphilis. This in the presence of Metchnikoff and four other physicians. The skin was scarified and the virus thoroughly rubbed into the abraded surface. One hour after the inoculation the parts were treated with ten per cent. calomel-lanolin ointment. Apes which were inoculated with the same secretion showed typical lesions of syphilis; others, likewise inoculated, but also treated with calomel ointment, remained free from syphilis. Maisonneuve submitted himself to careful examinations for three months, without showing the slightest evidence of syphilis, and the wounds promptly healed within seven days.—*Southern Medicine and Surgery.*

Treatment of Eclampsia.—On the first occurrence of an attack, or of the restlessness which frequently precedes an attack, chloroform should be administered and an enema containing twenty to thirty grains of chloral hydrate should be administered, the latter to be repeated in an hour's time if required. If possible the patient should be put into a hot bath. A plethoric person showing a good deal of cyanosis may be bled to twenty or thirty ounces. If chloroform and chloral fail, morphine is a drug of great value; some authorities give as much as two to three grains in twelve hours. Morphine must be given very cautiously when the patient is passing only a small quantity of urine. —Blacker.

Closure of the Pyloric Stump in Pylorectomy.—Krogius says that owing to the fact that it is often necessary to cut through the duodenum low down at a point where its posterior surface is devoid of peritoneum, the task of effecting a satisfactory closure of the stump by invagination is very difficult. He recommends beginning by uniting the lateral edge at the line where the peritoneum is reflected so as to effect a longitudinal invagination through which the bare portion of gut, which is very friable and does not hold sutures well, is buried in the lumen of the intestine and the diameter of the resulting cylinder is much reduced. It is now an easy matter to invaginate the end of the stump and to pass the sutures through tough and resistant tissue.—*Zentrallblatt für Chirurgie.*

Counter Irritation to the Spine.—The best method is the actual cautery. A Pacquelin's cautery, or even a good-sized copper wire, made red hot, may be drawn along the skin for three or four inches on each side of the tips of the spinous processes. The application does not cause sufficient pain to demand a general anesthetic, and the use of cocaine is inadvisable, as the benefit of counter irritation is probably obtained through action on the nerves —*The Hospital.*

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

State Board of Health of Kentucky.

Louisville, April 23, 1907.

ANATOMY.

1. Describe (*a*) the gracilis, (*b*) gastrocnemius, (*c*) rectus femoris, giving origin and insertion of each.
2. Describe the pancreas.
3. Name the structures to be divided in operating for strangulation of an oblique inguinal hernia.
4. Describe the fourth cervical vertebra and distinguish it from the fourth dorsal vertebra.
5. Bound the axilla and name and give relations of structures in axillary space.
6. Name the muscles, nerves, and arteries severed by a cross section of the thigh at the junction of the middle and lower thirds.
7. Describe (*a*) the superficial and deep palmar arches, (*b*) the brachial artery, branches and relationship.
8. Describe and give contents and relations of parts in Scarpa's triangle.
9. Describe (*a*) the superior longitudinal sinus (*b*) the lateral sinus, (*c*) torcular Herophili.
10. Give the anatomy of the liver.

SURGERY.

1. Give varieties of hernia; describe one operation for inguinal hernia.
2. (*a*) Name different kind of fractures and give differential diagnosis between fracture of the neck of the femur and dislocation of hip. (*b*) Give treatment of the latter.
3. How would you make a diagnosis of gonorrhea? Give a bacteriological examination.
4. What is empyema? Give diagnosis, prognosis, and treatment.
5. Give symptoms, diagnosis, and treatment of intestinal obstruction.
6. How would you diagnose retention of urine? What would you do for it?
7. How would you determine that a limb is injured beyond hope in a crushing accident?
8. What are the indications for appendectomy?
9. Give the treatment of shock resulting from hemorrhage.
10. Give contraindications to the employment of ether and chloroform?

MEDICAL JURISPRUDENCE.

1. What constitutes expert testimony?
2. How would you determine that a full term dead baby was born alive?
3. How would you determine (*a*) that a wound was inflicted by a blunt instrument? (*b*) or that it was done before or after death?
4. Differentiate between idiocy and lunacy.
5. What is paresis? Give symptoms, prognosis, and treatment.

OPHTHALMOLOGY.

1. Differentiate iritis and glaucoma, giving symptoms of each.
2. Describe and give etiology of (*a*) phlyctennlar keratitis, and (*b*) interstitial keratitis.
3. What is ophthalmia neonatorum? Give etiology and the probable results of a badly managed case.
4. Give symptoms and etiology of ciliary blepharitis.
5. Differentiate myopia and hyperopia and hypermetropia; give the anatomical reasons for their existence, and tell what you would recommend for the relief of each.

PHYSIOLOGY.

1. (*a*) Give several varieties of food. (*b*) Which enzymes act on each variety?
2. (*a*) Describe absorption, and give the function of the lymphatics. (*b*) Describe the thoracic duct.
3. Give chemistry and uses of bile.
4. Describe the circulation of the blood. What forces govern it?
5. Give histology of the kidney and function of the various structures.
6. Name and give the function of each of the cranial nerves.
7. Describe and give functions of sympathetic nervous system.
8. What are the functions of the skin?
9. Describe the blood.
10. Describe the cardiac cycle.

OBSTETRICS AND GYNECOLOGY.

1. Define presentation and position.
2. Tell exactly how you would manage a shoulder presentation.
3. What is mensuration? (*b*) How is it conducted in obstetrical cases? (*c*) How is it of value?
4. How would you diagnose and conduct the delivery of a hydrocephalic fetus?
5. (*a*) What would you suspect in antepartum hemorrhage? (*b*) How confirm your diagnosis? (*c*) How manage the case?
6. (*a*) When is ventrofixation indicated? (*b*) What is ballottement, (*c*) when is it valuable and how is it performed?
7. Give diagnosis of extrauterine gestation.
8. Give symptoms and pathology of carcinoma uteri.
9. Describe ovary and uterus during stages of menstruation.
10. (*a*) Give two indications for hysterectomy (*b*) Reasons for preferring abdominal or vaginal method.

CHEMISTRY.

1. What is (*a*) an atom? (*b*) a molecule? (*c*) What are isomeric compounds?
2. (*a*) What are the symptoms of acute arsenic poisoning? (*b*) What is the chemical combination of its antidote and how does it act? (*c*) Tell in detail how to detect arsenic in the stomach of a case of suspected poisoning.
3. Describe in detail a method for the quantitative estimation of sugar in the urine.
4. Tell in detail how to detect bile in the urine.
5. (*a*) Contrast dairy milk with human milk, and (*b*) give a brief description of the essentials for the production of pure dairy milk.
6. What is (*a*) H_2SO_4, (*b*) BaO_2, (*c*) HCl, (*d*) HNO_3? (*e*) What is the formula for methyl alcohol?
7. (*a*) What is acetphenetidin? (*b*) hexamethylene- tetramine? (*c*) From what are they prepared?
8. (*a*) Describe oxygen. (*b*) Give its formula, (*c*) valency, (*d*) atomic weight. (*e*) Tell how to prepare it, and give formula of your method.
9. (*a*) What is specific gravity? (*b*) How obtained for solids, (*c*) liquids, (*d*) gases?
10. Describe the chemical changes in starch during digestion in detail, giving formulas.

NERVOUS DISEASES.

1. Give etiology of migraine.
2. Give etiology and symptoms of sciatica.
3. Describe (*a*) epilepsy, (*b*) catalepsy.
4. Describe a case of progressive bulbar paralysis.
5. Differentiate between (*a*) illusions, (*b*) delusions, (*c*) hallucinations.

PREVENTIVE MEDICINE.

1. How long after recovery would you keep in quarantine a case of (*a*) diphtheria, (*b*) scarlet fever, (*c*) smallpox?
2. Name the portals of entry of tubercular infection in the order of their importance.
3. Describe in detail just how you would manage cases of typhoid fever for the protection of the community.
4. How would you disinfect a room after a communicable disease?
5. What is the difference between contagion and infection?

PRACTICE.

1. Define constipation; give etiology, diagnosis, and prognosis.
2. Define vertigo; give varieties and diagnosis.
3. Define myxedema; give etiology, diagnosis, and prognosis.
4. Define hydrothorax; give etiology, diagnosis and prognosis.
5. Define angina pectoris; give etiology, diagnosis, and prognosis.
6. Define asthma; give etiology, diagnosis, and prognosis.
7. Define adenoids; give etiology, symptoms, and dangers.
8. Define enterocolitis in a child; give etiology, diagnosis, and prognosis.
9. Give essentials for the production and preservation of pure dairy milk.
10. Give etiology, diagnosis, and prognosis of meningitis in a child.

OTOLOGY.

1. What is Politzer's method of inflating the tympanum, and how is it accomplished?
2. Define tinnitus aurium, and give the cause of it.
3. Give etiology, symptoms, and diagnosis of acute otitis media.
4. What is the pyramid of light, and where would you expect to find it?
5. Give symptoms, etiology, and probable serious results of mastoiditis.

BACTERIOLOGY.

1. Tell in detail (*a*) how you would detect malarial organisms in blood, (*b*) how distinguish between the quartan and estivoautumnal parasite.
2. Describe (*a*) Widal's test for typhoid fever; (*b*) what is its diagnostic value?
3. Differentiate between the culture of *Bacillus typhosus* and that of the *Bacillus coli communis*.
4. How would you examine a suspected specimen of sputum for tubercle bacilli? Give details.
5. Define (*a*) toxins, (*b*) antitoxins, (*c*) amboceptors, (*d*) bacterioproteins, (*e*) lysins.
6. Give the morphology of the tetanus bacillus; what are its toxins?
7. Tell in detail how to examine a suspected urethral discharge for gonococci.
8. Discuss Ehrlich's side-chain theory of immunity.
9. Differentiate between the pneumococcus and Pfeiffer's bacillus of influenza.
10. What is phagocytosis? What is accomplished by it?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF HEALTH OF KENTUCKY.

Louisville, April 23, 1907.

ANATOMY.

3. The structures to be divided in operating for strangulation of an oblique inguinal hernia are: Skin, superficial fascia, intercolumnar fascia, Cremaster muscle and fascia, infundibuliform fascia, subserous areolar tissue, and peritoneum.

4. Differences between the fourth cervical vertebra and the fourth dorsal vertebra: *The fourth cervical vertebra* has a small, transversely elongated body, with no facets for ribs; the laminæ are long and slender; the spinous process is short, nearly horizontal, and bifid; the transverse processes are short and contain a foramen for the vertebral artery; the superior articular process is directed upward and slightly backward; the inferior articular process is directed downward and slightly forward; the spinal foramen is large and triangular.

The fourth dorsal vertebra has a heart-shaped body with a facet on each side for articulation with a rib; the laminæ are broad and deep; the spinous process is long and points downward; the transverse processes are long, articulate with the tubercle of a rib, and do not contain a foramen; the superior articular process is directed backward and slightly outward; the inferior articular process is directed forward and slightly inward; the spinal foramen is smaller and circular.

5. The axilla is *bounded*: *Anteriorly*, by the clavicle, Subclavius, Pectoralis major, costocoracoid membrane, Pectoralis minor; *posteriorly*, by the Subscapularis, Teres major, and Latissimus dorsi; *internally*, by the first four ribs, first three Intercostal muscles, Serratus magnus; *externally*, by the humerus, Coracobrachialis, and Biceps.

"*Contents*: The axillary vessels and brachial plexus of nerves, with their branches, some branches of the intercostal nerves, and a large number of lymphatic glands, all connected together by a quantity of fat and loose areolar tissue. *Their position*: The axillary artery and vein, with the brachial plexus of nerves, extend obliquely along the outer boundary of the axillary space, from its apex to its base, and are placed much nearer the anterior than the posterior wall, the vein lying to the inner or thoracic side of the artery and partially concealing it. At the fore part of the axillary space, in contact with the pectoral muscles, are the thoracic branches of the axillary artery, and along the anterior margin of the axilla the long thoracic artery extends to the side of the chest. At the back part, in contact with the lower margin of the subscapularis muscle, are the subscapular vessels and nerves; winding around the lower border of this muscle is the dorsalis scapulæ artery and veins; and toward the outer extremity of the muscle the posterior circumflex vessels and the circumflex nerve are seen curving backward to the shoulder.

"Along the inner or thoracic side . . . are some important nerves, viz., the posterior thoracic or external respiratory nerve, descending on the surface of the serratus magnus, to which it is distributed; and perforating the upper and anterior part of this wall, the intercostohumeral nerve or

nerves, passing across the axilla to the inner side of the arm." (Gray's *Anatomy.*)

6. In a cross section of the thigh, at the junction of the middle and lower thirds there are severed: *Muscles*, Vastus internus, Rectus femoris, Crureus, Vastus externus, Biceps, Semitendinosus, Semimembranosus, Gracitis, Sartorius, Adductor magnus; *Nerves*, sciatic, long saphenous; *Arteries*, superficial femoral, anastomotic, deep femoral, perforating.

8. Scarpa's triangle is a triangular area or depression situated just below the fold of the groin. It is bounded *above* by Poupart's ligament, *externally* by the Sartorius, and *internally* by the inner margin of the Adductor longus; its *apex* is formed by the junction of the Adductor longus and Sartorius. The *floor* is formed, from without inward, by the Iliacus, Psoas, Pectineus, Adductor brevis, and Adductor longus. *Contents*: The femoral vessels pass from about the center of the base to the apex, the artery being on the outer side of the vein; the artery gives off the superficial and profunda branches, and the vein receives the deep femoral and internal saphenous; the anterior crural nerve lies to the outer side of the femoral artery; the external cutaneous nerve is still further external, lying in the outer corner of the space; just to the outer side of the femoral artery, and in the sheath with it, is the crural branch of the genitocrural nerve. At the apex, the vein (which at the base was internal to the artery) lies behind the artery. The triangle also contains fat and lymphatics.

SURGERY.

1. Varieties of Hernia: Hernia may be classified:

I. *Anatomically*:

1. Inguinal
   - Oblique
     - Acquired
     - Congenital
     - Infantile or encysted
   - Direct
     - External
     - Internal
   - Interstitial
     - Intraparietal
     - Interparietal
     - Extraparietal

   [Incomplete, or Bubonocele.]
2. Femoral
3. Umbilical
   - Congenital
   - Of infants
   - Of adults
4. Ventral. 5. Lumbar. 6. Obturator. 7. Diaphragmatic, 8. Pudendal, etc.

II. *Clinically*: Reducible irreducible, obstructed or incarcerated, inflamed, and strangulated.

2. (a) Fractures are variously classified:

I. Simple, compound, and complicated.

II. Complete (transverse, oblique, spiral, longitudinal) and incomplete (fissured, greenstick).

III. Single, and multiple.

IV. Comminuted, impacted, etc.

V. Intra- and extra-articular; intra- and extracapsular.

In fracture of the neck of the femur, the head of the femur will be found in the acetabulum; in dislocation, the acetabulum will be empty, and the head of the femur will be found elsewhere, *e.g.* on the dorsum of the ilium. In the fracture, crepitus *may* be elicited; in the dislocation, never. In the dislocation, there is inversion and a fixed position of the limb, both of which are absent in fracture.

3. The diagnosis of gonorrhea is made by finding gonococci within the leucocytes in a urethral discharge. For details, see below—Bacteriology, Number 7.

7. A limb may be said to be injured beyond hope in a crushing accident: (1) When it is pulpefied; (2) when the main artery or vein or both are severed and the collateral circulation is also interfered with; (3) when very extensive cellulitis or gangrene appear within a short time of the accident; (4) when there is extensive laceration of tissues and extensive comminution of the bone.

8. *The indications for appendectomy* vary according to the views of the surgeon. Some maintain that every case of appendicitis should be operated on as soon as the diagnosis is made. Others would operate only in case of rupture, or when suppuration occurs, or in cases which do not improve in a week or so, or in cases which are steadily getting worse. Probably all would agree in taking out every appendix that has undergone more than one mild attack.

10. The following contraindications for ether and chloroform are from Hare's *Practical Therapeutics*: "*Ether* should not be used by inhalation in bronchitis or acute nephritis, because of its irritant properties; in peritonitis or gastritis, because it is apt to induce vomiting; in aneurysm or in the presence of marked vascular atheroma, because it may rupture a blood-vessel by raising arterial pressure; nor in diabetes, lest it produce diabetic coma; and if anemia is present and an examination of the blood shows that the hemoglobin is below 50 per cent., the use of the drug should be avoided if possible.

"*Chloroform* is not to be used in cases of fatty heart or dilatation of the heart, in those with a known idiosyncrasy, nor in the so-called lymphatic persons with overgrowth of lymphoid tissues, as, for example, adenoids. In the latter case it is particularly apt to cause sudden death. In valvular disease of the heart chloroform may be used with caution, although ether is preferable. Given a case of valvular disease that must be subjected to operation, the chances are bettered with an anesthetic than without it, as the pain and mental shock are worse for the heart than is the anesthetic."

MEDICAL JURISPRUDENCE.

1. In expert testimony the witness may give his *opinion* on facts or supposed facts as noted by himself or asserted by others. *Theoretically*, this can only be done by those perfectly familiar with the subject in question; but *practically* any (or almost any) physician with a license to practise is accepted as an expert witness.

3. (a) A wound inflicted by a blunt instrument will have somewhat of the appearance of a contused wound; the edges will not be so clean cut, and the surrounding tissues will be more or less bruised.

(b) A wound inflicted during life is generally characterized by hemorrhage, coagulation of the blood, eversion of the edges, and retraction of its sides. It may also be inferred that the wound was inflicted during life if any of the following are noticed: The presence of inflammation, swelling, pus or gangrene on the edges of the wound, or if there is any sign of beginning cicatrization.

4. "Idiocy differs from other states of insanity in the fact that it is marked by a congenital deficiency of the mental faculties. There is not here a perversion or a loss of what has once been acquired, but a state in which, from defective structure of the brain, the individual has never been able to acquire any degree of intellectual power to fit him for his social position. It commences with life and continues through it." (Taylor's *Medical Jurisprudence.*)

OPHTHALMOLOGY.

1.—

	GLAUCOMA.	IRITIS.
Age	Over forty.	Any.
Tension	Plus.	Normal.
Secretion	None, or watery.	None, or watery.
Congestion	General, especially scleral.	General, especially circumcorneal.
Cornea	Cloudy and steamy surface.	Cloudy.
Anterior chamber	Shallow.	Unchanged.
Iris	Discolored.	Discolored.
Pupil	Dilated, oval.	Contracted, synechiæ.
Pain	Severe, continuous.	Especially at night.
Vision	Much reduced.	Somewhat reduced.
Treatment	Eserine, pilocarpine, iridectomy.	Atropine.

(From Alling and Griffin's *Diseases of the Eye and Ear.*)

3. Ophthalmia neonatorum is an infectious, purulent inflammation of the conjunctiva in the newborn, due to the gonococcus or other pyogenic germ; produced by contact of the eye with the vaginal secretion of the mother during labor, or infected fingers, or instruments, etc. The probable results of a badly managed case are: Ulceration and sloughing of the cornea, perforation of the anterior chamber, and blindness.

PHYSIOLOGY.

1. (a) Foods are classified as follows:

I. Inorganic
   - Water.
   - Salts.

II. Organic
   - Non-nitrogenous
     - Carbohydrates.
     - Fats.
   - Nitrogenous—Proteids.

(b) Carbohydrates are acted on by ptyalin and amylopsin, fats by steapsin, and proteids by pepsin and trypsin.

The constituents of the bile may be shown in the following table, which presents the averages of three analyses given by Hammarsten; the results are given in parts per thousand:

Water	971.380
Solids	28.620
Mucin and pigments	4.910
Bile salts	12.197
Taurocholate	2.431
Glycocholate	9.766
Fatty acids from soaps	1.200
Cholesterin	1.243

Lecithin and fats	0.970
Soluble salts	7.360
Insoluble salts	0.317

The functions of the bile are: (1) To assist in the emulsification and saponification of fats; (2) to aid in the absorption of fats; (3) to stimulate the cells of the intestine to increased secretory activity, and so promote peristalsis; and at the same time tend to keep the feces moist; (4) to eliminate waste products of metabolism, such as lecithin and cholesterin; (5) it has a slight action in converting starch into sugar; (6) it neutralizes the acid chyme from the stomach, and thus inhibits peptic digestion; (7) it has a very feeble antiseptic action.

4. The circulation of the blood is regulated in (a) *the arteries* by: (1) The elasticity and tone of the arteries, (2) the force and frequency of the cardiac contractions, (3) the resistance in the capillaries; (b) in the *capillaries* it is regulated by (1) the action of the heart, (2) the action of the arteries; (c) in the *veins* it is regulated by (1) the action of the heart, (2) aspiration of the thorax, (3) the contraction of the muscles, and (4) slightly by the valves in the veins.

7. "The sympathetic nervous system consists of (1) a series of ganglia connected together by a great ganglionic cord, the gangliated cord, extending from the base of the skull to the coccyx, one gangliated cord on each side of the middle line of the body, partly in front and partly on each side of the vertebral column; (2) of three great gangliated plexuses or aggregations of nerves and ganglia, situated in front of the spine in the thoracic, abdominal, and pelvic cavities respectively; (3) of smaller or terminal ganglia, situated in relation with the abdominal viscera; and (4) of numerous fibers." (Gray's *Anatomy.*)

Its *functions*: "It may safely be said that the sympathetic system has, to a great extent, a controlling influence over the secretion of most of the glands, the lacrymal, the salivary, the sweat glands, the glands of the stomach and intestines, the liver, the kidney, etc.; that it presides over the circulation by regulating the caliber of the blood-vessels and the action of the heart; that it influences respiration; and, finally, that all involuntary muscles, those of the digestive apparatus, of the genitourinary system, of the hair follicles (pilomotor nerves), are under its control to such extent that, for instance, in certain mammalians the bladder still continues to fulfill its function for weeks after all the cerebrospinal motor nerves leading to it have been severed. In short, we find that all vegetative life of the organism is, to a greater or less extent, under the control of the sympathetic system. Therefore it may properly be called the vegetative nerve system *par excellence.*" (*Reference Handbook of the Medical Sciences.*)

8. The *functions of the skin* are: Protection, excretion, secretion, regulation of the body temperature, absorption, sensation, special sense of touch, respiration.

OBSTETRICS AND GYNECOLOGY.

1. By *presentation* is meant the part of the fetus which presents at the pelvic brim; examples—vertex, breech, face.

By *position* is meant the relation between a point on the fetus and a point on the maternal pelvis; examples—in a vertex presentation the position may be (1) left occipito-anterior, (2) right occipito-posterior, (3) right occipito-anterior, (4) left occipito-posterior.

5. (a) Placenta prævia, or premature separation of a normally situated placenta.

7. "When extrauterine pregnancy exists there are: (1) The general and reflex symptoms of pregnancy; they have often come on after an uncertain period of sterility. Nausea and vomiting appear aggravated. (2) Then comes a disordered menstruation, especially metrorrhagia, accompanied with gushes of blood, and with pelvic pain coincident with the above symptoms of pregnancy. Pains are often very severe, with marked tenderness within the pelvis. Such symptoms are highly suggestive. (3) There is the presence of a pelvic tumor characterized as a tense cyst, sensitive to the touch, actively pulsating. This tumor has a steady and progressive growth. In the first two months it has the size of a pigeon's egg; in the third month it has the size of a hen's egg; in the fourth month it has the size of two fists. (4) The os uteri is patulous; the uterus is displaced, but is slightly enlarged and empty. (5) Symptoms No. 2 may be absent until the end of the third month, when suddenly they become severe, with spasmodic pains, followed by the general symptoms of collapse. (6) Expulsion of the decidua, in part or whole. Nos. 1 and 2 are *presumptive signs;* Nos. 3 and 4 are *probable signs;* Nos. 5 and 6 are *positive signs.*" (*American Text-Book of Obstetrics.*)

10. (a) Two indications for hysterectomy: Carcinoma and fibroids.

(b) As to preference between the vaginal and abdominal routes, the following is taken from Garrigues' *Gynecology*: "If the vaginal route is available, it should be preferred, because it entails much less shock, requires a simple after-treatment, does not leave any visible cicatrix, predisposes less to hernia, and allows the patient to resume work in shorter time. On the other hand, the vaginal route is more difficult on account of the limited space. Hemorrhage is more troublesome to check, adhesions are harder to separate, and the bladder and intestine more exposed to injury and less accessible for repair. The pelvic cavity cannot be seen so well and the abdominal not at all. If tissue is left to mortify, it emits an offensive odor."

CHEMISTRY.

1. (a) An *atom* is the smallest portion of an element that can enter into a chemical reaction, or that can enter into the composition of a molecule.

(b) A *molecule* is the smallest quantity of any substance that can exist in a free state.

(c) *Isomeric compounds* are compounds which, while differing in properties, possess the same percentage composition.

2. (a) The *symptoms of acute arsenical poisoning*: "In acute cases the symptoms usually begin in from twenty to forty-five minutes. Nausea and faintness. Violent, burning pain in the stomach, which becomes more and more intense, and increases on pressure. Persisting and distressing vomiting of matters, sometimes brown or gray, or streaked with blood, or green (Paris green). Purging. More or less severe cramps in the lower extremities." (Witthaus' *Essentials of Chemistry.*)

(b) The chemical antidote is freshly prepared ferric hydroxide. The ferric hydroxide changes the arsenic into ferrous arsenate, which is nonpoisonous. The reaction is represented by the following equation:

$$As_2O_3+2Fe_2(OH)_6=Fe(OH)_3+5H_2O+Fe_3(AsO_4)_2.$$

(c) *Test for arsenic*: Reinsch's test is as follows: To the suspected fluid add a little pure HCl; suspend in the fluid a small strip of bright copper foil, and boil. If a deposit forms on the copper, remove the copper, wash it with pure water, dry on filter paper, but be careful not to rub off the deposit. Coil up the copper, and put it into a clean, dry glass tube, open at both ends, and apply heat at the part where the copper is. If arsenic is present there will appear in the cold part of the tube a mirror, which will be found on microscopical examination to consist of octahedral crystals of arsenic trioxide.

3. Method for the *quantitative estimation of sugar in urine*: *"Fehling's method.*—The solution is made as follows:

I. Dissolve cupric sulphate	51.98 gm.
in water to	500.00 c.c.
II. Dissolve Rochelle salt	259.9 gm.
in sodium hydroxide soln. sp. gr. 1.12 to	1,000 c.c.
(Piffard).	

When required for use, one volume of I. is to be mixed with two volumes of II. The copper contained in 10 c.c. of this mixture is precipitated completely, as cuprous oxid, by 0.05 gm. of glucose.

"To determine the quantity of sugar, place 10 c.c. of the mixed soln. in a flask of about 250 c.c. capacity, dilute with H_2O to about 30 c.c., and heat to boiling. On the other hand, the urine to be tested is diluted and thoroughly mixed with four volumes of H_2O if it be poor in sugar, or with nine volumes of H_2O if highly saccharine, and a burette filled with the mixture. When the Fehling soln. boils, add a few gtt. NH_4HO and then 5 c.c. of the urine from the burette, boil again, and continue the alternate addition of diluted urine and boiling of the mixture until the blue color is quite faint. Now add the diluted urine in quantities of 1 c.c. at a time, boiling after each addition until the blue color just disappears. Have ready a small filter, and, having filtered through it a few gtt. of the hot mixture, acidulate the filtrate with acetic acid, and add to it 1 gtt. soln. of potassium ferrocyanide. If a brownish tinge be produced, add another ½ c.c. of dil. urine to the flask, boil, and test with ferrocyanide as before. Continue this proceeding until no brown tinge is produced. The burette reading, taken at this point, gives the number of c.c. of dilute urine containing 0.05 gm. glucose, and this divided by 5 or 10, according as the urine was diluted with 4 or 9 volumes of H_2O, gives the number of c.c. of urine containing 0.05 gm. sugar. The number of c.c. urine passed in twenty-four hours divided by 20 times the number of c.c. containing 0.05 gm. glucose, gives the elimination of glucose in twenty four hours in grams.

Example.	Urine in 24 hours	= 2,436 c.c.
	Fehling's soln. used	= 10 c.c.
	Urine diluted with 4 vols. H_2O	
	Burette reading	= 18.5 c.c.

$$\frac{18.5}{5} = 3.7 = \text{c.c. urine containing 0.05 gm. glucose.}$$

$$\frac{2{,}436}{3.7 \times 20} = 32.92 = \text{grams glucose eliminated in 24 hours."}$$

(Witthaus' *Urinalysis.*)

4. Test for *bile*: Put 3 c.c. HNO_3 in a test tube, add a piece of wood, and heat until the acid is yellow; cool. When cold, float some of the urine to be tested upon the surface of the acid. A green band is formed at the junction of the liquids, which gradually rises, and is succeeded from below by blue, reddish-violet, and yellow.

5. (a) Dairy milk (assuming it to be pure) contains (approximately) 4 per cent. each of proteids, fat, and sugar; whereas in human milk the proteids are about 1 to 2 per cent., the fat about 3 to 4 per cent., and the sugar about 6 to 7 per cent. Dairy milk may be acid in reaction and contains numerous bacteria, whereas human milk is amphoteric or slightly alkaline and generally contains no bacteria.

6. (a) H_2SO_4 is the formula for a molecule of sulphuric acid; (b) BaO_2 for one of barium dioxide; (c) HCl for one of hydrochloric acid; (d) HNO_3 for one of nitric acid. (e) The formula for methyl alcohol is $H.CH_2OH$.

7. (a) Acetphenetidin (or phenacetin) is ethylparaacetamidophenate.

(b) Hexamethylene-tetramine is urotropin.

(c) The former is prepared by the action of glacial acetic acid upon paraphenetidin; the latter by the action of ammonia upon formaldehyde.

8. (a) Oxygen is a colorless, odorless, tasteless gas, slightly soluble in water, heavier than air. It has a strong tendency to combine with other elements, and forms binary compounds with all elements except fluorine and bromine. Oxygen is necessary to the processes of life and combustion.

(b) Its symbol is O; (c) valence, two; (d) atomic weight, 16.

(e) Oxygen may be prepared by heating a mixture of equal parts of potassium chlorate and manganese dioxide. The latter remains unchanged, while the former gives up all of its oxygen, according to equation:

$$2KClO_3 = 2KCl + 3O_2.$$

9. (a) *Specific gravity* is the weight of any substance as compared with the weight of an equal volume of another substance taken as a standard under like conditions of temperature and pressure.

10. The ptyalin of the saliva and the amylopsin of the pancreatic juice act upon boiled starch, and by hydrolysis convert it into soluble starch. By further hydrolytic cleavage, maltose, erythrodextrin, and achroodextrin are formed.

"According to Brown and Heron the reactions may be represented thus:

One molecule of gelatinous starch is converted by the action of an amylolytic ferment into *n* molecules of soluble starch.

One molecule of soluble starch $= 10(C_{12}H_{20}O_{10}) + 8(H_2O)$, which is further converted by the ferment into

1. Erythrodextrin + Maltose.
   $9(C_{12}H_{20}O_{10})$ $(C_{12}H_{22}O_{11})$

then into

2. Erythrodextrin + Maltose.
   $8(C_{12}H_{20}O_{10})$ $2(C_{12}H_{22}O_{11})$

next into

3. Achroodextrin + Maltose.
   $7(C_{12}H_{20}O_{10})$ $3(C_{12}H_{22}O_{11})$

And so on; the resultant being:

$10(C_{12}H_{20}O_{10}) + 8(H_2O) = 8(C_{12}H_{22}O_{11}) + 2(C_{12}H_{20}O_{10})$."

Soluble starch Water Maltose Achroodextrin.

(From Kirkes' *Physiology.*)

NERVOUS DISEASES.

1. *Etiology of migraine*: Heredity, female sex, and age (about the time of puberty) are all predisposing factors; neurotic family history, epilepsy, and hysteria also predispose; overwork at school in conjunction with lowered physical health, eyestrain, injury, shock, fatigue, gout, rheumatism, indigestion, and autotoxemia may all cause migraine.

5. A *delusion* is a belief in something which has no real existence, but is purely imaginary; and out of which the person cannot be reasoned. An *illusion* is a false or perverted impression, received through one of the senses. An *hallucination* is the same as an illusion, but without any material basis.

If an individual believes himself to be made of glass, and is afraid of being touched lest he be broken, he is suffering from a *delusion*. If the whistling of the wind is mistaken for a voice telling a person to do a certain thing—that would be an *illusion*. If a person fancied he heard a voice when there was nothing at all to be heard, that would be an *hallucination*.

PRACTICE.

2. *Vertigo* is a disturbance of the sense of equilibrium, a condition in which the patient or objects surrounding him appear to be in a state of rotation or oscillation. It is not a disease; but is a symptom of many pathological conditions.

The chief *varieties* are: (1) Auditory, or labyrinthine, also called Menière's disease; (2) cerebral; (3) gastric; (4) toxic; (5) senile; (6) hysterical; (7) essential.

The *diagnosis* is based on the history of the case, the etiology and the absence of unconsciousness and of convulsive movements. It is to be differentiated from epilepsy, in which the patient is unconscious and also has convulsive movements.

7. *Adenoids* are hypertrophied adenoid tissue in the nasopharynx.

Causes: The real cause is unknown, but the condition is generally observed in childhood; heredity is also supposed to be a factor; males are more frequently affected than females; malnutrition and scrofula seem to be causative factors; the condition is often associated with enlarged tonsils, enlarged cervical glands, hypertrophy of the nasal mucous membrane, deviations of the septum, spurs; it often follows some of the acute infectious diseases.

Symptoms: Mouth-breathing; snoring; open-mouth; a vacant, dull expression of the face; modification of the voice (nasal twang), with inability to pronounce certain letters.

Effects: Earache and other ear affections; mental deficiency; frequent attacks of coryza; nose-bleed; stunted growth; convulsions, laryngismus stridulus, and various other neuroses may also be noticed.

OTOLOGY.

2. Tinnitus aurium is the name given to any subjective sounds heard in the ear. The chief causes are: Neurasthenia, impacted cerumen, otitis, and other ear diseases; Menière's disease, obstruction of the Eustachian tube, anemia, leukemia, cerebral hyperemia and anemia, arteriosclerosis, gout, digestive disorders, excessive use of alcohol or tobacco, and the use of certain drugs such as quinine or salicylic acid.

4. The pyramid of light is a reflection of light from the anterior inferior quadrant of the membrana tympani. It is roughly triangular in shape, and its apex touches the tip of the manubrium of the malleus, while its base lies on or near the periphery of the membrana tympani.

BACTERIOLOGY.

2. (a) The Widal test for typhoid fever "depends upon the fact that serum from the blood of one ill with typhoid fever, mixed with a recent culture, will cause the typhoid bacilli to lose their motility and gather in groups, the whole called 'clumping.' Three drops of blood are taken from the well-washed aseptic finger tip or lobe of the ear, and each lies by itself on a sterile slide, passed through a flame and cooled just before use; this slide may be wrapped in cotton and transported for examination at the laboratory. Here one drop is mixed with a large drop of sterile water, to redissolve it. A drop from the summit of this is then mixed with six drops of fresh broth culture of the bacillus (not over twenty-four hours old) on a sterile slide. From this a small drop of mingled culture and blood is placed in the middle of a sterile cover-glass, and this is inverted over a sterile hollow-ground slide and examined. . . . A positive reaction is obtained when all the bacilli present gather in one or two masses or clumps, and cease their rapid movement inside of twenty minutes." (From Thayer's *Pathology.*)

(b) Its diagnostic value is believed by some to be great; others place little reliance on it. It may be absent in cases of typhoid fever; it may be present for several months after an attack of typhoid; the reaction may not be obtained till the third week of the disease; it may be present in other diseases or in perfectly healthy persons. The above have all been urged as objections; certainly only positive results have any value at all.

3. The cultural and microscopic points of difference between the *Bacillus coli communis* and the *Bacillus typhosus* (of Eberth) are:

"(1) The motility of the colon bacillus is, as a rule, not very pronounced, sometimes absent; that of the typhoid bacillus is usually very active.

"(2) On gelatine plates the colon bacillus develops more rapidly and luxuriantly than the typhoid bacillus, and on potato it grows more abundantly, being almost always visible.

"(3) The colon bacillus coagulates milk with acid reaction within twenty-four to forty-eight hours; the typhoid bacillus does not coagulate milk.

"(4) The colon bacillus causes fermentation with pro-

duction of gas in media containing sugar; the typhoid bacillus does not.

"(5) In nutrient agar or gelatine containing lactose and litmus tincture and of a slightly alkaline reaction, the color of the colonies of colon bacillus is pink and the surrounding medium red; while the colonies of typhoid bacillus are blue and there is little or no reddening of the medium.

"(6) The colon bacillus produces indol in cultures of bouillon or peptone; the typhoid bacillus does not.

"(7) When a twenty-four-hour-old bouillon culture of the colon bacillus is mixed with the blood or serum of a patient suffering from genuine typhoid fever, in a dilution of one to ten or more, after the first week of the disease, the Widal reaction is negative; cultures of the typhoid bacillus treated in the same manner and examined in the hanging drop give the characteristic agglutination and clumping of the bacilli." (*Reference Handbook of the Medical Sciences.*)

4. The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbolfuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a minute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

5. (a) *Toxins* are the poisonous products of pathogenic bacteria.

(b) *Antitoxins* are substances formed in the body, of a protective character, and capable of rendering inert the poisonous products of bacteria.

(c) *Amboceptors* are antibodies having a double combining affinity; one linking on to the cell to be destroyed, and the other linking on to the alexin or complement.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE.	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery...Jan.	7
Arizona*	Ancil Martin, Phoenix	Phoenix...Jan.	6
Arkansas*	F. T. Murphy, Brinkley	Little Rock...Jan.	14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco April	7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver...Jan.	7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven...March	10
Delaware	J. H. Wilson, Dover	Dover...Dec.	10
Dist. of Col'bia	W. C. Woolward, Washington	Washington...Jan.	9
Florida*	J. D. Fernandez, Jacksonville	Ocala...April	13
Georgia	E. R. Anthony, Griffin	Atlanta...May	—
Idaho	J. L. Conant, Jr., Genesee	Boise...April	7
Illinois	A. Egan, Springfield	Chicago...Jan.	—
Indiana	W. T. Gott, 120 State House, Indiananolis	Indianapolis..May	26
Iowa	Louis A Thomas, Des Moines	Des Moines...Dec.	10
Kansas	T. E. Raines, Concordia	Topeka...Feb.	11
Kentucky*	J. N. McCormack, Bowling Green	Louisville...April	28
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans..May	21
Maine	Wm. J. Maybury, Saco	Portland...March	17
Maryland	J. McP. Scott, Hagerstown	Baltimore...Dec.	10
Massachusetts*	E. B. Harvey, State House, Boston	Boston...March	10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Detroit...June	9
Minnesota	W. S. Fullerton, St. Paul	St. Paul...Jan.	7
Mississippi	J. F. Hunter, Jackson	Jackson...May	12
Missouri	J. A. B. Adcock, Warrensburg	Kansas City... / St. Louis...	April
Montana*	Wm. C. Riddell, Helena	Helena...April	7
Nebraska	J. E. Sward, Oakland	Lincoln...	
Nevada	S. L. Lee, Carson City	Carson City...Feb.	3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord...Jan.	14
New Jersey	J. W. Bennett, Long Branch	Trenton...June	16
New Mexico	B. D. Black, Las Vegas	Santa Fe...June	1
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York... / Albany... / Syracuse... / Buffalo...	Feb. 4
N. Carolina*	G. T. Sikes, Grissom	Winston, Salem	May —
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks...Jan.	7
Ohio	Geo. H. Matson, Columbus	Columbus...Dec.	10
Oklahoma*	J. W. Baker, Enid	Guthrie...Dec.	—
Oregon	B. E. Miller, Portland	Portland...Jan.	8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia... / Pittsburg...	
Rhode Island	G. T. Swartz, Providence	Providence...Jan.	2
S. Carolina	W. M. Lester, Columbia	Columbia...June	9
S. Dakota	H. E. McNutt, Aberdeen	Mitchell...Jan.	8
Tennessee*	T. J. Happel, Trenton	Memphis... / Nashville... / Knoxville...	May —
Texas	G. B. Foscue, Waco	Waco...June	16
Utah*	R. W. Fisher, Salt Lake City	Salt Lake City Jan.	6
Vermont	W. Scott Nay, Underhill	Montpelier...Jan	14
Virginia	R. S. Martin, Stuart	Lynchburg...Dec.	17
Washington*	C. W. Sharples, Seattle	Spokane...Jan.	7
W. Virginia	H. A. Barbee, Point Pleasant	Parkersburg...April	14
Wisconsin	J. V. Stevens, Jefferson	Milwaukee...Jan.	14
Wyoming	S. B. Miller, Laramie	Laramie...Feb.	12

* No Reciprocity recognized by these States

† Applicants should in every case write to the secretary for latest details regarding the examination in any particular State.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending November 30, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	337	164
Diphtheria	343	26
Measles	323	15
Scarlet Fever	323	11
Smallpox	..	..
Varicella	115	..
Typhoid Fever	77	22
Whooping Cough	9	3
Cerebrospinal Meningitis	8	12
Malarial Fever	..	..
Totals	1535	253

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending November 29, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS
California, Bakersfield	July 1–Nov. 15	..	Present
Los Angeles	Nov. 10–16	1	..
Oakland	Oct. 1–31	20	..
San Francisco	Nov. 3–16	2	..
Tehachapi	June 1–Nov. 16	125	..
Florida, Duval County—Mandarin	Nov. 10–16	1	..
Indiana, Elkhart	Nov. 10–16	5	..
Illinois, Belleville	Nov. 10–16	3	..
Chicago	Nov. 17–23	2	..
Peoria	Nov. 13–19	4	..
Rockford	Oct. 1–31	1	..
Sherman	Oct. 28–Nov. 5	5	..
Springfield	Nov. 15–21	15	..
Indiana, Elkhart	Nov. 17–23	6	..
Iowa, Ottumwa	Nov. 17–23	6	..
Kansas, Kansas City	Nov. 10–23	2	..
Louisiana, New Orleans	Nov. 10–16	1	..
Michigan, Grand Rapids	Nov. 10 16	0	..
Minnesota, Winona	Nov. 1–16	2	..
Nebraska, Lincoln	Oct. 1–31	1	..
New York, Buffalo	Oct. 1–31	1	1
New York	Nov. 2–16	2	..
North Dakota, Ramsey County—Devils Lake	Oct. 1–Nov. 14	48	..
Terry	Oct. 1–Nov. 14	..	Present
Penn	Oct. 1–Nov. 14	..	"
Ohio, Cincinnati	Nov. 10–22	2	..
Tennessee, Nashville	Nov. 17–23	7	..
Utah, Salt Lake City	Oct. 1–31	1	..
Washington, Spokane	Nov. 10–16	7	..
Takoma	Nov. 10–16	2	..
Wisconsin, La Crosse	Nov. 10–16	4	..
Milwaukee	Nov. 3–16	2	..

SMALLPOX—FOREIGN.

Africa, Algiers—Algeria	Oct. 1–31	..	2
British South Africa—Cape Town	Oct. 13–19	1	..
East London	Oct. 13–19	1	..
Austria, Vienna	Oct. 10–Nov. 2	2	1
Brazil, Para	Oct. 25–Nov. 0	42	31
Pernambuco	Sept. 1–15	..	82
Sente Janeiro	Oct. 28–Oct. 20	30	15
China, Hongkong	Sept. 28–Oct. 5	1	1
Shanghai	Oct. 7–20	6	16
	Cases foreign, deaths native.		
Egypt, General	Sept. 17–30	19	5
France, Paris	Nov 1–9	3	..
India, Calcutta	Sept. 20–Oct. 5	..	2
Madrid	Oct. 12–18	..	1
Italy, General	Oct. 25 31	83	..
Catania	Nov. 1–7	..	1
Genoa	Sept. 1–30	..	1
Japan, Kobe	Oct. 13–26	11	2
Malta, Valetta	Nov. 2	1	..
Mexico, Aguas Calientes	Nov. 4–17	..	4
Portugal, Lisbon	Oct. 28–Nov. 2	2	..
Russia, Odessa	Oct. 20–26	1	..
Riga	Oct 21–Nov. 0	4	..
St. Petersburg	Oct. 13–10	1	..
Warsaw	Sept. 15–21	..	6
Spain, Almeira	Oct. 1–31	..	10
Barcelona	Nov. 1–19	..	2
Valencia	Oct. 28–Nov 3	22	5
Turkey in Asia, Bagdad	Sept. 30–Oct. 12	..	Present

CHOLERA.

China, Tientsin	Oct 5	1	..
India, Calcutta	Sept. 29–Oct. 5	..	23
Madris	Oct. 17–18	..	13
Rangoon	Oct 6–12	..	1
Japan, Kobe	Oct. 7–26	35	21
Yokahama	Oct. 22–28	4	5
Russia, General	Oct. 15–22	1,072	387

YELLOW FEVER.

Brazil, Manaos	Nov. 2	..	2
Para	Oct. 26–Nov. 0	13	0
Cuba, Habana Province—Habana	Nov. 20	1	From San Nicholas.
Matanzas Province—Alacranes	Nov. 21–24	1	1
Cienfuegos	Nov 20	4	..
Union de Reyes	Nov. 20	1	..

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Original Articles.

THE HEART REFLEX AND THE MECHANISM OF ANGINA PECTORIS.

BY ALBERT ABRAMS, A.M., M.D.,

SAN FRANCISCO.

BEFORE discussing the mechanism of angina pectoris it will be necessary to refer to certain preliminary facts concerning the heart reflex.

Attention was first directed[1] in 1898 to the phenomenon now known as the heart reflex. The reflex in question is a contraction of the myocardium of varying duration, which results when the skin of the precordial region is irritated. The cutaneous irritant may be a spray of ether directed over the region of the heart or the skin may be rubbed with a blunt instrument or by means of an ordinary pencil eraser or by a series of percussion blows. The nearer the irritant is applied to the precordial region and the more vigorous the cutaneous friction, other things being equal, the more pronounced is the heart reflex. The reflex is best observed with the Roentgen rays with the fluorescent screen approximating the anterior chest wall. The reflex is, as a rule, more manifest in the left than in the right ventricle, and the contraction of the myocardium is not always sudden and of momentary duration: on the contrary, its duration in children on whom most of the original observations were made is not less, as a rule, than

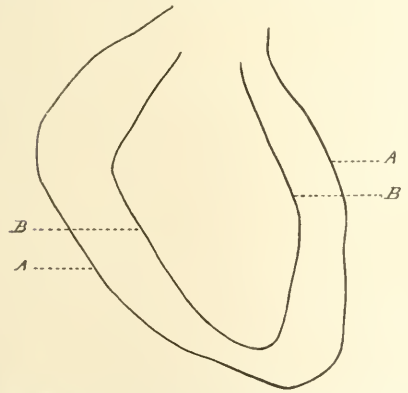

FIG. 1.—Heart reflex in a boy, aged 8 years. Duration of reflex, 2½ minutes. The normal outline of the heart drawn on the fluoroscope is represented by A, whereas B represents the outline of the heart after cutaneous irritation and shows the degree of myocardial recession or the heart reflex.

two minutes, and, furthermore, the myocardial recession continues even after the source of cutaneous irritation is removed. The degree of myocardial recession (heart reflex) varies greatly. In some persons it is scarcely perceptible, while in other individuals the heart may recede more than two centimeters on either side upon the first application of the cutaneous irritant. (See Fig. 1.)

In other instances, although the reflex is rarely absent in the norm, it is strictly confined to the left ventricle, as shown in Fig. 2.

In individuals with dilated hearts the reflex is very evident and is of very much longer duration than in healthy hearts. This latter observation, as we shall learn presently, has been confirmed by the careful observations of Merklen and Heitz.

FIG. 2.—Heart reflex in a boy aged 14 years. Duration of reflex, 55 seconds. A represents the cardiac outline before, and B after, cutaneous irritation, while C represents the upper border of the liver.

In the original communications concerning the heart reflex, the latter was observed only in the transverse cardiac diameter, but with the *x*-rays it can also be seen in the sagittal diameter. Subsequent observations demonstrated that the heart reflex could be elicited by irritation of more remote regions, viz., (1) by irritation of the nasal mucosa; (2) by irritation of the gastric mucous membrane; (3) by irritation of the rectal mucosa; (4) by irritation of the esophageal mucosa in the act of swallowing; (5) by percussion of the muscles; (6) by psychic irritations; (7) by vertebral concussion.

Irritation of the Mucous Membranes.—Here investigations were conducted during the time the *x*-rays were traversing the chest, and by means of the fluoroscope the heart was directly observed. It was noted that when irritating vapors were inhaled there was a decided recession of the cardiac ventricles (heart reflex), especially the left, and that this heart reflex was more pronounced than when excited through the skin of the precordium. Ether and chloroform inhalations also excited the reflex and in a few instances these vapors produced a veritable cardiac inhibition. It was noted that the reflex in question was excited by irritation in succession of the nasal, pharyngeal, and laryngeal mucous membranes, and when the latter were made anesthetic by cocaine no heart reflex could be elicited.

The accompanying sphygmogram (Fig. 3) shows a decided difference in the output of blood into the general circulation before and after the inhalation of ammonia:

The heart reflex may also be elicited by irritation of the gastric mucosa when the sponge of the gyromele is made to revolve against the membrane in question. One may also excite the reflex by irritation of the rectal mucosa by means of the finger in the rectum.

Percussion of the Muscles.—If one percusses the muscles (*tapotement*) of the extremities one can elicit cardic reflex. The latter is essentially a reflex of muscular origin exclusively, as such a reaction does not follow irritation of the skin of the extremities or percussion of the bones. Percussion of the muscles of one arm only suffices to elicit this reflex. Another curious feature of this myopathic heart reflex is that it causes retraction of the right heart ventricle only, the left being uninfluenced. Placing the subject before the *x*-rays this reflex is at once evident. After the heart borders are defined, request an assistant to percuss the muscles of one arm by means of a percussion hammer. Following the maneuver the right ventricle shows considerable retraction. The effect on the systemic blood pressure by percussion of the muscles is very slight, and this is obvious, considering that the left heart ventricle is uninfluenced by the maneuver.

Psychic Irritation.—We have always recognized the effects of emotions in the heart, but no tangible evidence of such effects has been demonstrated. The epigram of Peter is worth repetition: "The physical heart is the counterpart of a moral heart." The conventional expression of the frightened individual, "my heart was in my mouth," finds justification by an *x*-ray study of the heart. Inform the patient standing before the rays that you are going to burn him with a hot iron or frighten him in some other way, and the effect on the heart is at once manifest. It is a veritable psychic heart reflex implicating the entire organ. The heart becomes very much reduced in size, and appears as if it were retreating towards the neck. I know of no irritation, cutaneous or otherwise, that is so pronounced as is this psychic factor of fright in inducing the heart reflex. The foregoing fact is of the utmost importance in eliminating emotional influences in the treatment of cardiac diseases. Even in an ordinary *x*-ray examination of the heart one may observe in nervous patients a reduction of the heart mass. Mr. Bezley Thorne[2] observed that the heart shrank after exposure to the Roentgen rays. It is evident that the shrinkage thus observed was naught else but a cardiac reaction (heart reflex) to emotional influences, for an *x*-ray examination to the average patient is a momentous procedure. I have frequently witnessed the pulmonary reaction of fright: the lungs become hyperresonant on percussion, and the superficial areas of cardiac, hepatic, and splenic dullness become diminished, a condition which was called the *psychic lung reflex of dilatation.*[3]

The latter psychic reflex may be easily demonstrated if the areas of the organs in question are first outlined, and later, if the patient is frightened, percussion will demonstrate that the areas of the organs are reduced in proportion to the psychic reaction which provokes a dilatation of the lungs.

Vertebral Concussion.—Heretofore only one heart reflex was recognized, viz., the heart reflex of contraction, but when the spinal processes of the eighth, ninth, tenth, eleventh, and twelfth dorsal vertebræ are rapidly concussed in succession there is a decided increase in the area of cardiac dullness as obtained by percussion. This increase in the area of cardiac dullness is not associated, as the *x*-rays show, with any increase in the diameters of the heart. The latter fact corresponds with the investigations of Kornfeld,[4] who demonstrated that the heart muscle possesses the property of increasing the size of its cavities without any corresponding augmentation of tension of its walls, a condition which he calls *Ausweitungsfähigkeit.* By concussion of the spinous process of the seventh cervical vertebra, one may also provoke the ordinary heart reflex of contraction.*

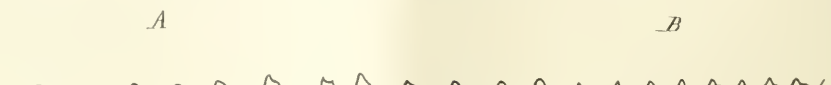

Fig. 3.—Sphygmogram of the radial artery A before, and B after the inhalation of ammonia.

Practical Value of the Heart Reflex.—Percussion of the heart, or, for that matter, any other organ adjacent to the lung, is associated with many errors, unless one takes into consideration the lung reflex. Percussion of the heart, as executed ordinarily, yields an absolute or superficial, and a deep or relative dullness. Practically little or no value can be attached to the superficial dullness in estimating the size of the heart, as it varies with the position of the overlapping lung borders. Even the lightest percussion blow will provoke sufficient cutaneous irritation to induce the lung reflex of dilatation, *i.e.* an acute dilatation of the lungs which may diminish the area of superficial cardiac dullness, even to obliteration. Cabot,[5] in his classical book, makes the following observation: "Anyone who has demonstrated an area of percussion dullness to many students in succession must have noticed occasionally that the more we percuss the dull area the more resonant it becomes, so that those who last listen to the demonstration, the difference which we wish to bring out is much less obvious than to those who heard the earliest percussion strokes. Abrams has referred to this fact under the name of the '*lung reflex.*'" Sahli, in his "Diagnostic Methods," refers to the same fact. The mere influence of room temperature materially changes the results of percussion. Let any one, after percussing the areas of superficial dullness, direct a current of cold air, *e.g.* from an atomizer, over the regions percussed, and

*The writer has reported other vertebral reflexes, but as yet the profession has given to them only inconsiderate attention. Such reflexes are of undoubted value in diagnosis and treatment and are unconsciously evoked by the manipulations of the osteopath who seems to have monopolized this field of vertebral therapy. Anyone who has reason to doubt the value of manual manipulation of the spine may attempt a maneuver which I have only recently observed. While palpating, say the radial pulse, make firm pressure at the vertebral exit of the spinal nerves (preferably at the side of the upper dorsal vertebræ) and one will note a decided alteration in the character of the pulse, which often amounts to inhibition of the latter.

the result will be diminution or obliteration of the areas in question. It is evident from what has preceded that, while the heart reflex can always be determined by the *x*-rays, after cutaneous irritation of the precordium, mere percussion of the superficial area of cardiac dullness cannot determine its exist-

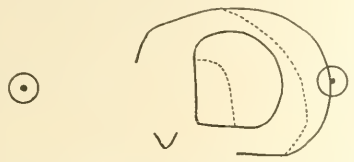

Fig. 4.—Cardiac reflex in a neurasthenic with functional troubles of the heart, reduction of the absolute and relative dullness. (After Merklen & Heitz.)

ence because the irritation necessary to evoke the heart reflex will also induce the lung reflex, which must necessarily mask the heart reflex.

Thus the observations of Schott and others, who seek to demonstrate the effects of carbonated baths on the heart by percussion of the latter organ are evidently erroneous unless such percussion takes into consideration only the deep or relative cardiac dullness. Heitler[6] perpetrates the same error by failing to take into consideration the coincident lung reflex when making cutaneous irritation. Heitler seeks to determine the sufficiency of the heart muscle by a series of percussion blows over the heart region. If, thereafter, the cardiac dullness is much diminished, it is an evidence, he argues, that the cardiac musculature is sufficient, for the tendency of the normal muscle tonus of the heart is to maintain a limited patch of dullness. As before remarked, the heart reflex can be observed directly with the rays, but if strong percussion is employed so that reliance is alone placed on the deep or relative cardiac dullness, the reflex in question may be determined by percussion. Heitz,[7] in discussing "Le Reflexe Cardiaque d'Abrams," observes that, while in the nor-

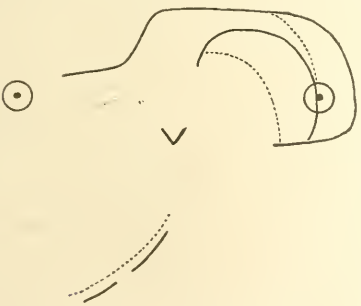

Fig. 5.—Hyposystole in an arteriosclerotic; reduction of the absolute and relative cardiac dullness and ascension of the inferior border of the liver under the influence of precardial massage. (After Merklen and Heitz.)

mal subject the heart reflex is of short duration, in cardiectasis it may persist for several hours. In the third edition of their valuable book ("Examen et Séméiotique du Cœur"), Merklen and Heitz show graphically the effects of friction of the skin in the region of the heart of a cardiac neurasthenic (Fig. 4), and in a cardiopath with hyposystolie (Fig. 5).

In Fig. 5 the reduction of the hepatic dullness is shown following the friction of the skin; the continuous lines show the superficial and the deep dullness of the heart before, and the interrupted lines the reduction of the areas after friction of the skin.

All physicians do not possess equal skill in determining the relative cardiac dullness, and I have devised a simple apparatus called the "Vibrosuppressor,"[8] which serves to simplify topographical percussion. If one percusses the normal chest, say

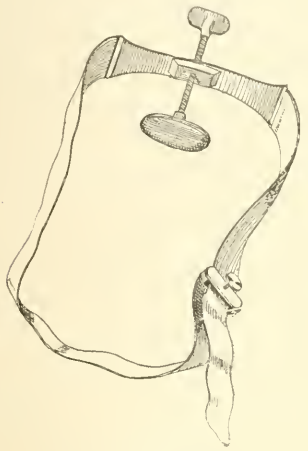

Fig. 6.—The vibrosuppressor.

beneath the clavicle, a sound is produced which is the product of the vibration of the lung tissue and

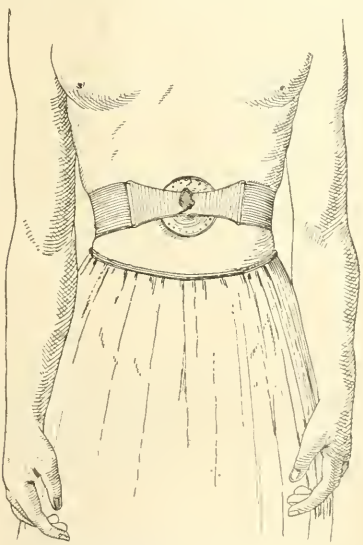

Fig. 7.—Application of the vibrosuppressor to the chest.

the thoracic walls. It is the summation of this vibration which interferes with the elicitation of the dullness of the airless organs in juxtaposition to the lungs. If the vibration in question can be eliminated, the definition of the viscera will prove easy of attainment. Briefly, lung resonance is made up of two chief factors, viz., vibration of the air in the lungs and vibration of the sternum. The latter is essentially a sounding-board. Thoracic vibration can be eliminated as far as possible by percussion of the organs at the end of a forced expiration, when

there is comparatively little air in the lungs to vibrate and by suppressing the vibrations of the sternum by means of the vibrosuppressor (Figs. 6 and 7).

The apparatus is modeled after a tourniquet, consisting of a pelote, screw, band (6 cm. wide) and clamp for fixing the latter. It is so applied that the pelote rests on the xiphoid cartilage of the sternum. The pelote is made to compress the cartilage by aid of the screw with all the pressure the patient can tolerate. Percussion is then executed during the time the apparatus is employed and preferably during suspended respiration, after forced expiration. In the absence of the apparatus, firm pressure made on the lower end of the sternum by the hand of an assistant will aid topographic percussion during the time the patient has suspended respiration after forced expiration.

The Heart Reflex of Nasal Genesis.—Reference has already been made to the fact that the heart reflex can be provoked by irritation of the nasal, pharyngeal, and laryngeal mucous membranes, and that if the irritation is sufficiently prolonged and violent the movements of the heart may be inhibited. If the membranes in question have been previously cocainized the heart reflex cannot be elicited. It is evident, then, that previous cocainization of the nasal and pharyngeal mucous membranes should precede the employment of an anesthetic. On theoretical grounds, the laryngeal mucosa should not be cocainized, as it is necessary to preserve the laryngeal reflex to prevent the entrance of foreign substances into the larynx.

The Heart Reflex of Gastric Genesis.—Knowing that irritation of the gastric mucosa will provoke the heart reflex, it is not improbable that sudden death of gastric origin may be caused by reflex inhibition of the heart. In instances of this kind the fact of a dilated stomach directly compressing the heart cannot be ignored. I have studied, by aid of the *x*-rays and the fluoroscope, the action of a dilated stomach on the heart by artificial distention of the stomach. The healthy heart can tolerate considerable compression and dislocation without modifying the intensity of the heart tones, but when the organ is diseased, the slightest compression and dislocation is followed by evil consequences. Artificial insufflation of the colon will also compress and dislocate the heart, but never in the same degree as will insufflation of the stomach.

The Heart Reflex of Rectal Origin.—Irritation of the rectal mucosa will also induce the heart reflex. Straining at stool in elderly people by increasing intraabdominal pressure, and thus putting a strain on the cerebral vessels, predisposes to rupture of the latter. Straining, however, is not wholly a question of pressure. Some patients, particularly those with weak hearts, suffer from collapse symptoms while straining at stool. In investigating the cause of such symptoms, I found that contraction of the abdominal musculature will cause even in the norm a veritable heart reflex with diminished output of blood from the left ventricle. For the latter reason the amount of blood is decreased in the arterial system and increased in the veins. The accompanying sphygmogram (Fig. 8) illustrates the effects of contraction of the abdominal musculature on the heart.

It is evident that if the heart is enfeebled the effects of such cardiac inhibition may be attended with serious results. It is well known that different nerves from the abdomen and intestine are in close communication with the cardioinhibitory center in the medulla and that reflex inhibition of the heart can be easily produced in the frog by tapping a loop of the intestine with the handle of a scalpel. Severe abdominal affections, like peritonitis and appendicitis, are frequently attended with symptoms of heart collapse, owing, no doubt, to reflex inhibition of the heart.

Anyone can appreciate the inhibitory influence on the heart by contraction of the abdominal muscles, by palpating the radial pulse while straining at stool.

Relative Valvular Insufficiency.—The normal heart can easily adapt itself to the average grades of dilatation such as occur during exertion; in fact, the size of the cavities of the heart varies even in health, and a dilatation is physiological as long as the heart cavity is capable of emptying its contents during systole. What is called "getting wind" in climbing a mountain or in athletic training is practically a moderate dilatation of the cavities of the right heart. In relative valvular insufficiency the valves are normal, but they are no longer capable of completely closing the orifices of the heart. This condition is frequent after heart strain and involves particularly the tricuspid valves. A murmur which is heard in such instances may be made to disappear

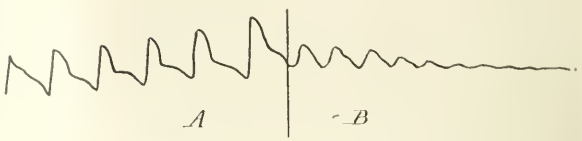

FIG. 8.—Sphygmogram (A) before and (B) while straining at stool.

temporarily by inducing the heart reflex, which, by causing myocardial contraction, reduces the size of the cardiac orifices, thus enabling the valves to close the openings. Here the excitant of the heart reflex must be vigorous and for this purpose the sinusoidal current, with both electrodes to the precordial region, is most efficacious. Percussion of the precordial region with a percussion hammer will often suffice.

Pericardial Effusion.—The differential diagnosis between a dilated heart and a pericardial effusion is often conceded to be a difficult clinical problem. From what has preceded we see the heart reflex can be employed in diagnosis. The reflex in question is absent in pericardial effusions and present in cardiectasis. In other words, after the heart reflex is provoked the area of deep cardiac dullness will be uninfluenced in effusions but modified in cardiectasis.

It may be difficult to say whether a pulsating intrathoracic mass examined with the *x*-rays is the heart or an aneurysm. A retraction of the mass after provoking the heart reflex would indicate that it is the heart and not an aneurysm. Cooper utilized the foregoing fact in differential diagnosis. I will not attempt to discuss the therapeutic value of the heart reflex, but it is my personal opinion that the carbonated baths in the Schott treatment possess no special effect beyond their action in provoking the heart reflex by cutaneous irritation and that cutaneous friction by any other method is equally efficacious. The foregoing conclusion is formulated only as a result of many years of observation. Massage of the precordial region or the

employment of the sinusoidal current, especially in cardiopaths, will reduce the area of the heart and the pulse-rate and augment blood-pressure. The now prevailing fetish in cardiotherapeutics is Nauheim. I subscribe equally to the efficiency and deficiency of this famous resort, but it is puerile to endow its waters with marvelous attributes.

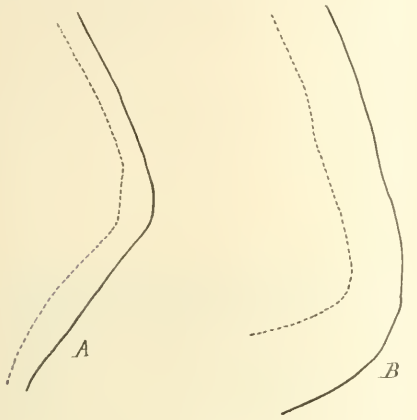

Fig. 9.—The heart reflex. A before, and B after, the use of digitalis.

Angina Pectoris.—Among the theories of angina, that of Allan Burns appeals most cogently to reason. The latter assumes that, in consequence of a transient ischemia of the heart-muscle caused by disease or spasm of the coronary arteries, a condition analogous to intermittent claudication ensues. It is known that the coronary arteries are practically always diseased in fatal cases of angina, but if we accept the observation of Schäfer that the coronary vessels are unprovided with vasomotor nerves, the theory of intermittent claudication of the coronaries must necessarily suffer a serious setback unless supported by other evidence. The coronary arteries supply the heart with blood only during diastole, for during systole the ventricular wall is so strongly contracted that the muscular tension becomes greater than the coronary pressure and so the coronary artery and branches are compressed and the blood is driven back into the aorta. It is our contention that the theory of Burns is correct, but that the ischemia is quite independent of the coronary arteries, which are merely passive structures. We assume that any factor operating to augment the tonicity of the cardiac musculature compresses the arteries in question and thus induces ischemia. The heart reflex is essentially a myocardial contraction and when the reflex is in evidence the coronary arteries are subjected to varying degrees of pressure. If in an attack of angina, the pulse shows augmented tension and is small and perhaps diminished in rate, or if syncope is observed, such symptoms are explainable by the heart reflex.

We know that when the reflex is in evidence, the heart is practically inhibited; there is a diminished output of blood into the general circulation and, if the pulse shows increased tension, it is only an expression of vasomotor activity which assumes the burden of maintaining the circulation.

If one studies the etiology of angina, one notes that the factors which precipitate a paroxysm are also equally operative in inducing the heart reflex. Muscular effort is a potent factor which also provokes the myopathic heart reflex. Emotion is another prominent factor and led John Hunter to observe that "his life was in the hands of any rascal who chose to annoy and tease him." Emotion as a cause corresponds with the psychic heart reflex. A gust of wind striking the chest is equally involved in inducing either an attack of angina or the heart reflex.

Oliver demonstrated that patients who have suffered from precordial pain obtain permanent relief on the supervention of cardiac dilatation and failure, and Broadbent has shown that the supervention of mitral insufficiency may diminish the tendency to anginoid attacks.

Now, in cardiectasis, while the heart reflex can be provoked, the cardiac musculature is enfeebled and the resulting pressure on the coronary arteries is correspondingly diminished. Reference has been made to the heart reflex of dilatation and in several instances, during my office hours, I have inhibited anginoid pains by concussion of the vertebræ which induces cardiac dilatation, and I have employed the same method with fairly good results in the treatment of angina pectoris. In other instances, I have unintentionally provoked attacks of angina in studying the heart reflex and the methods for its elicitation.

By means of the heart reflex, one can easily comprehend the attacks of false angina. In functional angina, the heart reflex is always accentuated as I have assured myself by repeated *x*-ray examinations. In cardiodynia (*Herzangst*) observed in neurotics, one is dealing essentially with a psychic heart reflex.

There are etiological factors concerned in angina which on first view could find no explanation by my heart reflex ischemic theory, yet on reflection, the theory is applicable. Thus, one of my friends, a physician in Paris, suffers like several other members of his family from pronounced attacks of angina pectoris several hours after the use of coffee, tea, or tobacco. One knows, for instance, that the effect of caffeine in small doses on the cardiac muscle is to increase its activity; in larger doses, it produces phenomena analogous to fatigue, and in very large doses, the muscle is thrown into rigor. In the latter instance, the strong contraction of the myocardium (which is essentially a heart reflex) mechanically compresses the coronary vessels.

The toxic factor here involved in eliciting the heart reflex is necessarily delayed and cannot be

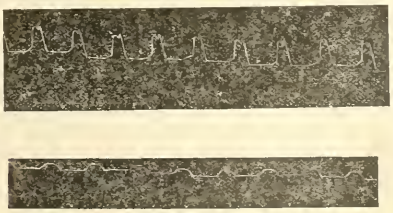

Fig. 10.—A, Tracing a normal anterior tibial artery; B, tracing of same artery in claudication.

immediate like the other factors concerned in the elicitation of the reflex in question. Digitalis and other circulatory stimulants may provoke an attack of angina for the reason that they augment the tonicity of the cardiac musculature. Digitalis increases the amplitude of the heart reflex as shown in Fig. 9.

Recently I have observed the following singular

phenomenon: After placing the ankle of one lower extremity on the knee of the other extremity, the pulse of the anterior tibial artery is easily palpated. Next, direct the patient forcibly to extend and flex his foot (the leg occupying the same position) a number of times in succession. If the tibial pulse is again sought, it will be either very feeble or absent. In the norm fully 30 seconds may elapse before the pulse has attained its former volume. The blood-pressure also falls. In a patient with claudication, five minutes elapsed before the tibial pulse resumed its former volume. This test may prove of value in the diagnosis of the latter affection. I assume that the tibial artery, immersed as it is in a muscular atmosphere, responds reflexly to the muscular contractions, and in arteriosclerosis the longer duration of the arterial contraction accounts for the phenomena of claudication. Here, as in my heart reflex theory of angina, the ischemia is dissociated with vasomotor action, insomuch as when amyl nitrite is inhaled, obliteration of the tibial artery is effected by the muscular maneuver suggested.

The treatment of angina pectoris includes the elimination of all factors concerned in the elicitation of the heart reflex. The value of amyl nitrite inhalation in the treatment of a paroxysm is universally conceded. When the latter drug fails, and it often does, the failure may be attributed to irritation of the nasal mucosa which induces the heart reflex, which would still further accentuate the paroxysm. In such instances and, in fact, in nearly all instances, the action of the drug in question is aided by previous cocainization of the nasal mucosa, which eliminates the irritant factor in amyl nitrite inhalations. Concussion of the lower dorsal vertebræ (daily treatment) should be given a trial in the treatment of angina pectoris to induce the counter-reflex of dilatation.

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THE REACTIVE POWER OF THE WHITE RAT TO TISSUE IMPLANTATION.

A PRELIMINARY COMMUNICATION.*

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NEW YORK.

The question, with what measure of success can we implant tissue or even whole organs of a highly organized animal into another part of the same individual or into another individual of the same species, is of greatest interest and importance in biology and medicine.

The tissues and organs of an adult organism perform the different functions allotted to them, take part generally in the metabolic processes of nutrition; but, with few exceptions, they do not grow any further; the cells of the tissues do not proliferate. The same difference in the life energy of the cell takes place apparently when it is severed and implanted in a new place. The transplanted cells may remain alive and are able to perform their normal functions for a certain time; but they do not proliferate. The whole thyroid and pancreas have been successfully transplanted, and lately Carrel[1] performed the wonderful experiment of transplanting the whole urinary system—kidney, ureter, and part of the bladder—from one cat into another, whose own kidneys were removed, and the second cat lived for some weeks. On the other hand, we meet with far less success when we are implanting only pieces of an organ with the aim of causing the further proliferation of cells of the severed tissue.

Of all the pathological processes in which proliferation of cells takes place, the hardest to comprehend as well as the most important, is the formation of a malignant new growth, and practically all the experiments with implantation of tissue have been done in order to elucidate the genesis of malignant tumors.

The implantation of normal tissue, embryonic or adult, has usually been done in order to prove a certain preconceived theory as to the factor inciting the cell proliferation in a new growth, the genesis of tumors. Cohnheim's theory that the excitants of tumors always act upon embryonic cells, which remain in a certain part of the organs without developing into mature tissues, was followed by a series of experimental works dealing with implantation of embryonic tissue by Zahn,[2] Fischer,[3] Birch-Hirschfeld and Garten.[4] Weigert and Ribbert maintained that no outside irritant acting on a cell could induce a bioplastic process, but only a katabiotic, *i.e.* that cells under the influence of some irritating agent acting from without may disintegrate, undergo regressive metamorphosis, but not proliferate. They have consequently advanced the following hypothesis to explain the genesis of tumors. Every cell of the organism is able to proliferate. That it does not do so under ordinary circumstances is due to the fact that it forms a part of the organic whole, and is

Fig. 1.—Appearance of a piece of liver tissue ten days after implantation.

*Read before the New York Pathological Society, November 13, 1907.

therefore restrained by the "tissue tension." If these influences are removed through the severing of the connection of the cells with the rest of the organism, the proliferating power hitherto suppressed manifests itself until the tissue tension is restored. If the severance of such cells from their organic connection is complete, and the disconnected cells are not so numerous as to contain a certain "tension" in themselves, malign tumors will develop. On the other hand, if such cells are but incompletely severed, and comprise a kind of organic union, benign tumors will develop.

This hypothesis explains in a very satisfactory manner the formation of tumors, and also presents a uniform conception of all the factors of growth and development of an organism, but it certainly requires some experimental proof. Some tissue implantation, with the aim in view to prove this theory, was done by Ribbert[5] himself and Lubarsch.[6] In 1901 I published the report of a series of experi-

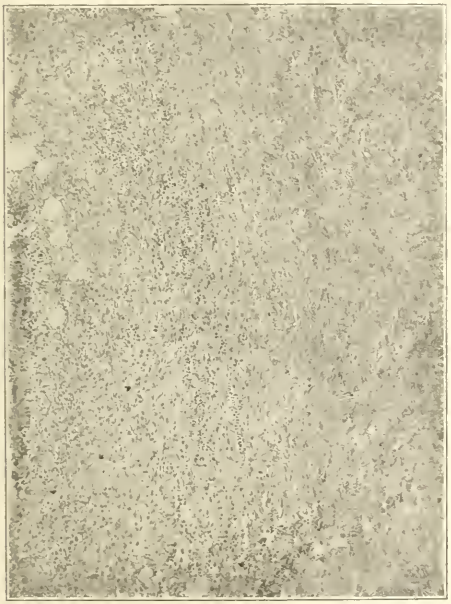

Fig. 2.—Appearance of a piece of skin after double implantation—seven days in the peritoneal cavity of one animal, thirteen days in that of another.

ments which I had undertaken on rabbits and dogs with implantation of different tissues.[7] In these experiments I tried in a variety of ways to free cells from the restraining influence of the rest of the organism under conditions most favorable for their subsequent proliferation, and thus to ascertain whether they could be made to proliferate indefinitely and consequently produce a tumor. Nichols[8] reported, in 1905, a very similar set of experiments. In the great majority of these experiments the results were negative. The implanted tissue usually becomes necrotic and is subsequently absorbed. The only exception is implanted epidermis, which proliferates to some extent.

A priori one would expect more success with the implantation of pieces of tumor than with normal tissue. Whatever the cause, tumor cells are certainly in a state of increased proliferation. But the implantation of tumor tissue in animals gave the same negative results. The successful transplantation of the sarcoma of the genital organs of the dog cannot be considered here, as the question whether this is a real tumor or an infectious growth similar to lues is not yet settled.

In complete contrast with all these negative results stands the great success of the transplantation of sarcoma and carcinoma in white mice and rats. Since the first reports of positive grafting by Hanau,[9] in 1889, an immense number of successful transplantations were done by Morau,[10] Velich,[11] Loeb,[12] Jensen,[13] Michaelis,[14] Bashford,[15] Ehrlich,[16] Flexner and Jobling,[17] and others. This great difference between tissue implanted into any other animal which had so far been experimented upon, and pieces of a tumor of a white rat or mouse implanted into another animal of the same species, could be due only to one of two causes: Either the intrinsic power of limitless proliferation of a carcinoma or a sarcoma cell of a white rat or mouse is greater than that of a cell of any other animal, or else these animals react differently to tissue implantation than do other laboratory animals. The majority of the workers in this field seem to lean to the first explanation, and think even that the experiments on these animals have proven that the genesis of tumors generally must be explained by the intrinsic power of a tumor cell to limitless proliferation. Nevertheless, there are facts in the results of these transplantations which seem to indicate that a great deal may be due to the reaction of the organism to the implantation.

In the first place, while a cell may act quantitatively differently in a different animal, it is hard to suppose that tumor cells so completely identical morphologically will be absorbed completely when implanted in any other animal, and will continue their growth and proliferation in a rat, and that still the difference will lie only in the cell itself. It has been shown that if we take pieces of a tumor from a rat or mouse, and implant them into one hundred other rats, the pieces will grow in only ten or twenty rats, and will disappear in the other ninety or eighty rats. But if pieces from an implanted tumor are reimplanted into other rats or mice they will take in a greater percentage, and this increase will continue in the following generations of transplantation. On the other hand, through certain agencies the animals can be made refractory to tumor implantations. This difference in the capacity for growth of the same tumor in different animals of the same species must certainly be due either to something the tumor cell has acquired in the previous host, or else to the different reactive powers of the different animals. The same holds true for the fact that the same tumor, while growing well in a rat taken from Copenhagen, does not grow at all in a rat from Berlin.

It may be interesting to note in this connection the following facts: A great deal of work was done with transplantation of human tumors on an animal and, as was to be expected *a priori*, with negative results. But Dagonet succeeded by implanting human carcinoma on a white rat in producing a real epithelial growth; and, what is very important from the standpoint of the influence of the host on implantations, the cells in the rat differed in size from the implanted human cells.

The hardest phenomenon to explain by the intrinsic power of the implanted tissue is the change of an implanted carcinoma into a sarcoma. Ehrlich thinks that in these cases the connective tissue stroma of the implanted tumor changes into sar-

coma; but it would certainly be impossible to prove that this stroma is the implanted one and not the one formed by the host.

In view of all this it seems *a priori* possible that the white rat reacts differently to implantation, not only of tumor, but also of normal tissue, and to test this question experimentally this research was undertaken. I am implanting tissues of different organs into another place of the same rat or into other rats. While the work is not yet finished, and the detailed report of the experiments will be published later, some impressions have already been gained which seem of considerable interest.

Pieces of tissue of a size that would be absorbed in another animal very rapidly remain unabsorbed in the rat for a longer time, even when, as in the peritoneum, they do not become attached anywhere, but float like a foreign body. Much more frequently the pieces are either surrounded by a capsule consisting of an outer fibrous layer, and an inner one made up chiefly of round cells, or else the round cells invade and eat away, as it were, the implanted tissue. One is impressed with the great amount of organization going on around the implanted pieces. On the other hand, the pieces themselves seem to retain the cell structure much longer than is usual in other animals. Figure 1 presents a specimen that was prepared from a piece of liver which was implanted ten days before the animal was killed; the nuclei and the general structure of the liver are still apparent. The same specimen shows the great quantity of round cells around the implanted piece.

Figure 2 presents a specimen from a very interesting growth. A piece of skin, which had previously been for a week in the peritoneum of a rat was implanted into the peritoneum of another rat. The animal was killed thirteen days later. At the autopsy there was found a tumor the size and shape of a nut, which was adherent to the anterior wall of the stomach and the lower surface of the liver, and moving freely with the liver. On incision it appeared to be a cyst containing a cheesy mass and pus; the wall was about one-eighth of an inch in thickness. As is seen under the microscope, the wall of the cyst consists of an external fibrous part and an internal one richer in cells.

Such an extensive reactive cellular organization, whether against an implantation of foreign tissue, or even against infection, one does not meet in other laboratory animals. We know, then, that the implanted tumor tissue of a rat proliferates and grows. It was further proven experimentally that extracts or filtrates of tumors without cells do not produce any growth in another animal.

The aim of my work is to see whether the normal tissue of a rat implanted into another rat will itself grow or only incite the cells of the host to proliferation, and, if so, whether it can incite to proliferation only the connective tissue cells, or the epithelium also. Should the cells of a normal implanted tissue not proliferate, then I shall combine normal tissue with cell-free extract of a tumor, and shall note whether in this combination a normal cell can be caused to proliferate in the host. All this will be the subject of my future communication.

In conclusion, I wish to express my gratitude to Prof. T. M. Prudden for the privilege of the laboratory. Prof. J. H. Larkin has aided me greatly in the microscopical part of the work, and I take pleasure in extending to him my thanks.

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NOTES ON EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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As it is obviously impossible in the time which has been allowed me to elaborate upon all of the refinements of diagnosis of phthisis, I propose to confine my discussion of the subject to such features only as are more or less limited to the earliest stages of the disease and to such methods as are at the command of every practising physician.

At the meeting of the National Association for the Study and Prevention of Tuberculosis in 1905, the Committee on Nomenclature presented a scheme of classification of the various stages of phthisis which was adopted by the Association. In this scheme the incipient stage of the disease was described as follows: "Slight initial lesion in the form of infiltration limited to the apex or a small part of one lobe. No tuberculous complications. Slight or no constitutional symptoms, etc. Slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours, especially after rest. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent."

None realize more keenly the inadequacy of such a definition than did the members of that Committee, of which I was one. On the other hand, some plan of classification upon which all could agree seemed necessary and—without going into a lengthy, intricate and confusing description—no better definition was brought before the Committee, which finally agreed upon the foregoing, unsatisfactory though it be.

The difficulty is this—that no description, based upon physical signs alone, is sufficient to determine the incipiency of a tuberculous lesion and as a consequence a diagnosis, which would classify a case as incipient according to this definition, might and not infrequently does convey a very erroneous idea of the situation. For instance, a patient presenting such a clinical picture as would thus classify him might very well have had tuberculosis for ten years and thus, in a true sense, his disease would naturally be anything but incipient, and the diagnosis could not on the broadest acceptation of the term be called an early one.

It follows, therefore, that the first and most important procedure in arriving at an early diagnosis is a thorough and painstaking inquiry into the personal and family history of the patient. Such an investi-

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gation when intelligently conducted is, I venture to say, of even greater value than the physical examination itself, for in the true incipiency of a tuberculous lesion, especially if deeply located, physical examination of the chest is often negative or at best uncertain. History taking is very apt to become a perfunctory, and in so far valueless, inquiry into the first symptoms of the present illness, while a negative answer to the question: "Has any member of your family died of consumption?" is too often accepted as sufficient to cover the ground of family history.

To arrive at a correct diagnosis of an early pulmonary tuberculosis, before consolidation and bacilli are demonstrable, is by no means an easy matter, yet its importance every one may realize who will familiarize himself with the statistics of treatment. Any procedure, therefore, however tedious and time-consuming, which will aid in diagnosis at this stage of the disease cannot be considered gratuitous. In taking a history one should not be satisfied to begin with the present and trace back to the earliest manifestations of ill health which the patient presents, but should start with an inquiry whenever possible into the family conditions at the beginning of pregnancy and make a sequential investigation from that time to the present. It is surprising how frequently such an investigation will throw light upon a case and justify conclusions as to its tuberculous nature, when without such a history with its circumstantial evidence one would be unwilling to assume the responsibility of pronouncing a positive diagnosis with all that the latter involves to the patient and his family. I need only mention, to make evident their important significance, such points as the history of a persistent, however slight, afternoon elevation of temperature, of loss of weight, undue lassitude following slight exertion, of occasional night sweats, of great susceptibility to "colds," of attacks of supposed "grippe," etc., to say nothing of such almost pathognomonic phenomena as hemoptyses and pleurisies.

Again with regard to family history, while it may be found that no member has died of the disease, a careful inquiry may develop the fact that at some time during the previous life of the patient some one of the household was invalided for a greater or lesser period with symptoms which justify the assumption that tuberculosis was the cause, and while such an individual may have recovered, it may very well not have been until infection was propagated. I regard, therefore, a searching investigation into the personal and family history as of first importance in arriving at an early diagnosis and of value, compared to which the physical examination itself is secondary.

Physical Examination.—In the refinements of physical examination of the chest we have not to-day progressed much beyond the teachings of Laennec. Indeed, to read Laennec's marvelously accurate descriptions of the adventitious signs elicited by auscultation one can but regard him with wondering admiration and acknowledge that he left little to be developed by future generations along the lines of his peculiar researches. It is not, however, with classical signs of phthisis that he has to deal who would diagnosticate incipient tuberculosis—here the departures from normal in the sounds elicited are so slight as often to be confounded with perfectly physiological phenomena, and only repeated and most painstaking search under the best conditions will give definite results, while it must be remembered that absolutely negative results from a physical examination may not be incompatible with a tuberculous lesion which has advanced beyond a true incipient stage. Nevertheless, in the vast majority of cases a thorough examination of the whole surface of the chest under suitable conditions will reveal enough to justify a diagnosis especially when, as most frequently is the case, corroborative evidence from the history is at hand.

For accurate results the physical examination should be conducted in a well lighted apartment where quiet prevails—first, with the patient standing and afterwards, if necessary, reclining on a suitable table. It goes without saying that the patient should be stripped to the waist and that a proper stethoscope be used, for the finer signs of the earliest changes cannot be detected by the unaided ear nor with the intermediation of a handkerchief or towel, opinions to the contrary notwithstanding. Adventitious sounds produced by recent development of tubercle and during the stage of incipiency are necessarily confined to very limited areas, hence it follows that to detect them the stethoscope must be applied to every available part of the surface of the chest in order to locate the lesion and to eliminate multiple deposits. This certainly takes time and is tedious, but it is essential to early diagnosis.

Before beginning the examination a few minutes may profitably be spent in instructing a patient how to breathe and to cough, for much depends upon the intelligent cooperation of the patient in such an examination. The patient should be told to take full, rather deep, but not forced, respiration except when asked to do otherwise. If there is any nasal obstruction better results are obtained by mouth breathing. When asked to cough the patient should be instructed to do so without violence, and at the end of expiration a single easy cough to be followed immediately by a rather full inspiration.

Proceeding now with the examination and limiting the discussion to those signs which are associated with the earliest demonstrable changes in the lungs. Inspection may be of aid provided the lesion involves or is just under the pleura when a slightly delayed and possibly restricted mobility may be demonstrated upon the affected side. If this is marked, or if Litten's sign be present, the lesion is not incipient, but a slight difference in rhythm or extent of mobility between the two sides is often a very early sign.

Inspection should moreover be carried beyond the chest. For instance, a pupillary dilatation should be recorded if present. A pallor of the lips and mucous membrane, of the pharynx and larynx is very significant and often an early sign—always appearing at a later stage. Slight or even pronounced vasomotor disturbances, particularly a disproportionate emotional flushing of the face associated with dilatation of the pupils, are not infrequently observed in the earliest stages of the disease. Palpation and percussion phenomena may properly be left out of present consideration, as any lesion which is capable of producing a percussion dullness, however slight, or a perceptible increase in vocal fremitus can no longer be classed as early or incipient. The changes which we have to look for it must be remembered are yet interstitial and confined perhaps to a small field of peribronchial lymphatics; there is no consolidation or softening, and the infiltration is not sufficiently widespread or intense to cause change in percussion resonance.

Auscultation, however, if thoroughly practised with a good stethoscope will commonly reveal even the earliest changes in the lung, unless very deep seated. In practising auscultation one should have in mind the physiological differences in breath sounds and voice conduction between the two apices and the peculiar wavy harshness in an area near the lower angle of the left scapula which is also physio-

logical and probably produced by the cardiac relations in this region.

J. S. Billings, Jr., has shown that the normal relative intensity of the breath sounds between the apices and bases of the upper lobes may be expressed in the ratio of 4 to 3 or 5 to 3, respectively, and that any considerable departure from this ratio may be considered abnormal. To demonstrate this ratio Billings advocates the employment of the graduated tube of Oertel's stethoscope, but admits that it is applicable only in the hands of an expert. From my own experience I am inclined to believe that the method has merit, but is not practicable with instruments at present available. A small tuberculous mass entirely too minute to cause percussion dullness may, and usually does, cause changes in the character of the breath sounds, which careful auscultation will bring out. All are familiar with these signs—prolonged expiration, slightly raised in pitch and an occasional inspiration click especially after coughing. It is unnecessary to discuss them in detail at this time. What I desire to emphasize is the undeniable fact that when râles, percussion dullness, increased fremitus, increased vocal resonance, or even a marked intensification of the signs, which I have enumerated as being characteristic of a very early lesion, are any or all of them present the disease is no longer incipient, and therefore the diagnosis cannot be termed an early one. Moreover, sputum and x-ray diagnoses need not here be considered since neither are of benefit in discerning the early changes, which alone we have at present under discussion.

It is indeed a comparatively rare experience for a physician to have the opportunity of examining a really incipient case of pulmonary tuberculosis, notwithstanding the energetic propaganda of the last ten years or more. It is seldom that the physician is consulted at all before the disease has advanced to a stage where bacilli are easily demonstrable in the sputa and consequently where softening has occurred. This is evidenced by the difficulty which all sanatoria encounter in their efforts to secure early cases even for their charity divisions. Of the refinements in methods of diagnosis applicable to tuberculosis, refinements which have by their reliability won their way into a more or less general recognition and favor, the application hypodermatically of tuberculin is perhaps the oldest and most tried. In early, or for other reasons, obscure cases a positive reaction undoubtedly clears up the diagnosis. In the hands of experts the method is probably free from danger, but I confess I cannot overcome a prejudice against its general employment, and am convinced that in the hands of those who have not had a large experience in its use, it may not only fail to aid in diagnosis, but be fraught with no little danger to the patient.

The agglutination test, similar in theory to the Widal reaction in typhoid fever, has never become popular because of the necessary limitations in its field of application, the difficulty in commanding the necessary laboratory facilities, and still more because it has so often proved an unsatisfactory aid to diagnosis. Interest has more recently been aroused by the discovery by von Pirquet of Vienna, of a phenomenon which follows the application of a solution of tuberculin to a scarified area on the skin of a tuberculous individual. This has been called the "cuti-reaction" and consists in the formation of a small vesicle with a surrounding areola of hyperemia and mild induration disappearing after eight to fifteen days. The reaction when positive is very characteristic. Von Pirquet and his colleagues have employed it chiefly in children and have claimed remarkable accuracy of results. Others, however, have not found it so reliable, especially when applied to adults.

Von Pirquet's communication was made early in the present year and somewhat later Calmette suggested a modification of von. Pirquet's method, known as the "ophthalmo-reaction." This reaction depends upon the sensitization of the conjunctival mucosa by the presence and development of tubercle in the system just as the "cuti-reaction" depends upon the sensitization of the skin. It is, however, apparently a more delicate and consequently more sensitive test of the presence of tuberculosis in the system. It seems to correspond in point of accuracy with the subcutaneous method and it is difficult to imagine how it can be in any way harmful when ordinary aseptic precautions are taken. Dr. Baldwin and his colleagues in Saranac Lake, who have doubtless had the largest experience of any in this country in the application of this test, up to the early part of September had applied the "ophthalmo-reaction" to 136 persons. A summary of their results was presented by Dr. Baldwin at the First Annual Meeting of the Fourth District Branch of the Medical Society of the State of New York, September 18, and will doubtless be published presently. Briefly described, the technique of its application is as follows:

Koch's old tuberculin is precipitated by 95 per cent. alcohol, and a 1 per cent. solution in physiological salt solution is then made of the precipitate. About one drop of this solution is instilled into the conjunctival sac of one eye. (Baldwin advocates using ½ per cent. solution first to avoid severe reaction.) At the expiration of from three to forty-eight hours afterwards the reaction appears in the form of a well-marked congestion of the palpebral conjunctiva, while the lacrymal caruncle becomes swollen and red. In severe reactions the whole conjunctiva is congested and there may be a fibrinous secretion. There is no pain nor much discomfort, although a mild photophobia and burning sensation are experienced. The reaction has practically disappeared within twenty-four or sixty-six hours after its commencement. It is, of course, contraindicated when there exists disease of the eyes or lids.

Through the kindness of Dr. Baldwin I recently obtained some suitable solutions of tuberculin thus prepared and up to the present time have applied the test in twenty-three cases as follows:

The twenty-three cases were divided into four classes:

(*a*) Five normals. These were taken from apparently perfectly healthy nurses and members of my staff, giving no suggestion either past or present of ever having had a tuberculous infection.

(*b*) Ten doubtful cases in which their present condition or past history was suggestive of a latent or incipient tuberculosis.

(*c*) Five cases of unquestionable pulmonary tuberculosis, moderately advanced, and with one exception with positive sputum at the time of the test.

Finally, (*d*) Three cases of unquestionable tuberculosis with positive sputum, but who were under inoculation treatment with "bacillen-emulsion," having reached a dosage of two milligrams of the solid substance.

On October 15, .025 c.c. (about one drop) of a ½ per cent. solution was instilled into the conjunctival sac of the left eye of each individual. The normals, comprising Class (*a*) gave an unquestionably negative reaction. Of the ten doubtful cases in Class (*b*), only six were tested with the

½ per cent. solution, all responding negatively with one exception and that giving but a faintly positive reaction. Of the five undoubted cases of tuberculosis, comprising Class (*c*), three gave a positive reaction, one a questionable reaction, and one a negative reaction. Of the three cases under inoculation treatment, comprising Class (*d*), all were clearly negative.

Fifty-eight hours later, .025 c.c. of the 1 per cent. solution was instilled into the conjunctival sac of the right eye in all cases which had given a negative response to the first test. This test resulted as follows:

The five normals again gave a clearly negative reaction. Of the five cases in Class (*b*) giving a negative response to the first test, only one gave a positive reaction and this a rather questionable one. Of the remaining four cases in this class two were negative and two positive. Of the latter one was a young man giving a very suspicious history, but quite negative to physical examination of the chest. Of the two undoubtedly tuberculous cases in Class (*c*) giving a negative and doubtful reaction respectively to the first test, the first gave a faintly positive reaction and the second a negative reaction to the last test. Of the three patients under inoculation treatment responding negatively to the first test, two responded negatively to the second test and one gave a very slightly positive reaction.

These results, it seems to me, are extremely interesting, especially when considered with the results of the much larger number of individuals tested by Dr. Baldwin and his associates. Of course, it is too early to draw conclusions or very broad inferences, but it would seem as though we had in the ophthalmo-reaction an aid to early diagnosis every bit as reliable as the subcutaneous injection test, much easier of application since the presence or absence of elevated temperature is immaterial and a close observation of the temperature curve following the application of the test is unnecessary. Furthermore, there appears to be absolutely no constitutional reaction, and apparently no possible danger from the application of this test. For private or dispensary practice its advantages over the subcutaneous tests are obvious. Its most promising field of application seems to lie with just this class of individuals for whom a reliable test is most important, viz., the class of truly incipient tuberculous individuals in whom other methods of diagnosis are either doubtful or fail altogether. Experience up to the present time would indicate that the ophthalmo-reaction is likely to be negative in certain cases of long-standing tuberculosis where a long-continued autoinoculation has conferred a certain immunity, in acute general miliary tuberculosis, and among those individuals who have been immunized by inoculation treatment. It would further seem that the delicate sensitization of the tissues, which appears to obtain during the very earliest developmental period of tuberculosis favors the most characteristic reactions, and for this reason particularly the test is most promising.

In conclusion a word must be said regarding the value of the opsonic curve in relation to early diagnosis. I am aware that the opsonic index as applied for the purpose of diagnosis in pulmonary tuberculosis and its application to the treatment of the disease has of late been to a considerable extent discredited by many. I am not prepared at present nor am I allowed the necessary time to discuss this subject at any length. Nevertheless, from a study of considerable accumulated data in our laboratory, extending over a period of more than a year, there is much to lead me to believe that in early initial pulmonary tuberculosis, and during the period when the disease is, correctly speaking, localized and before constitutional symptoms are manifest, the opsonic index is universally low, sometimes so markedly depressed as to justify a diagnosis even in the absence of all other evidence of the disease; and even where such marked depressions are not present a continued though slight subnormal opsonic content, when taken in connection with a suspicious history, should, in my opinion, be sufficient to justify the assumption of the presence of incipient tuberculosis.

ON COMA AND THE VALUE OF THE OCULAR SIGNS OBSERVED THEREIN.*

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THERE is, I suppose, no condition in the daily rounds of the busy physician requiring more clear-headed understanding, and more prompt and efficient handling, than that confronting him when called to attend a person who has suddenly become unconscious, or one who has lapsed into coma, without having displayed any premonitory signs.

When we speak of coma we mean the complete loss of consciousness. The individual appears to be in the profoundest sleep; his perceptions and the exercise of his will are suspended. The face wears a confused look; his mouth is open and the tongue is dry. All conscious and unconscious response to sensory irritation is lost. Shouting and shaking will not arouse him. The extremities are relaxed. The breathing may be rhythmic, but it is frequently irregular; at times it is retarded and full, at others it has the Cheyne-Stokes character; while towards the close it becomes stertorous and stridulous. The reflexes are abolished. Swallowing is impossible. The sphincters are no longer resistant, and incontinence of urine and feces develops. The eyes may deviate from their normal axes; the pupils are dilated, or unequal and sluggish, or sharply contracted and immobile.

Coma always betokens a serious disturbance of the functions of the brain presiding over the vital activities of the body. It is brought about either through a blotting out of the cerebral centers, as in edema, or when an effusion presses upon them, or when the centers have been inhibited through inanition which may have been caused by defective circulation in the brain, or by the effects of poisons circulating in the blood in the course of a general toxemia. The brain may suffer from a deficient supply of arterial blood, or from an excess of venous blood, or from both these conditions variously combined.

This state of unconsciousness may come on in the course of a great variety of diseases; it may be at the end of a prolonged illness of definite character and be marked by distinct preliminary manifestations; or it may seize a man suddenly while he is in the midst of his daily business. It may be recovered from and the individual may have repeated attacks, or it may shortly end in death without manifesting a single sign to give one a clew as to its cause. The question paramount is obviously an immediate and exact diagnosis, particularly if the person is in a deep coma when seen for the first time. The value of a leading sign which may be reasonably depended

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upon is evident. Such a sign may be found, as I shall show in this paper, from the examination of the eyes. For, from the examinations of many cases, I am led to believe that coma arises from cardiovascular disturbances and that the characteristics elicited from the careful examination of the intraocular vessels are indicative of and entirely comparable to those found in the brain of such subjects. Let us consider then the conditions under which coma may arise.

The most complete coma is seen in gross disturbances of the cerebral circulation when it may come on quickly without premonitory signs. Embolism and thrombosis of the cerebral vessels will produce symptoms similar to those occasioned by their rupture. In a typical apoplectic stroke the patient falls into deep unconsciousness from which he cannot be aroused. The face is injected, sometimes cyanotic, or of an ashen hue. The respiration is noisy and the pulse is slow. We must therefore ask ourselves the question when called to a case of suspected apoplexy whether the coma has been caused by an obstruction of the vessels or by their rupture.

The age of the patient may guide us in determining the probable cause and help us in our hope for his recovery. We may suspect arterial obstruction if the patient is young or is in early middle life, if there is fibrosis of the arteries, or if within a brief period several incomplete attacks have occurred before the completely comatose condition has set in.

The diagnosis at times may be cleared by a study of the ocular symptoms. In a typical seizure ptosis of the upper eyelid is a not very uncommon symptom, and the eyes may be fixed in the position of "conjugate deviation" which has been brought about as the result of the suspension, for the time, of all the functions of the affected hemisphere, so that no stimuli can be transmitted to the visual center—which may be paralyzed itself also. The pupils vary; usually they are dilated, and sometimes unequal. In deep coma they are always inactive. If there be a loss of reflex on one side and the pupil is rigid, doubtless the coma is due to a hemiplegic lesion. When a hemorrhage has flooded the ventricles, or is in the pons, however, there may be marked contraction of the pupils from irritation of the oculomotor nerve nucleus. An opthalmoscopic examination will reveal in what an analogous condition the walls of the cerebral vessels must be. The retinal vessels are seen to be stiffened and more tortuous, and where they cross one another they show strangulations or constrictions with a diminution of their lumen. Above and below the points of constriction are found dense whitish streakings; and where the vessels cross, the blood columns are narrow and the vessel wall is either invisible or it presents a fusiform thickening. When a stiffened artery presses upon a softer vein, the vein is seen to curve under and around the artery. Here and there along the lines of the vessels and at the points of constriction, there may be small hemorrhages without apparent inflammatory changes. In extreme cases, the veins also may show analogous strangulations and sacciform dilatations. These symptoms should be studied together with the results of the examination of the patient's cardiovascular system. By this time it may have been learned from other sources that the individual is the subject of renal disease. A large proportion of the cases of apoplexy occur in those with affected kidneys, especially those with granular contracted kidneys. Hemorrhage therefore is likely, if the heart is found to be hypertrophied and if the disease of the kidneys co-exists.

Consciousness may be lost in an attack of angina pectoris, and syncope may follow the epileptiform convulsive seizures attending profound disturbance of the heart's action which have been seen notably in instances of heart-block. The unconsciousness is doubtless due to cerebral anemia. In the case of the Adams-Stokes syndrome, the abnormally slow and disordered pulse; the stiffened arteries or signs of cardiac disease; the age of the patient; the unwounded tongue; and the unrelaxed sphincters, are points to be regarded to confirm us in our hypothesis that it is not true epilepsy with which we have to deal.

Drink and narcotic poisons may produce coma which may be most difficult to distinguish from the coma of apoplexy, and, to make it still more difficult, sometimes a person who has been drinking may be stricken with apoplexy. In a simple drunken stupor there may be complete unconsciousness, yet the person may not be bereft of all power of motion; he certainly is not paralyzed. The pulse is not slow; it is usually frequent. The pupils are generally dilated. The eyes are injected and show no lateral deviation. When apoplexy comes on in a drunkard, the coma is deeper, stertor is present usually, and there may be evidences of hemiplegia in the greater flaccidity of the limbs on one side.

In narcotic poisoning, especially from opium, we are likely to encounter a gradual intensification of the coma. The coma is scarcely less complete, but as a rule it does not appear so suddenly as that of apoplexy. The pupils are much contracted; yet a hemorrhage into the pons may cause comatose symptoms with marked contraction of the pupils. In each of these conditions convulsive seizures may have preceded the coma; and because of the quiet respiration, and because paralytic symptoms may not be present early in apoplexy and pontine effusions, the diagnosis may be exceedingly difficult.

The coma attending uremia is as a rule less sudden in its onset than that of apoplexy, or that from narcotic poisoning, and it is only in the rarest instances that it has not been preceded by convulsions. The convulsions are always general and not localized as in cerebral apoplexy; and the coma is not always profound; it may come on and pass off suddenly. The stertor is peculiar. It appears to come from the mouth, the loud sound of the expirations is not like the low guttural tones of apoplexy, but is pitched in a much higher key. Cheyne-Stokes respirations may be present. The ankles are swollen and the eyelids are puffy.

The pupils are as a rule widely dilated, though they may be normal and the reactions to light preserved. The preservation of the light reflex proves that the blindness is not caused by disease of the eyes or of the optic nerves, but is due to the disturbance of the cerebral centers—excretory matters retained in the blood circulating about them have poisoned them. If the pupillary light-reflex is absent, the action of these poisons may be upon both the central and peripheral parts of the visual paths, or only on the peripheral parts, the optic tracts, and the nerves.

The ophthalmoscopic examination may be negative, that is to say, there may be none of the signs of that form of retinitis commonly seen accompanying disease of the kidneys. The association of nephritic retinitis and uremic amaurosis is not common. The retinal inflammation noticed in Bright's disease is generally persistent and the recovery of vision seldom takes place, whereas, the blindness in uremia has been caused by toxemia, and the sight is re-

stored rapidly and completely on the elimination of the poison.

In the coma of Bright's disease the cause is made manifest by the finding of albumin and casts in the urine and by there having been more or less definite attacks of uremia. Of course, the preceding history may aid us greatly and the examination of the urine may conduce to certainty in the diagnosis, yet for obvious reasons they cannot always do so at once. Albumin may be present after apoplectic strokes and after convulsions not associated with uremia, for a slight amount of albumin may be found following violent epileptic seizures.

It is well to remember, however, that coma may develop without convulsive seizures. Twitchings of the muscles of the face and hands may occur, yet there may be cases in which these muscles are not involved. In such cases there may be no indications of previous renal disease and their nature may be overlooked unless the urine has been examined. In this connection it must be remembered that the absence of albumin must not be taken as proof that no renal disease exists.

Are we not coming more and more to believe that the presence of albumin in the urine does not always specifically indicate the health of the kidneys? Albumin and other compounds may be absent in the urine in definite lesions of the kidneys and they may be found present in cases of apparently healthy kidneys which have been examined after death from other causes. So we may be confident that the presence of albumin is not a criterion of the localization in the kidneys of a process which of itself alone is sapping the vitality of the individual in whom it is present. On the other hand the urine may be taken as only one of the indexes of the state of the general bodily health and we may infer from it that the organs from which it has been received are diseased in company with many others in the branches of the vascular tree.

In all cases of albuminuria we must consider carefully the condition of the cardiovascular system. The heart must be examined for evidences of hypertrophy or dilatation; the arteries must be examined to ascertain whether their coats present evidences of thickening or other disease. The coexistence of such signs indicates a general arteriosclerosis while their absence renders it probable that the albumin is derived from the kidneys, or has been produced by some functional disturbance.

Except in the cases of coma following acute poisoning, in which those from alcohol and from opium are included, arterial degeneration is associated with all of them. Miliary aneurysms are often associated with sclerosis of the large arteries of the brain, though it was once difficult to explain the reason for such an association. From the study of the eyegrounds of a large number of arteriosclerotics, I have been led to believe the characteristics elicited from careful examination of the retinal vessels are indicative of, and entirely comparable to those found in the brain of such subjects; and the frequent association of these changes with manifest disease of the cerebral vessels only proves the contention. It must be remembered that in these examinations we have been dealing with visible pulsating blood-vessels and not with one only palpated with the fingers.

For years I have been skeptical of the accepted dictum that the causal relation is direct between visual disturbance and disease of the kidneys in the so-called "uremic amaurosis." As pointed out above, blindness in Bright's disease does not appear until late, and the visual disturbance is permanent, because portions of the retina and choroid have been blotted out by distinct hemorrhagic and inflammatory processes which we denominate "albuminuric retinitis."

On the other hand, the eye-grounds of the uremic present no such changes, as a rule. The authorities state that "the fundus is here negative." Alas! the conditions are *not* negative. I have noticed distinct alterations in the appearance of the retinal vessels, and the chief importance of these retinal changes lies in their association with disease of practically a similar nature in the kidneys and the brain, as well as in the liver, and accompanying a more or less general arterial sclerosis. Many cases of supposed uremia are not specifically renal in origin at all, although albumin has been found in the urine. Such cases, I believe, are dependent upon a form of toxemia brought about by the retention of compounds in the vascular currents which would have been eliminated had not the coats of the vessels become impervious; and, further, I believe that to treat such affections upon the supposition that they are based solely upon deficient renal activity is to jeopardize the life of the patient.

Coma occurs sometimes in connection with diabetes also, and when that disease ends suddenly it is likely to do so by the so-called "diabetic coma." The comatose condition is preceded by vomiting usually, and by abdominal pains. The respiration is labored and the breath has a sweetish chloroform odor.

Diabetes develops in neurotic individuals, particularly in those who have lived a sedentary life and are the subjects of mental emotion from worrying or from excessive devotion to business. It is therefore a disease chiefly of the upper classes of society. It appears to be caused by the presence of acetone in the blood. Acetone is derived from acetic acid or from beta butyric acid, and the coma is doubtless due to an excess of these compounds. Certain it is that the disease is due to some extremely acid toxic agent in the blood, for examination of the urine will reveal the presence of sugar, acetone, and perhaps diacetic acid also.

The difficulties attending the diagnosis of diabetic coma are not many. It rarely happens that an individual affected with diabetes becomes unconscious without some warning; or that we are called to minister to one about whom we are unable to obtain some knowledge of the previous conditions. The ocular features are not of especial concern. The state of the pupils varies, they may be dilated, or they may be unequal. The retina usually presents evidences of chronic alterations of structure; and for our purposes in this discussion, diabetes and Bright's disease may be considered together.

Akin to diabetes is that state of bodily ill health brought about by the disordering of the gastrointestinal digestion which we now call "intestinal autointoxication." Here, from defective chemistry, there has been developed a general toxemia, the elimination of organic compounds has become perverted in quality and quantity, and there have been thrown into the system elements which have proved noxious to it.

Persons thus afflicted often have periods of hebetude, lapses of memory, and in some instances complete loss of consciousness. The difficulty in the last case arises in deciding whether or not we have to deal with uremia; indeed, in considering these cases I have been led to place them in very close analogy with the sudden "uremic" ones.

In this group no systematic classification has been

made of the ocular symptoms present at the time of coma. They may be such as we find in simple "uremia," or there may be distinct evidences of congestion and stasis in the choroid with degeneration of the vitreous. I have noticed in chronic melancholics, who have become stuporous, unequal and irregular pupils, cloudiness of the aqueous and vitreous, and congestion of the internal tunics. I would expect to find similar conditions in the autotoxic cases, for melancholics are invariably the victims of a depraved metabolism dependent upon gastrointestinal derangement.

Occasionally we are called to attend a person of advancing years, of sedentary habits, who has suddenly lost consciousness while at table after a hearty meal. This, too, is from a form of intestinal autointoxication, though it has been a common inference that uremia of renal origin is at the bottom of these attacks. A careful examination of such individuals will disclose signs of arteriosclerotic changes in the retinal vessels as well as disturbances in the vitreous and choroid, as outlined above. The urinous odor emanating from these prostrate persons is not due to uremic exhalations, but rather to vesical incontinence.

Ptomain poisoning belongs here, as it, too, may give rise to profound unconsciousness. Sometimes cerebral symptoms may be present in hepatic cirrhosis, when they manifest themselves in convulsive seizures, and a delirium which ends in coma. They, too, resemble similar attacks in uremia; yet a careful study will show that they have been caused by a toxemia comparable to that observed in the common form of intestinal intoxication.

A subject in the secondary stage of the general paralysis of the insane may sometimes be seized with syncopal attacks in which he falls, and, for a variable period, may lie unconscious. And such attacks with vertigo have been noticed in multiple sclerosis. In the early periods of these diseases, these lapses of consciousness may be mistaken for hysterical fits. The eyes of the hysteric are healthy, however, and the visual paths to the brain are open, though luminous impressions are not perceived; the pupils, therefore, react to light. The paretic, on the other hand, commonly presents manifest pupillary changes, and during the syncopal attacks the optic nerves and retinas remain pallid; while in the case of the multiple sclerotic there may be distinct nystagmus and the nerve heads atrophic.

The coma following convulsive seizures in epilepsy may be due to a general toxemia, perhaps, as well as from the exhaustion of cerebral centers. The generation of muscle acids may be so excessive and enter the circulation in such quantities as to be profoundly poisonous. There may be no ocular changes whatever, but, occasionally, hemorrhages from the conjunctival vessels have been noticed, with congestion, as well as hemorrhages, in the choroids and retinas.

Only two more conditions remain to be touched upon: the coma following the convulsions of pregnancy, and the coma induced by inhalation of poisonous gases. Except in the case of an epileptic who has become pregnant, the convulsions and coma are without doubt due to a general toxic state dependent upon profound disturbance in the fluids of the abdominal circulation. I am excluding cases in which the women are the subjects of distinct Bright's disease.

In the matter of diagnosis we are inclined to place more dependence in the circumstantial evidence attending a case of gas poisoning than in the actual physical conditions present. There may be profound coma with deep, loud, snoring respirations, free from the odor of alcohol. The face is bright red and there may be deeper colored patches in the skin. The mucous membranes are dark purplish and the scleral vessels are injected. I have examined the eyes of only one patient suffering from gas poisoning. The fundus in each eye of this patient was of an intense lake color. The pupils were widely dilated.

In studying this group of nervous phenomena, attention has been given to the prominence of the ocular symptoms in certain of the diseases marked by coma; and, as these symptoms are easily observable, their importance in diagnosticating the probable causative factors becomes manifest. As we view the suddenly prostrated individual who lies apparently lifeless before us, the necessity for a distinct and signal symptom becomes urgent, in order that we may be led out of the confusion, as well as to provide for the patient's recovery without entailing further damage to his already embarrassed vitality. For, assuredly, the management of an apoplectic seizure must not be the same as that for the coma attending opium or other narcoses. Thus, the deviation of the axis of the eyes, or the condition of the pupils, may designate whether there is a suppression of the cerebral centers or only their irritation from disturbed nutrition.

The finding of albumin in the urine of an unconscious person, or the detection of an urinous odor emanating from his body, is not sufficient proof to guarantee the presumption that we have before us a case of uremia of distinctly renal origin. We have seen how albumin can occur in cases without renal insufficiency, that it may be present in obstruction of the cerebral vessels, and we know that it is frequently found in the comatose condition following epileptic convulsions.

Uremic amaurosis is still an obscure subject, but I have no hesitation in saying that, when all the cases are analyzed, we shall find the large number of them dependent upon a general toxemia generated by a disturbance in the chemic and metabolic processes in the gastrointestinal tract. Remedies and other measures designed to eliminate the festering products in the intestinal tube, very commonly are effectual in relieving the blindness too; and, except in the case of late Bright's disease, in which ocular disturbances have existed long before coma has set in, there are no markedly visible changes in the intraocular tunics. It is my belief, however, that careful examination of the retinal blood-vessels, from the disks out to their finest extremities, will disclose periarterial and endoarterial changes. These vascular changes are comparative indexes of the state of the cerebral circulation.

In studying cases of coma it is our duty to attend to the careful examination of the ocular fundus. Except in the case of acute narcosis following the ingestion of well-known poisons, there are distinct arterial changes to be seen; and as transient visual disturbances may arise from an interference in the nutrition of the cells of the retina, so in like manner, cerebration, psychic and physical, may be interrupted through nutritional changes. Again, as the extremity of arterial changes in the eye may culminate in the rupture of the vessels, whereby areas of the retina are blotted out, so may there be rupture of the cerebral vessels whereby not only may regions of the brain be affected but life itself may be blotted out.

235 South Thirteenth Street.

EXPERIMENTAL ARTERIAL DEGENERATION.*

By PHILIP FRANK, M.D.,
NEW YORK.

When Josué[1] in 1903 announced the production of arteriosclerotic lesions in rabbits by the intravenous injections of adrenalin, the subject was taken up zealously throughout the world, and a host of experimenters proceeded to repeat his experiments, to refute or to corroborate his work. Very soon reports were published from v. Rzentkowski,[2] Erb,[3] Fischer,[4] Lissauer,[5] Pearce and Stanton,[6] and others. Most met with success, and in general the results were identical with those obtained by Josué. Explanations as to the modus operandi of adrenalin were next sought, and several theories were propounded. Whether the lesions produced were due to a cachexia resulting from the frequent injections continued over long periods, or to an interference with the nutrition of the vascular wall through a constriction of the vasa vasorum, or to the direct toxic action of the drug itself, or to an increase in blood pressure resulting from it, has been answered differently. Each theory has its advocates and its objections, and all of them are still in dispute.

Not only was this research undertaken with adrenalin, but the field was extended to experiments with barium chloride and with nicotine. Regarding the former, Dr. L. J. Miller[7] reported that by intravenous injections of the drug he succeeded in causing swelling of the elastic fibers. S. Orgielbrand[8] stated that he produced atheroma of the aorta by means of injections of this drug intravenously. As to the work with nicotine, Adler and Hensel[9] produced arterial changes by intravenous injections of pure nicotine, almost identical with those caused by adrenalin.

In line with this work, I myself experimented with ergot. Five rabbits, weighing respectively 1,470, 1,600, 1,430, 1,575, and 1,530 grams, were injected daily with a solution made by dissolving one gram of ergotin in 100 c.c. of a physiological salt solution. The purpose of selecting ergotin was to avoid the impurities contained in ergot itself. The dosage, by intravenous injections, at first was three drops, which I gradually increased to ten drops. After eleven injections one rabbit was killed. The remaining four rabbits received eight more injections each, after which I ceased the injections. It was noticeable very shortly that the rabbits were failing in health. They refused to eat, became emaciated, and appeared to be decidedly sick. Of these four rabbits, one died two days after I stopped the injections, a second three days later, a third six days later, and the fourth fully three weeks later. This last one seemed to be the most sickly. On autopsy, none of the rabbits showed any gross lesions, except the one which died two days after the cessation of the injections. The liver and the gall-bladder were studded with hard, white, little nodules. On crushing some of them between two glass slides, they proved to be very gritty, and, as gas was evolved on the addition of nitric acid, calcium carbonate was evidently present. Microscopical examination revealed no coccidia. But after decalcification of the liver and staining of the section with hematoxylin and eosin, these nodules were found to be calcified coccidial cysts. The organs of the rabbits were fixed in Zenker's fluid and in alcohol, and pieces were also preserved in formalin. The sections were stained with hematoxylin and eosin.

Two of the five rabbits, on microscopical examination of the stained sections, showed areas of necrosis in the liver, with proliferation of connective tissue cells, not only in the portal spaces but also in the liver lobules. The rest merely showed evidences of congestion.

Four out of the five showed a hyperplasia of the lymphatic elements of the spleen, and the malpighian corpuscles were three or four times the normal size. Three out of the five showed organizing thrombi in the arteries of the lungs with a proliferation of the lining endothelial cells and thickening of the arterial wall.

One (killed after eleven injections) showed an eosinophilia (due to ergot?), and one (the first to succumb after cessation of injections) showed a nodule projecting into the lumen of the aorta about half an inch from the aortic valves. It was not an artefact, and I am just as positive that it was not due to oblique cutting with the microtome. It was a decided thickening of the media in which the elastic fibers were somewhat broken and the nuclei of the muscle fibers ran longitudinally instead of transversely. The thickening was not general throughout the media, but was localized to the site where this nodule projected into the lumen of the aorta. Since this occurred in this rabbit only, I cannot justly ascribe it as due to the ergot. I consider the results so far as concerns arteriosclerosis negative. Controls were employed, and these did not show any of the changes mentioned.

My thanks are due to Prof. C. J. Bartlett for the use of his laboratory and for his valuable aid in studying the various sections. Also to Prof. O. T. Osborne for many suggestions.

I believe that formerly many slight arterial changes were reported as arteriosclerotic lesions with too much certainty. Recently the pendulum has begun to swing in an opposite direction. A reactionary skepticism as to the significance of the results obtained from the experiments on rabbits with adrenalin is taking place. And justly so. In the first place it is very peculiar that it is only in rabbits that adrenalin produces arterial changes to any great extent, which conveys the idea of a special susceptibility; and, moreover, right here there is so considerable a variation in the dosage required and the difference in degree of the lesions produced. Large doses frequently repeated may in one case give no results, while in another a single injection may show decided lesions. Cases of spontaneous arteriosclerosis are being discovered and reported. And again, the controversy as to the important factor in the causation of arteriosclerosis is adding its quota of doubt. No one can deny that any substance, no matter how innocuous, when introduced directly into the circulation, is bound to exert a direct toxic influence, and it is easy to see how such toxicity may cause a degeneration of the arteries. The theory of high blood pressure, accepted by the majority of authorities, finds this element of toxicity its chief stumbling block. If high blood pressure is the fundamental important factor, then why the disagreement in the results obtained by injecting potassium iodide simultaneously with adrenalin? Potassium iodide is of benefit in arteriosclerosis in man; then, why not of equal benefit experimentally? Cummins and Stout[10] go so far as to report that potassium iodide will counteract the action of adrenalin, whereas it is asserted by Loeb and Fleischner[11] that the iodide of potassium is of no benefit, and in large amounts will prove distinctly injurious. Even in human arteriosclerosis resulting from high blood pressure due to renal disease, alcohol, hepatic, pancreatic, or gastrointestinal insufficiency, metallic poi-

*From the pathological laboratory of Yale University.

sons, bacterial toxins, syphilis, etc., it may be conceived, which is a reality, that there are present in the circulation toxins exerting a direct toxic influence; so that the question of the element of toxicity again comes up as an almost insurmountable objection. Consequently, for this question to be settled, the subject must be studied by a different method than by intravenous injection of drugs.

While Josué was the first one to work with adrenalin, he was not the first to work on the subject of experimental arteriosclerosis. The work of Gilbert and Lion[12] and of Boinet and Romary,[13] with bacteria and their toxins, and of Croftan,[14] with xanthin and hypoxanthin, antedate Josué's work, and have been referred to in many papers by many writers.

In a search of the literature I have come across certain work which is overlooked by almost every writer on this subject—work that avoids the chief objection to the intravenous method of experimentation and to the question of high blood pressure, *i.e.* it avoids the element of toxicity. As far back as 1877, Di Giovanni,[15] by cutting the cervical sympathetic nerve of dogs, first on one side and a few days later on the other, produced atheromatous incrustations on the aortic valves and in the descending aorta. In 1886 Schnell[16] repeated the experiments of Di Giovanni, with some but not equal success, and recently Pic and Bonnamour[17] have still further repeated these experiments, reporting good results. Their work was done on rabbits. Manometers inserted into the carotids of the rabbits to test the blood pressure indicated a rise on section of the sympathetic nerve.

Still another method has been evolved recently. Carrel and Guthrie[18] have produced arteriosclerosis in the dog by causing a hypertension in an artery (renal) by transplanting it and directing its blood into a venous plexus of a smaller total capacity than the artery itself. It is the maintenance of the resulting hypertension which is responsible for the resulting arterial changes.

These two sets of experiments, after they have been repeated and corroborated and extended more fully, in eliminating the main objection to the inoculation experiments—the toxicity of the substances injected—incline further than any other towards high blood pressure as being the fundamental causative factor in arteriosclerosis. It is along such lines that the obscurities of the problems of arteriosclerosis will ultimately find their solution.

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THE ART OF GARGLING.

By GEORGE RICHTER, M.D.,

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THAT the mouth and nose, as principal inlets for everything which serves to build up and sustain our organism, must also be the gates through which most of the harmful substances enter, is quite evident. The mouth is very often, the nose always, an open door.

As a guard against threatening dangers the nose serves with a surface much increased by a large system of folds of mucous membrane and normally coated with a tenacious mucus while the surface of the mouth with its complicated arrangement of teeth, tongue, palate, arch, and tonsils is somewhat less protected by its thinner mucous secretion, which in both cases attacks the microbes, envelops and destroys them either by digestion (saliva) or by disinfection (potassium rhodanate) or by entangling them, as with a liquid glue, in an indigestible slime which carries microbes and pigments through the entire intestinal canal until they are evacuated.

The harmful substances inhaled through the nostrils or introduced into the mouth are apt to appear in such masses or so frequently that the natural guards become overworked and finally fail to do their duty; this is especially the case when the atmosphere is laden with dust and soot, as in the larger cities.

In breathing, the air-current strikes the rear pharyngeal wall and is there deflected toward the larynx at a right angle. Particles which had not been caught in the folds of the nose will be arrested by the inner guard, the slime covering the pharyngeal surface. Just so in mouth breathing the soft palate, the uvula, the arch, and the tonsils stand guard to defend the system from intrusion of harmful material, the secretion from the tonsils apparently exercising a most important function. Incessantly repeated attacks upon this inner gate overtire the watch, the tonsils become inflamed and are themselves converted into foci of infection, harboring germs which they cannot destroy any more, but retain up to a time when the prisoners may overpower the guard.

Again the coating of the pharynx acts as a last resource of the organism to render intruders harmless. But finally the pharynx will also be overpowered; it becomes congested, atrophies, and fails in its functions. At such a stage we will discover a chronic inflammatory condition of the inner nasal surface, the palate, the tonsils, and the pharynx.

The territory being freely accessible, local treatment is indicated. The method employed most frequently is the gargling, by taking a swallow of pure water or of a mixture, allowing it to run into the posterior part of the mouth, and then, with a slow expiration through the mouth while the soft palate occludes the pharynx, to agitate it so that the bubbling fluid washes the surface.

In gargling after this manner the arches of the palate together with the uvula close so far that only the expired air passes through a small opening of the fauces, but none of the gargle itself can flow back into the pharynx. Only the oral cavity is washed.

To reach the pharynx proper and the nose a favorite method with many is the use of the nasal douche. With this, however, usually only the floor of the nose and the median region of the pharynx are rinsed. The laws of hydrostatics will prevent a more extended action of the fluids employed, excepting where the nose is being flushed with the head hanging down backwards until the roof of the mouth is parallel to the floor. That is a difficult and disagreeable procedure. Some of the fluid loaded with poisonous secretion may also penetrate the Eustachian tube and infect the internal ear. Besides, the space between epiglottis, root of tongue, and soft palate remains untouched.

The universally used spray exhibits the following drawbacks: Only very mild substances must be used in order to spare the extremely sensitive larynx; there is a danger that toxic substances may be forced from the nose and pharynx into the lungs; the spray will necessarily travel in a straight line following the air current, and only traces of the spray will reach the recesses situated around the shortest route.

The comparative failure of the three methods finally calls for surgical methods which require much practice and skill and have created a specialty for the treatment of diseases of the nose and throat.

But not every patient can consult a specialist. The "general practitioner" should be in a position to treat the cases in question before they require special methods, before they become too severe for his resources. Undoubtedly proper care in time would prevent the majority of the cases from reaching a stage where he cannot control them. This he can do by teaching the patient to gargle properly. It is done in the following manner:

The patient (at first under the guidance of the physician) should sit well back in a chair, take a swallow of water in the mouth, and bend the head as far back as possible. In this posture the larynx presses upon the vertebræ and occludes the esophagus. Now he must protrude the tongue from the mouth (the tip of the tongue may be grasped with a handkerchief) and in this posture with protruding tongue he must try to swallow the water. The physician should control the patient's vain efforts—for it is impossible to swallow under such circumstances. He will observe how the water flows back into the pharyngeal space, apparently disappearing entirely. The patient has the sensation as if he actually had swallowed the water. Now he must start to gargle, to exhale air slowly. One can see plainly the bubbling of the fluid in the wide-open pharynx. After gargling thus for a while, the patient is ordered to close the mouth and quickly throw head and body forward. Thereby all the fluid is forced through the choanæ and nostrils, washing the throat and nose from behind and expelling all the accumulations, that had been present, with great force.

This should be repeated several times, as the first trial is not always successful and satisfactory. It is an art that must be learned. When properly executed the sensation, as the patient will assure you is that of great relief, not had by any other method. It will be wise for the practitioner to try the method first on himself. Even small children who are at all clever learn the method readily and rather enjoy it.

Medicated gargles used with this method should be of a tepid temperature, but not exactly isotonic with the moisture of the surfaces. The specific gravity of the gargle is entirely irrelevant; with the same specific gravity a gargle may be highly irritating, while a great difference in specific gravity may cause no symptoms whatsoever. Part of the gargle must be expected to remain on the surfaces and exert a more lasting effect. An anisotonic solution will assist greatly towards this end by causing an exchange of substances.

As a rule the aperture of the nostrils is smaller than that of the choanæ, so that the nasal cavity may be compared to a cone the basis of which is formed by the choanæ. This accounts for the welcome force with which gargling after this method is effected.

The method is not by any means a new one, but, as it seems, quite forgotten. Some thirty years ago Prof. Hagen of Leipsic taught it his students. It is well worth reviving.

407 North Broadway.

GRADUAL ANAL DILATATION BY A NEW METHOD.

By DUDLEY ROBERTS, M.D.,

BROOKLYN, N. Y.

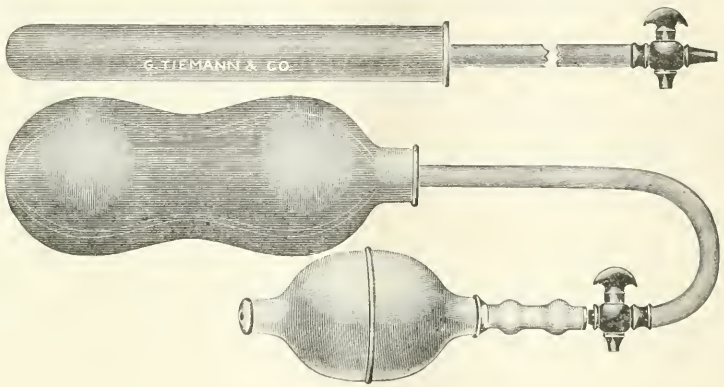
Rapid digital divulsion of the anal sphincter is now recognized as a valuable procedure in the treatment of certain cases of chronic constipation, hemorrhoidal conditions, and fissure of the anus. The objections to this plan of treatment are the necessity for a general anesthetic, the pain of some degree following the operation, the enforced retirement of the patient for one or more days following the treatment, and the tendency of the spasm to recur after a single although complete divulsion.

The slow painless dilatation of the anus recommends itself as the ideal plan when other procedures of an operative sort are not immediately contemplated and a speedy result is not demanded. To be effective, however, such dilatation must actually relax the muscle, and such relaxation must be repeated at frequent intervals over a time sufficiently long to establish a permanent dilatation of the necessary degree.

Gradual dilatation has found only a limited degree of popularity up to the present time, very possibly owing to the large proportion of failures with the instruments designed for the purpose. The expanding metal dilators cause entirely too much pain to allow of their being used in the majority of cases needing the treatment. The different forms of conical metal, hard and soft rubber dilating bougies or sounds, all acting on the wedge principle, cause severe pain even when the size is actually insufficient to accomplish the necessary amount of stretching. On introduction, the pressure of all of these is too much upward against the internal sphincter and levator ani. Their shape is such that dilatation is necessarily sudden, never painlessly gradual. Only a limited length can be allowed from the tip to the greatest diameter, for the long rubber bougies very frequently come into painful contact with sensitive parts in and about the rectum in spite of the greatest skill and care. In my opinion the largest sizes of these instruments are entirely too small to cause sufficient dilatation in the majority of cases. The work of one day must be repeated on the next, as spasm is not actually overcome and stretching is not accomplished.

The advantages of a dilatable bag for overcoming the contraction of the uterine cervix are well known. Such dilatation is under the entire control of the operator; it may be as gradual as demanded and to the necessary degree. The force is exerted in the proper direction, not pushing the tissues ahead of a dilating instrument.

The instrument shown in the accompanying illustration, one-half actual size, has been under trial for many months and in this time has proven to me that failures of gradual dilatation have been due to intrinsic faults of former instrumental methods. Patients whom I had formerly subjected to treatment with the largest sizes of rubber bougies having a circumference of nine centimeters have been better able to stand dilatation with this expanding bag to the full size, a circumference of fourteen centimeters at the constricted portion. It seems to be perfectly feasible to accomplish gradual dilatation of the anus to the necessary degree with comparatively little discomfort. The induced anemia of the tissues pressed upon must contribute to this analgesia. The muscle is gradually tired out and relaxes just as must the fingers if an effort is made to hold the bag against expansion. The smoothness of the instrument obviates any tendency to spasm during introduction. Withdrawal causes no dragging on the mucous membrane.



The apparatus consists of an inner bag of rubberized cloth, the ends made bulbous to prevent slipping inward or outward when distended. To this bag is attached a tube of like material on the end of which is fastened a small stopcock; a hand bulb, valved to prevent the backward passage of air, is attached to the stopcock. Within the bag and extending through a portion of the tube is a slender metal rod with bulbous ends; this is a simple means of giving the collapsed bag sufficient rigidity during introduction. Outside the strong dilating bag is a thin elastic cover free from seams, which gives a perfect smoothness to the bag at all stages of dilatation. The seams and wrinkles of the inner bag are not perceptible through this cover.

The method of use is exceedingly simple and few directions are necessary. The condition of the valves in the hand bulb must be determined, as back leaks make dilatation impossible. The number of slight "squeezings" necessary to fill the bag is a matter of individual experimentation. The "feel" when the bag is full and further distention impossible, is likewise to be determined. The bag is well dusted with talcum powder or covered with an emollient, the elastic cover is then slipped on and turned around to completely lubricate apposed surfaces. Two-thirds of the length of the bag is introduced, the bulbous portion protruding from the anus, and slow dilatation is started. As soon as discomfort is felt the stopcock is turned and a few minutes allowed to elapse in order that voluntary and involuntary spasm may be relaxed. Gradually the dilatation is continued and when as much as possible has been done the bag is left in place for ten to fifteen minutes. The patient is instructed to lie flat on the back and relax completely. Successive treatments follow and each time dilatation is found to be easier, until a normal condition is established.

The advantage of this form of instrument in the treatment of the stricutres of the rectum above the anus is well seen. Through a speculum the bag is introduced and placed in the desired position, when stretching to the necessary degree is readily accomplished.

A larger size than that shown in the cut is necessary in some instances and to meet this demand I have had one constructed without the central constriction; this bag has a circumference of 18 centimeters throughout, the smaller one measuring 14 cm. in the central portion and 16 cm. at the bulbous ends. The same sized cover answers for both bags.

84 Remsen Street.

The De Novo Origin of Bacteria, Torulæ, and Moulds.—H. Charlton Bastian gives the results of a recent series of experiments before the Royal Medical and Chirurgical Society. He began his experiments with various saline solutions containing ammoniacal salts, but after a time had found the best results were to be obtained with one or other of two solutions, one of which contained small quantities of sodium silicate, ammonium phosphate, and dilute phosphoric acid in distilled water, and the other a simple solution of sodium silicate with liquor ferri pernitratis in distilled water. The solutions were placed in previously superheated tubes, which, after being hermetically sealed, were heated again in a calcium chloride bath to 230° F. (115° C.), 248°, 257°, or 266° F. (130° C.), for ten to twenty minutes. The tubes were subsequently exposed, either to diffuse daylight or else in the incubator, and mostly for periods varying from five weeks to four months. No carbon was ostensibly contained in the solutions. On examination of the contents of the tubes organisms were found always on or within the substance of the flakes of silica, while the fluid above remained perfectly clear. The fluid would remain in this condition, and quite free from microorganisms, even for months after organisms were known to be swarming in the silica itself. It was contended that there was good *prima facie* evidence tending to show that silicon was capable of entering into the composition of protoplasm itself—that was, wholly or in part taking the place of carbon. It was concluded that the bacteria, bacilli, vibriones, micrococci, torulæ, and moulds which had been taken from hermetically sealed tubes previously heated to 115°, 120°, 125°, and 130° C. for ten to twenty minutes must have been engendered *de novo* within these vessels.—*British Medical Journal.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, December 14, 1907.

WILLIAM H. S. WOOD, senior member of the firm of William Wood and Company, died on Thursday of this week. The story of his active and useful life will be told later. Here there is opportunity only for faint expression of the deep sorrow which the writer shares with all who have had the privilege of a personal acquaintance with Mr. Wood or who have enjoyed his friendship. A man of strong character has died, one who played valiantly his part in the battle of life, but who was in times of others' grief as tender of heart as a woman; an entertaining companion, a firm and loyal friend, a liberal but unostentatious dispenser of charity, a man of lovable character and full of warm human sympathy.

OPSONIC TREATMENT OF TUBERCULOUS JOINT DISEASE.

HOLLISTER has said that if a patient's tuberculo-opsonic index is considerably below that of a normal individual, he has tuberculosis; if much higher, or very variable, he also probably has tuberculosis. He furthermore claims that a patient's tuberculo-opsonic index can be raised and maintained, if he is infected, by the proper dose of the proper vaccine, and when it is raised and maintained his tendency is toward recovery. These claims and the results reported by Hollister led Ridlon of Chicago to study the effects of Koch's new tuberculin injected in chronic joint diseases after Wright's opsonic method. He selected ten patients, all of whom had been under his observation for a sufficiently long time for him to have a very positive opinion as to how they would be likely to go on under routine treatment. Two were patients who he expected would die within a year; five had sinuses which had been discharging from six months to several years, and he wished to see if the new treatment might be expected to hasten their healing; three had unopened abscesses of moderate size, and he wished to determine if the treatment would cause their disappearance. In two cases the diagnosis was doubtful; in one of these the tuberculo-opsonic index was from normal to 0.7 below normal. After the injection of one-thousandth of a milligram of Koch's new tuberculin the index ran from 0.8 to 1.3, and on the strength of this Hollister made the diagnosis of tuberculosis, and the findings at operation confirmed the diagnosis.

Ridlon reports the results of three months' treatment in the November number of the Chicago *Medical Recorder*. All of the patients were feeling better, eating better, of better color, and had fuller cheeks; all but one had gained in weight and the sinuses had healed more rapidly. On the other hand the abscesses developed more rapidly than he would have expected under routine treatment. He concludes from his observations that a low tuberculo-opsonic index with local joint symptoms may be accepted as evidence of joint tuberculosis, but believes that it is still a matter of opinion how much below normal a patient's index must be, to warrant the positive diagnosis of tuberculosis. A practically normal tuberculo-opsonic index, together with local joint symptoms, neither proves nor disproves joint tuberculosis, in his opinion. He furthermore holds that when the diagnosis of joint tuberculosis has been made, a high index should be maintained, as an operation may be undertaken with a high index, but not with a low one. If use of the diseased joint causes a lowering of the opsonic index, the joint must be immobilized and protected; if the use of the joint does not lower the index it may be permitted; if it raises the index it should be insisted upon.

The time has been too short and the patients too few to furnish any satisfactory basis for the prediction of ultimate results, but the tuberculin injection treatment, guided by determinations of the tuberculo-opsonic index, seems to be a most promising step forward in the treatment of tuberculous joint disease.

FOOTBALL IN ENGLAND.

THE players of football in Great Britain and their very numerous followers have always congratulated themselves that the game in force in their country differed from American football, in that it was really a game, and not especially dangerous. However, this optimistic view has been considerably shaken during the past few years. Accidents have been extremely plentiful; there has been a fair crop of serious ones, and fatal results have occurred with unpleasant frequency. In the course of the present season, according to an article which appeared in the *Lancet* of November 16, football has been responsible for six deaths and for the disablement of sixty persons at Association football alone. This list did not include those injured at Rugby football. When it is considered that at the time of writing the *Lancet* article the season had begun only a few weeks previously, and that it does not end until the end of March, the outlook is decidedly gloomy.

It would appear, then, that the game of football as now played in Great Britain is almost as dangerous as that in America. The writer in the *Lancet* attempts to gloss over the matter somewhat, probably not wishing to offend the susceptibilities of British footballers and their innumerable and influential entourage. Some of the British lay journals, however, are far more outspoken, and state emphatically that steps should be taken at least to regulate the game. The Association game in Great Britain is, according to these papers, entirely in the hands of professional players, who, like our own

baseball players, are "all the time out for the money. If a club cannot uphold its reputation, it loses its grip upon the public and ceases to be a money-making concern. Thus the premium placed upon winning is very great and the temptation becomes proportionately urgent among the players to resort to measures which do not come within the range of legitimate sport."

Thus the *Lancet*. Other papers, especially the lay journals, unhesitatingly state that British football is now too frequently brutal. These dangers have not been adverted to in an effort to condone the asperities of the American game, but rather as an object lesson. There is no reason why an originally healthy game should be brought within the category of dangerous pursuits. "Moderation in all things" is a motto that will apply to foothall in America and in Great Britain as appositely as to all other games and pursuits.

PERMANENT RECTAL INFUSION IN DIFFUSE PERITONITIS.

Diffuse peritonitis is a disease whose outcome cannot be prognosticated with certainty. As regards its treatment, all are agreed as to how to relieve some symptoms and maintain the strength of the patient, but treatment on these lines is of no value in overcoming the inflammation of the peritoneum. The progress of abdominal surgery and the results obtained by the operative treatment of circumscribed peritonitis, have led surgeons to hope that diffuse peritonitis might also be treated surgically. The surgical treatment removes purulent exudate, affords easy escape for future secretion, the patient thus being spared the resorption of much infectious material, and permits suturing or removal of the affected organ from which the peritonitis spread, but it does not affect any general infection which has already taken place at the time of operation. With the idea of influencing the latter, Murphy, Michaux, Lenhartz, and others have advised rectal infusions of physiological salt solution. These have the further advantage of allaying thirst, increasing the blood pressure, stimulating the heart, causing diuresis, and permitting the ingestion of nourishment. The infusions are easily given. An ordinary irrigator is suspended about one half a yard above the level of the patient, and the flow from the irrigator is so regulated by an artery clamp attached to the tube that only two drams per second flow from the irrigator through an ordinary rectal tube inserted into the anus. The patient thus absorbs two quarts in several hours, when the infusion is stopped, but it is repeated after ten hours. In order to keep the fluid warm, hot water bags are hung on either side of the irrigator. After several such infusions have been given, the feces become softened and peristalsis is brought about; a colon irrigation will then usually clean out the bowels, after which a dose of opium may be given to quiet the intestine.

These infusions have been used at Mt. Sinai Hospital in this city for the past year with good result and also in Germany. In the October number of *Die Therapie der Gegenwart*, R. Kothe reports the results obtained in Sonnenberg's clinic in Berlin. Grape sugar and albuminous preparations are frequently added to the salt solution as used in Berlin. Out of twelve patients, eight recovered, some of the latter having been considered hopeless. At Sonnenberg's clinic the infusions are now given in all cases of diffuse peritonitis, whether a laparotomy was performed or not, and as a prophylactic measure in cases of extensive intestinal resections and pyosalpinx operations in which a strict asepsis cannot always be maintained.

Lumbar Puncture in Cerebrospinal Meningitis.

Although the status of lumbar puncture as a curative measure in cerebrospinal meningitis is not yet altogether decided a considerable number of observers express themselves most emphatically in speaking of its virtues. For example, Baginsky has recently termed it the most effective remedial measure, and advises that it should be repeated as often as the recurrence of symptoms of severe cerebral pressure demands. Bokay, in the *Deutsche medizinische Wochenschrift*, November 21, 1907, is equally positive of the effectiveness of the procedure, and describes seventeen cases with ten recoveries. Eight of these patients are stated to have recovered completely, in one the hearing is somewhat impaired, and the other is a deaf mute. Bokey believes that lumbar puncture has a definitely curative effect in cerebrospinal meningitis, and that this is due not only to the mechanical relief of intracranial pressure, but also to the removal of large numbers of pathogenic bacteria and their products. In severe cases it is necessary to repeat the puncture at intervals of from one to three days, the indication for this being the persistence of the symptoms or a renewed increase in their intensity. In infants less than a year old the protrusion of the fontanelle indicates the advisability of repeating the operation. It is wise not to remove more than 30 c.c. at a time in children. In the author's cured cases the total amount of fluid abstracted varied between 165 and 350 c.c. If very little fluid can be obtained, or it is thick and decidedly purulent, it is doubtful whether a repetition of the measure will be of service. While Bokay's results and conclusions are in accordance with those of numerous other writers, it must be remembered that the question is still *sub judice* and that some observers are inclined to attribute little or no therapeutic value to the measure.

The Relation of the Mosquito and the Bedbug to Leprosy.

Since the annexation of Hawaii scientific work with regard to leprosy has again been stimulated and the government has established a Leprosy Investigation Station at Molokai. In Hawaii as long as lepers are segregated the people are not troubled by their existence or worried about their cure. Yet after all, their maintenance is a public expense and the prevalence of the disease in the islands keeps the Hawaiins from earning money through tourists who are in great fear of the leper whom the islanders themselves rarely see or bother about. It would be a good business stroke to remove this fear by abolishing the cause of leprosy. With this in view the resident physician of the settlement, Dr. W. J. Goodhue, has studied the modes of infection, his conclusions being published in the October number of *American Medicine*. He caught mosquitos and bedbugs in leper houses and examined them under the dissecting microscope. Beginning with the anal orifice, the abdominal contents were teased out with

steriie needles. The structures were then crushed between sterile slides, stained, mounted in Canada balsam, and examined. After repeated failures success came finally in demonstrating the *Bacillus leprae* in the female *Culex pungens* and in the bedbug. The high percentage of washerwomen among lepers and also certain other facts have long been considered evidence that the disease spreads through leper clothing. This experience is substantiated by Goodhue's findings, for the mosquito and bedbug infest clothing.

The Scientific Temper.

An article in the *British Medical Journal* for October 5 discusses the peculiar irritable state of mind in which scientific workers seem at times to live. The temper sometimes shown between scientific workers leads our British contemporary to thankfulness that there is no likelihood that a scientific Inquisition will ever be established. Should any such catastrophe befall mankind, it fears that scientific heretics would fare very ill. The irritability of the scientist, like that of the poet, arises, observes our contemporary, "not from vulgar conceit so much as from a keen source of the dignity of his vocation and the loftiness of his work. Hence he feels even more deeply the lack of appreciation by common clay. This feeling is too often justified by the neglect which has been the lot of so many men who have given themselves without stint and without hope of material reward to labor for the lightening of the darkness in which we live and move and have our being. Many have been allowed to starve or spend their lives in hidden grooves, their poverty and obscurity being sometimes in strong contrast with the fame and wealth of others who have reaped where they have not sown. The hardest thing for a scientific man to bear is the attribution of his discoveries to men who have come into the vineyard at the eleventh hour and received the reward of his labors. The history of science is full of examples of such injustice; they all point the moral that it is the inevitable fate of the man who has not the gift of self-advertisement to be overlooked."

A Rapid Test for Tuberculous Pus.

The tubercle bacillus is often difficult or impossible to find in tuberculous pus, it frequently being necessary to inject the pus into guinea-pigs before the clinical diagnosis of tuberculosis is confirmed. The opportunity to experiment with guinea-pigs is, however, not within reach of all practitioners, so that the following test described by Müller in the *Centralblatt für innere Medizin*, 1907, No. 12, may occasionally be of value. A white porcelain dish is filled with Millon's reagent (which turns red in the presence of proteids) and a few drops of the pus to be tested are added. If the pus was caused by some coccus the entire reagent will turn red in fifteen minutes or less, if caused by the tubercle bacillus it will retain its natural color. This difference in reaction depends upon the presence or absence of proteolytic ferments, which if present change the pus into diffusible bodies; these then dissolve in the reagent and color it red. In tuberculous pus they are absent, and hence the coagulable proteid corpuscles are not dissolved, but form a thin membrane on top of the reagent which, while it itself turns red, leaves the reagent beneath it clear. When the tuberculous process from which the pus originated had been previously treated with iodoform, or when a mixed infection was present, the reaction was similar to the one caused by coccus pus. Tuberculosis can, therefore, not be excluded when no membrane forms and Millon's reagent turns red, while, according to Müller it can be positively diagnosed when a membrane forms and the reagent does not change color.

Flat Foot and Bone Tuberculosis.

Flat foot is so common an affection, and its treatment ordinarily yields such gratifying results, that the temptation is very great to make this diagnosis in cases presenting one or more of the characteristic features of the condition, without resorting in every instance to exhaustive examination. Usually the resort to proper footwear, suitably molded plates, strapping, massage, etc., proves the correctness of the diagnosis by bringing about a satisfactory amelioration of the symptoms, but it must be borne in mind that another and much more serious lesion, namely, tuberculosis of the bones of the foot, may at first simulate very closely the subjective and objective manifestations of a relaxed plantar arch. Ewald (*Münchener medizinische Wochenschrift*, November 19, 1907) emphasizes the possibility of diagnostic errors in this regard, and gives the history of four cases in which what was supposed to be flat foot was unsuccessfully treated for long periods of time by measures appropriate for this condition, but which *x*-ray examination finally revealed as being instances of tuberculous disease of one or more of the small bones of the foot. While it is hardly to be expected that radiographs should be made in every case of supposed flat foot it evidently is the part of wisdom always to keep the possibility of tuberculous disease in mind, particularly if the symptoms affect only the one foot, have appeared apparently as the result of traumatism, or have proved obdurate to the measures usually relieving the purely mechanical condition.

Working Toward a Quiet City.

In a few days, it is promised, signs will be placed at each corner of the block surrounding every hospital in the city, warning the passerby that the street is a "hospital street," and that quiet is enjoined in the neighborhood. This is putting into execution the ordinance which the Board of Aldermen passed some time ago, at the instance of Mrs. Rice, President of the Society for the Suppression of Unnecessary Noise, establishing the "quiet zones" around the hospitals. That the enforcement of this ordinance will help in the treatment as well as conduce to the comfort of hospital patients cannot be doubted. It is proposed also to enlist the children in the cause of establishing a children's Hospital Branch of the Society, the members of which will wear badges to promote an esprit de corps and will engage not to play on the street in a hospital block or in front of any house where one of the inmates is known to be ill. Still another evidence of praiseworthy activity on the part of the Society is found in the fact that there have been two convictions recently of tugboat captains for violation of the whistling law. It was proper and natural that the movement for reasonable quiet should have begun in this noise-ridden city, but its influence has spread even further than the founder of the Society had dared to hope. Chicago has recently established hospital quiet zones, similar to those in New York, and there are other signs that a wave of protest against unrestrained noise is sweeping over the country; and even in Europe the authorities of many of the larger cities are instituting anti-noise measures.

News of the Week.

Public Health and Marine-Hospital Service Examinations.—A board of commissioned medical officers will be convened in Washington, D. C., on January 20, 1908, for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine-Hospital Service. Candidates must be between 22 and 30 years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority and after due examination as vacancies occur in that grade. Assistant surgeons receive $1,600, passed assistant surgeons $2,000, and surgeons $2,500 a year. Officers are entitled to furnished quarters for themselves and their families, or, at stations where quarters can not be provided, they receive commutation at the rate of thirty, forty, and fifty dollars a month, according to grade. All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners application should be made to the Surgeon-General, Public Health and Marine-Hospital Service, Washington, D. C.

Mosquito Fever.—The Third International Sanitary Congress, at its session held last week in Mexico City, adopted a resolution that malaria should hereafter be called "mosquito fever," and that the delegates from the various countries represented should use their influence to popularize the change. It is hoped that in this way efforts to exterminate the mosquito will be facilitated.

Cocaine Peddlers Arrested.—Three men accused of making a business of selling cocaine in saloons have been arrested and held for examination. In the one case there is an additional charge of forging a physician's name to a prescription in order to secure a supply of the drug.

Centenarians.—John Spavin died in the village of Vernon, N. Y., on December 5, at the age of 105 years. He is said to have retained his faculties almost unimpaired until the last, and to have found it necessary to use spectacles for reading only two years ago. George Olley died in Great Bend, N. Y., on December 7, aged 110 years.

The City's Death Rate.—During the week ending November 30 the number of deaths reported as due to cardiac disease was 164, whereas for the corresponding week of last year it was only 95. The total for the week in question was 1,346 and for the corresponding week of 1906 it was 1,244. The deaths per thousand for the two weeks are respectively 16.39 and 15.63.

A New East Side Medical Association.—A number of East Side physicians and druggists have formed an organization called the Physicians' and Pharmacists' Mutual Aid and Protective Association of New York County. Among the objects of the society is to discourage lodge practice, restrict the sale of patent medicines, and prevent abuse of free dispensary treatment.

Typhoid-Contaminated Milk in Orange County.—An epidemic of typhoid fever has broken out in Walden, Orange County, a village of 5,000 inhabitants, and in the past few days forty-one cases have developed and six deaths have occurred. The State health officials attribute the dissemination of the disease to the milk supply.

Professor Koch Honored.—Professor Robert Koch, who has just returned to Germany after a year and a half of work in East Africa on the etiology and treatment of sleeping sickness, has been made a "Wirklicher Geheimer Rat" with the title Excellency.

Dr. Frank Woodbury of Philadelphia has been elected Secretary of the Lunacy Committee of the Pennsylvania State Board of Charities, in succession to Dr. I. Nicholas Mitchell, resigned.

Endowment of Free Beds in Philadelphia Hospitals.—The Sixth Pennsylvania Cavalry, known during the war as Rush's Lancers, has decided that the sum of $10,000 given to the organization by the heirs of the late Charles J. Coxe, who served as major in the corps during the war, should be devoted to the endowment of two free beds in the Episcopal Hospital of Philadelphia to be called the Sixth Pennsylvania Cavalry beds. By the will of the late David Scull of Philadelphia, the sum of $5,000 is bequeathed to the Philadelphia Lying-in Charity, for the endowment of a free bed, to be called the Hannah E. Scull bed, in memory of the wife of the decedent, who was at one time a member of the Board of Managers of the institution. An additional conditional bequest of the same amount is made for the endowment of a second free bed.

Long Sentence for Abortionist.—The Committee on Criminal Abortion of the Chicago Medical Society has secured the conviction of a woman abortionist, and she has been sentenced to imprisonment for twenty years in the State penitentiary.

Quarantine Against Cuba.—An effort is being made by the Cuban government to have the yellow fever quarantine against the island raised, as it is stated that the disease has practically disappeared from Cuba.

Killed by Insane Patient.—Dr. Samuel Goldberg of the staff of the North Texas Asylum for the Insane died on December 8 as the result of injuries received at the hands of a patient who suddenly became violent.

Officers of the Alumni Association of Cook County Hospital (Illinois).—At the annual meeting and banquet of this association, held November 26, Dr. Samuel C. Plummer was elected President, and Dr. Frederic A. Besley, Secretary and Treasurer.

"The American Journal of Urology."—Beginning with the January issue, this journal will be edited by Dr. William J. Robinson of this city. The

journal will be enlarged in scope so as to include venereal and skin diseases, and there will be added an abstract department which will review the genito-urinary and dermatological literature in every civilized language. The address will be changed to 12 Mt. Morris Park, West, New York City.

The Late Dr. Derby.—At a meeting of the New York Ophthalmological Society, held December 9, 1907, the following resolutions were passed: The members of the New York Ophthalmological Society record with deep regret the death of their associate, Dr. Richard H. Derby. Dr. Derby was born in Boston in 1844. He was a graduate of the college and of the medical school of Harvard University, and was house surgean in the Massachusetts General Hospital. While abroad he was a pupil of Von Graefe, and acted as his assistant. He settled in New York in 1870. He had been for many years an active member of the administrative and surgical staff of the New York Eye and Ear Infirmary, and was the Executive Surgeon of that institution at the time of his death. Dr. Derby was a member of our society since 1870. He was a member of the New York Academy of Medicine, of the American Ophthalmological Society, was officially attached to many public institutions, and was prominent and influential in all political reforms and movements for public betterment that have engaged the attention of public-spirited citizens. He was remarkable for his loyalty to his personal friends and for the earnestness with which he devoted himself to the welfare of the societies and institutions with which he was connected. Your committee recommend that this very inadequate expression of esteem and regret be incorporated into the minutes of the society and sent to the surviving members of Dr. Derby's family. W. E. Lambert, *Chairman*, John E. Weeks, W. S. Dennett, John R. Shannon, *Secretary*.

Obituary Notes.—Dr. Arthur E. Green of Los Angeles died on November 21 at the age of fifty-seven years. He received his medical degree from the University of Iowa in 1880 and had practised in Los Angeles for twelve years.

Dr. Charles A. Dorman of New Haven, Conn., died suddenly of heart disease on December 5, at the age of sixty-three years. Dr. Dorman was a native of New Haven and during the Civil War served as hospital steward. He later was graduated in medicine from the Hahnemann Medical College of New York.

Dr. Joseph Catlin of Chestertown, Md., died suddenly at Monmouth Junction, N. J., while on his way from New York to Philadelphia. Dr. Catlin was fifty-nine years of age and was graduated from the University of Pennsylvania in 1872.

Dr. Richard Morris of Vassar, Mich., died of pneumonia on November 27 at the age of sixty years. Dr. Morris was born in Limerick, Ireland, but was brought to this country while an infant and spent his boyhood in London, Can. He received his medical education in the Toronto School of Medicine and the University of Buffalo. He had held many positions of trust and for years had been City Health Officer.

Dr. H. W. Brown of Waco, Tex., died on November 29 at the age of eighty years. He had been a resident of Texas since 1868 and was at one time President of the Texas Medical Society and Vice-President of the American Medical Association.

Dr. A. W. Sims of Ketona, Ala., died of apoplexy on November 26. Dr. Sims had been a resident of Birmington until a year ago, when he removed to Ketona.

THE THIRD HARVEY SOCIETY LECTURE.

The third lecture of the present series given under the auspices of the Harvey Society was delivered on Saturday, November 30, in the large hall of the Academy of Medicine. The speaker was Prof. D. L. Edsall of the University of Pennsylvania, and the subject of his address was "The Bearing of Metabolism Studies on Clinical Medicine."

The speaker began by saying that at the present time there was a marked tendency for the scientist and the practical man in medicine to grow apart. This was due, perhaps largely, to the growing extent of the fields of both, of the large amount of knowledge required. The strictly scientific man was apt to look down on the practical man because the latter had often so little grasp of the former's subject, and attempts made to bring scientific knowledge in acceptable form to the practical man, or to make it of practical applicability was often frowned upon as undignified to science. No doubt it was often dangerous to turn over to the practical man certain scientific data which had only a limited applicability, for very frequently this limitation was disregarded and too general conclusions drawn.

The results of metabolism studies were of the highest value to the clinician. They possessed one great advantage over many other data in this respect, and this consisted in the fact that they could often be presented in the shape of figures. In fact very often the results could be obtained by comparing one column of figures with another, and results which depended on figures as opposed to mere clinical impressions were on the whole far preferable. In the application of metabolism studies in diagnosis, it might well be said that their value had mainly been iconoclastic. Thus, if one glanced at the studies which had been made on the urine constituents, one could not but be struck by the fact that a little knowledge of metabolism would have saved an enormous amount of labor—labor which, because of a lack of this knowledge, had been almost entirely wasted. Extensive clinical studies had been made in which the percentage composition of the urine had been regarded as a definite factor, and yet we all knew that only the total daily excretion afforded any reliable basis for study. But even more than this was necessary in order to make the data of any value; namely, the nature and quantity of the substances ingested. Some time ago the obstetricians read long papers and held animated discussions on the significance of the percentages of urea in the urine of their patients. It was not realized that it is possible, by mere changes in diet, to change the daily excretion from a few grams per day to from 20 to 30 grams. More recently much attention had been devoted to a study of the NaCl factor of the urine and to the results obtained by cryoscopy. In all of these, unless the diet were reckoned with, the figures were useless.

Formerly the presence of oxalate of lime crystals in the urine was made the basis of a definite clinical (?) disease. It was even held that these crystals indicated an excess of oxalic acid in the blood. And the same held true of the phosphates; they had been interpreted as indicating an excess of phosphates in the blood. As a matter of fact, these sediments indicated merely some changes in the reaction of the urine, causing the substances to be less soluble. Perhaps most labor had thus been wasted on studies connected with the presence of uric acid crystals in the urine. Metabolism studies showed that in this case even very refined scientific measurements

of the uric acid excretion taught us little. We now knew that there were several sources of the uric acid, but we did not know the proportion derived from each source.

The application of metabolism studies had thus righted false diagnostic and false therapeutic procedures, and so had been of great value. But this had not been their only function. They had, for example, exerted an important influence in dietetics, although here a great deal had still to be done. Dietetics was still largely unscientific. Perhaps this was due to the fact that there were still so many differences among the physiologists themselves. It was absolutely necessary, however, for the physician to take greater interest in dietetics than he had heretofore taken. Foods should be regarded more like drugs, and one should measure the food value more in proportion to the patient. To be sure, the matter was one of considerable complexity. We might trust to figures in the simpler diets; in the more complex it would be necessary to judge largely by the appetite of the patient and by his general condition. The number of physicians who made any considerable use of their knowledge of food values was still very small. These same physicians, however, would bring the utmost of their scientific knowledge to bear in questions of drugs, or other remedial treatment.

The speaker said it was an error to exclude an entire class of food stuffs because some member of the class was contraindicated. In such a case one should be able to choose another member of the group and seek for a means to prepare it properly. In the case of infants, experiments had shown that they use and need considerable quantities of proteid. He believed that, as a rule, pediatrists gave too little proteid. It was not enough, however, to study merely the intake and the outgo. The intermediate changes were of the greatest importance. This phase of metabolism had recently undergone a considerable change in the point of view through the studies which had been made by Emil Fischer and his pupils on the constitution of the proteid molecule, and by recent studies on the rôle of ferments. The ferments, we now knew, were present in all cells, and were closely bound to them. It was exceedingly difficult to get them out. But, so far as a therapy by means of these ferments was concerned, it was doubtful whether one could do anything with them, anyway. It seemed to have been conclusively shown that the same ferment could act both constructively and destructively, and that the difference in the action depended on the medium. The involution of the uterus after pregnancy was a ferment action, and there was reason to believe that only one ferment was involved, both in the enormous building-up process of pregnancy and in the breaking down during the puerperium. Perhaps some day we should be able to influence these cell ferments. In the case of pneumonia the speaker had tried to affect the ferment action by the use of the *x*-rays, but the results were not yet clear.

Dr. Edsall alluded to the fact that acute yellow atrophy of the liver was now well understood, thanks to studies in metabolism. It was possible that recurrent vomiting might also be thus cleared up. The metabolism of the inorganic substances had not been sufficiently studied. Yet this would probably prove a fruitful field. He referred to the work already done in this line, and spoke of the experiments of Jacques Loeb on artificial fertilization, and of those of Meltzer on the effects of calcium and magnesium salts.

Correspondence.

MILK PURIFICATION.

To the Editor of the Medical Record:

Sir:—A Paris physician has figured out exactly the number of tons of manure Parisians yearly consume with their milk. Another Paris physician points out that 99 per cent. of the milk consumed by the people of Paris is tuberculous. One thousand corn-fed hogs were slaughtered and no traces of tuberculosis were found in their bodies. One thousand hogs, fed on milk such as is served to Parisians, from dairies adjacent to Paris, were slaughtered and 99 per cent. of their carcasses showed lesions of tuberculosis. And a hog's intestines are pretty strong. What is the solution of this problem?

Establish purifying and sterilizing stations either at the initial point of delivery or at the receiving station or stations in the city. Fifty strainings will *not* remove manure, blood, pus, seeds, hair, and microscopic dirt from milk; *centrifugal separation* will. Visit a creamery where De Lavae milk separators are used and verify this. See a batch of milk strained through twenty strainers (usually it is strained once) and then see it separated and note the filth cleaned from the machine. You never will drink milk again. Sterilization is good, is necessary; Mr. Strauss has proven that. But let us first *purify* the milk, and centrifugal separation is the only known method, and then let us sterilize it afterwards.

It is only a question of time when this must and will be done. Why can not the progressive medical men hurry it along?

Charles Cristadoro.

Point Loma, Cal.

A USEFUL MANOMETRIC TABLE.

To the Editor of the Medical Record:

Sir:—I am sending herewith a brief scale showing the equivalent of the mercury and water columns in ordinary manometric work, which I trust you will publish for the benefit of your readers. So many are now using blood pressure apparatus that a question sometimes arises as to the height of a column of water that would correspond to the height of the mercury column. It is not always easy to turn to a scale, as none is given in the ordinary reference books. The meaning of the figures is clear, as, for instance, at the top of the column eighty millimeters of mercury equals one hundred and eight millimeters of water. Further down, two hundred and fifty millimeters of water equals one hundred and eighty-five of mercury.

Mercury.		Water.	Mercury.		Water.
80	=	108	150	=	203
90	=	122	160	=	217
100	=	136	170	=	230
110	=	149	180	=	244
120	=	163	185	=	250
130	=	176	190	=	257
140	=	190	200	=	271

Louis Faugères Bishop, M.D.

New York.

EARLY BELIEF IN THE MICROPARASITIC NATURE OF MALARIA.

To the Editor of the Medical Record:

Sir:—In a treatise on the "Geology and Mineralogy of Georgia," published at Atlanta in 1871, Dr. M. F. Stephenson, referring to the cause of malaria in that State, says: "These fevers evidently are caused by animalcular irritability and are cured at once by using any remedy which is readily taken into the circulation, and destructive to the animals." Is not this, dated 1871, of interest in view of the fact that not until 1880 did Laveran isolate the organism?

Arthur R. Butler, M.D.

Newington, Fairfax County, Va.

Tuberculosis and Weather.—Twenty years' observation of phthisis over a district in Dartmoor and North Devon, England, has convinced investigators that populations exposed to strong prevalent rainy winds have a higher death rate from consumption than populations sheltered from them. The contrasts in the phthisis death rate in the sheltered and exposed parishes are very marked.—*The Therapeutic Record.*

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEETING AT COLLEGE OF SURGEONS—REPRESENTATION OF MEMBERS, ADMISSION OF WOMEN, CERTIFICATE OF TROPICAL MEDICINE, ETC.—ROYAL SOCIETY OF MEDICINE—OPERATIVE TREATMENT OF GOITER—RECURRENT DISLOCATION OF SHOULDERS—CONGENITAL HEART DISEASE IN ADULTS—PNEUMOTHORAX—DUCHESS OF ALBANY AT HOSPITALS—UNION OF PUBLIC HEALTH AUTHORITIES—OBITUARY.

LONDON, November 22, 1907.

YESTERDAY afternoon there was the annual gathering at the Royal College of Surgeons, which the Council persists in calling the annual meeting of the Fellows and Members. It is true that a report of the Council to the Fellows and Members who may care to attend is presented and on this they are permitted to comment. Resolutions may even be passed, but they have no effect, the Council holding that the authority of the college rests in itself only and that resolutions can only be considered as outside advice. That this has no effect is obvious from this fact, which the president referred to yesterday—that a resolution passed unanimously for the last twenty successive years has been simply ignored. The president asked his audience to believe that the Council was not actuated by any hostility or opposition to the Fellows and Members, but only by a feeling that the proposal for them to be represented on the Council was an innovation which was not in the nature of a desirable reform. The resolution affirming that it was desirable was nevertheless once more passed, and further a motion of regret that the report contained no mention of the opinion expressed by the Lord President respecting an application to the Privy Council for a new charter providing for the admission of women. It was suggested that the Lord President on behalf of the Government had intimated that any new charter would have to contain provision for the representation of the Fellows and Members. The president replied to this that he could not give his own version of the conversation without the Lord President's assent. As to the admission of women, the president stated that the Council had passed a resolution in its favor and the question was referred, under the Joint Board agreement, to the College of Physicians. If that college decided in its favor a vote of the Fellows and Members would be taken and on the result of that vote the decision of the Council would largely depend. This is equivalent to a promise to consider the opinion expressed by the vote, with a determination by the Council to follow its own course, and that course for the last twenty years offers no inducement to the voters to expect anything. A member had the temerity to suggest that the reference to the sister college was only with the object of getting rid of the necessity, if a new charter were obtained, of including representation of Members on the Council.

The report mentions the question of a certificate in tropical medicine, which I have previously reported as decided on. Also that the cancer fund will be available for research in connection with other diseases when the inquiry into cancer is successfully ended. A resolution was adopted asking the Council to use its influence with hospital authorities as to staff appointments. Finally it was suggested that the college might join with the sister college and the London University, to form an Imperial University in the metropolis. But that suggestion is, of course, only outside advice.

The Surgical Section of the Royal Society of Medicine has been discussing the operation of goiter, Mr. James Berry having brought forward an account of 274 cases of removal. Many were encapsulated, which seems to exclude the agency of drinking water, though the majority came from districts where the supply was of doubtful quality. Reasons for operating were assigned as: Dyspnea, 64.5 per cent.; deformity, 12 per cent.; discomfort and deformity, with slighter dyspnea, 17 per cent.; malignancy and tumors, 3.6 per cent.; suspected malignancy, dysphagia, and increase in size, 2.5 per cent. The commonest and most urgent indication for operation, Mr. Berry said, was dyspnea, and this he held was always due to pressure on the trachea. No degree of severity of dyspnea need preclude operation. Hemorrhage into soft adenomata often caused extreme sudden and even fatal dyspnea. As to results, the mortality of innocent tumors was little over 1 per cent. and complications were insignificant. Out of seven malignant cases three died and three had recurrences. In most operations it was better not to remove the part next to the esophagus, recurrent laryngeal nerve, and side of the trachea.

Mr. Haward spoke of the excellence of the results indicated by the perfect scars in many patients shown. He asked why chloroform was always used and never ether, whereupon Sir Victor Horsley said ether should never be used in operations where dyspnea was so important a feature, as it provoked expectoration. He was for postponing operation in the parenchymatous enlargements of young patients, but in adults there was little hope of relief from other measures. Some encapsulated and outlying tumors were parathyroidal. Some were associated with nervous symptoms, which disappeared after operation, and they were not Graves' disease.

Mr. Spencer reported benefit to cases of Graves' disease from division of the isthmus and removal of small portions of both lobes. In goiter in the old or middle aged he thought it well to operate before any definite suspicion of malignancy and not to wait for dyspnea.

Mr. Paterson reported that he had lately been at a discussion on the subject at Rochester, U. S. A., and found that American surgeons favored operation in Graves' disease. Dr. Ch. Mayo reported 110 cases with 10 deaths. Cure followed in 50 per cent., relief in 25 per cent., and the other 25 per cent. were unsatisfactory. Ether by the open method was employed.

In the Clinical Section Mr. Openshaw showed a man of 27, the subject of recurrent dislocation of the shoulder, which was attributed to epileptic fits since 1896. The joints had been dislocated about fifty times a year. Injections into them, rest, removal of cartilage from their surfaces, and division of the pectoralis major had all failed to prevent recurrences. Then Mr. Openshaw detached the insertion of the subscapularis from the humerus and fastened it to the deltoid in each shoulder. No recurrence and natural movements of the arm resulted. He has done this operation in three cases and all were successful, as seen six years, two years, and sixteen months afterwards, respectively.

Dr. Murray Leslie had two cases of congenital cardiac disease in adults. A girl of 23, cyanotic from birth; temperature was low, heart enlarged to the right, probably patent septum, and other abnormalities. The other case was also a female, age 30, with pulmonary stenosis observed for twenty years, attacks of giddiness and breathlessness, cyanosis, club fingers, etc. The right ventricle was enlarged; a loud, harsh systolic murmur was heard, loudest in the pulmonary area. There was pulmonary stenosis and some patency of septum. Health of late better than ever. Red cells greatly increased.

Dr. Fawcett read an account of a case of pneumothorax aspirated under *x*-rays in a man of 22, admitted with much dyspnea from pneumothorax of the right side. As he did not improve for nineteen days a trocar and cannula were inserted into the pleural sac in the sixth or seventh interspace. The lung was seen by the *x*-rays to be compressed against the spine and therefore the trocar could be passed without touching the lung. On connecting the cannula with a partially exhausted bottle the lung was seen on the screen to expand. It at once acted perfectly and after twelve days the patient was discharged well and he has resumed work. It was remarked by members that recovery was usually so good that aspiration was only necessary when dyspnea was extreme. Sir William Cairdner's opinion was quoted as adverse to the operation.

On Tuesday the Duchess of Albany attended a meeting of the supporters of the Hospital for the Paralyzed and Epileptic, held to institute a fund to celebrate the jubilee of the hospital, which will occur two years hence. Considerable improvements and some building seem required, for which it is proposed to raise £10,000. A scheme was approved and the Duchess was asked to form a committee. Her Royal Highness accepted the presidency of such a jubilee committee and made an interesting speech, urging that none of the expense of the jubilee committee should fall on the hospital. Accordingly Her Royal Highness opened an expenses fund—not a guarantee fund—so that whatever remained after the expenses were paid would go to the hospital. In closing her speech she announced that already she had received £112 towards the jubilee fund, as well as a number of promises.

The next day (Wednesday) Her Royal Highness opened the Infants' Hospital, an addition to London's charities, which has been built and completely equipped by Mr. Rob Mond as a memorial to his late wife. The wards will accommodate fifty infants and there is also a lecture theater, a laboratory for milk and food preparations, and another for research work.

The meeting to establish a union of public health authorities, the calling of which I mentioned in a former letter, dated September 27, was duly held on the 15th inst., when some eighty representatives of these authorities attended, and it was resolved to carry out the proposal which had emanated from Newcastle. The "National Union of Public Health Authorities" was accordingly started, its objects being (a) to secure as far as possible harmony of interest

and uniformity of action among the authorities; (b) to stimulate and concentrate effort for effecting necessary sanitary reforms; (c) to encourage the study of practical hygiene and educate opinion on the national and local importance of the subject; (d) to consider the conditions and circumstances, general and local, whereby disease may be caused to man and to obtain their removal.

Sir Charles Frederick Hutchinson, M.D. and ex-M.P., died on Friday at the age of 57. He was the son of Dr. Hutchinson of Nottingham and entered his father's profession at the Edinburgh University, graduating in 1874. He practised for some years at Scarborough and was at one time on the staff of the Royal Manchester Infirmary. He spent the winter for several years in the south of France, but in 1898 gave up professional work and retired to Sussex, where he was made a Justice of the Peace. In 1903 he was elected M.P. for the Rye division, but lost the seat at last year's general election. He received a knighthood last November.

OUR PARIS LETTER.

(From Our Special Correspondent.)

FRENCH MEDICAL CONGRESS—HEMOPHILIA—GASTRIC ULCER—EXOPHTHALMIC GOITER—THE TRANSMISSION OF TUBERCULOSIS—THE USE OF RADIUM.

PARIS, October 20, 1907

THE ninth session of the French Medical Congress was held in Paris from October 14 to 17 under the presidency of Professor Debove, Dean of the Medical Faculty of Paris. One of the topics for discussion was hemophilia, and papers on this subject were read by Carriere of Lille and Marcel Labbé of Paris. As is well known, hemophilia is characterized by a tendency to spontaneous or traumatic hemorrhages, associated either with undue permeability of the vessels or abnormalities in coagulation. The etiology of the disease is practically unknown. The hemorrhages caused may appear at the surface through the natural channels, and in these cases are frequently the results of exertion. Epistaxis is the form most often observed. Cutaneous and mucous hemorrhages may also be produced either by contusions or abrasions. Hemorrhage sometimes occurs after the dropping off of the umbilical stump in infants; the bleeding may also take place into the joints, producing characteristic arthropathies. The treatment of hemophilia consists in the administration of iron or arsenic. Carriére speaks well of chloride of calcium in doses of 2 g. a day. Serum therapy may be resorted to, as suggested by Weil, and for this purpose the serum of rabbits, of the horse, the ox, or, still better, of man may be injected, but the effect of this treatment is only temporary and it must be repeated every ten or fifteen days in order to produce a continuous action. The results obtained by the use of gelatin are less reliable, but 20 to 30 g. a day may be administered by mouth, or by rectum 15 g.

The second subject on the program was the treatment of simple gastric ulcer and the speaker was Linossier. He considered that the simple gastric ulcer had a natural tendency toward cure. The measures adapted to bring about healing of the lesion were of three sorts. The most important of these was the regulation of the diet. The organ should be put at rest by resorting to subcutaneous and rectal feeding; this period of course was kept up for only a short time. Milk diet fulfilled the indications best and afforded proper nourishment with a minimum of disadvantage. The medicinal treatment comprised especially the administration of alkalis and of subnitrate of bismuth. Finally, surgical methods might be resorted to either for the excision of the ulcer or, as was more generally practised, for the performance of gastroenterostomy. Linossier concluded that the operative measures should be made use of only when medical treatment had been found to be entirely unsuccessful.

Castaigne and Dujarrier followed with a paper on the complications of gastric ulcer and their treatment. Among these they said some were especially acute: First, generalized perforative peritonitis, for which prompt surgery was necessary, and then profuse hemorrhages, for which operative treatment was less successful than medical treatment. Among the less acute complications were localized peritonitis and perigastric abscess, which might lead to gastric fistulas. The chronic complications included stenosis of the pylorus, hour-glass stomach, and productive perigastritis. Finally, gastric ulceration might frequently lead to the development of cancer. In the treatment a combination of medical and surgical measures was most desirable. While there were no complications the condition was strictly a medical one, but if complications arose the physician should immediately consult with a surgeon, although operation was not always indicated. After the operation it was indispensable that the patient should be kept under medical treatment, as lacking this serious sequelæ were possible.

Gilbert Ballet and Delherm presented a paper on the pathology and treatment of exophthalmic goiter. Of the surgical measures proposed for this condition they began by discussing the injection of remedial agents, which they said, in addition to involving the risk of sepsis, sometimes caused severe hemorrhage, dyspnea, and even sudden death. Exothyropexy was at present practically abandoned. Partial thyroidectomy was also dangerous and should be given up. Ligation of the thyroid arteries was likely to be attended by serious consequences and could not be recommended. The dangers of sympathectomy were so great as to discountenance this operation. The authors then discussed the various methods of organotherapy, including the administration of extracts from the thyroid, ovary, thymus, parathyroids, suprarenal, and testicle. Radiotherapy apparently had a favorable effect on the symptoms, but its value had not yet been fully determined. Electricity had also been resorted to and diminished the thyroid secretion and affected the sympathetic favorably. Among the pharmaceutical preparations salicylate of sodium was the most effective.

An interesting discussion was then held regarding the intestinal or aerial transmission of tuberculosis. Kuss pointed out that in experimental work it was very easy to infect animals by the respiratory route, while the results of intestinal infection were inconstant and inconclusive. Vallée of Alfort considered that in respiratory tuberculosis the rôle of inhalation was undeniable, but infection by the digestive tract was also very frequent. The purely pulmonary lesions so often seen in children could in animals be produced equally well by the ingestion and the inhalation of bacilli. It was to be hoped that the necessary measures would be taken to combat the serious danger involved in the use of milk from tuberculous animals. Calmette of Lille was also of the opinion that in chronic tuberculosis the intestinal route was the habitual means of infection. Debove, on the other hand, pointed out that in order to sterilize the milk it was necessary to bring it to 100°, and he suggested that the Congress adopt a resolution recommending that in all public establishments only boiled milk be delivered. This resolution was unanimously adopted.

Dominici spoke of the therapeutic applications of radium and reported the cure of gonorrheal arthritis, improvement in cases of urethritis, and in some forms of chronic rheumatism. Together with Barcat, he had studied the histological changes produced by the rays and had reached the conclusion that the cure of inflammatory affections and of certain tumors was not due to the destruction of the diseased tissues, but to modifications in cellular activity depending on chemical phenomena. Wickam and Degrais reported excellent results with radium in cutaneous epitheliomas, vascular nevi, and obstinate dermatoses. They considered that the use of radium should be definitely accepted in dermatological practice.

Progress of Medical Science.

Boston Medical and Surgical Journal, November 28, 1907.

Anterior Poliomyelitis in the Adult.—Details of ten illustrative cases are given by G. L. Walton. He says that the symptoms of the malady are overlooked, not because they vary materially from the same disease in infancy, but because this diagnosis does not enter the mind of the practitioner in case the patient is an adult, whereas it is ever present when the patient is a child. In the adult appears the same stage of fever, during which signs of irritation appear, and during which the destruction of anterior spinal gray matter produces relaxed paralysis of various muscle groups, without loss of sensation or sphincter control (temporary loss of sphincter control did occur, however, in the first case reported); there are the same favorable prognosis as regards health and the same gradual disappearance of paralysis with more or less permanent residue. The essential features point, in the adult as in the infant, to an infectious process, of more or less diffuse onset, but having for its chief point of attack the anterior gray matter of the cord, to which region the ultimate injury is limited. The author's general conclusions are that the disease is not rare in young adults. The real seat of the infection is apt to be obscured by temporary symptoms pointing to the meninges and nerve sheaths. The implication of the meninges is probably independent, not an extension from the substance of the cord. The onset of paralysis is more retarded in adults than in infants, and the extension of paralysis from one group to the other is less immediate. No exten-

sion of paralysis is to be expected after fever has subsided. Prolonged rest of the affected muscles is desirable, as well as early orthopedic measures.

Diagnosis of Gastric Cancer.—R. F. Chase notes that cancers involve the stomach in about half of all cancer cases and that this localization accounts for two per cent. of the total mortality of the present time. As medical means of diagnosis he discusses the topics of history of the case, age, weight, chemical tests, and mechanical measures, such as aspiration of the stomach, inability to pass the tube more than 15 or 16 inches, and much delay or complete absence of the deglutition sound. Inflation and palpation often enable us to make out the presence of very small tumors. Concerning tests, the author mentions particularly that of Salomon, which consists in the detection of appreciable amounts of albumin by Esbach's reagent in salt solution which has been used to wash out the stomach several hours after the organ has emptied itself. In a limited number of cases Chase has obtained positive results in cancer cases only, while negative results appeared in mucous gastritis and other non-malignant lesions. As to the time to be allowed for carrying out the above medical diagnostic measures, the author notes that in advanced cases the diagnosis may often be determined at the first or second visit. In earlier cases two or three examinations in as many days or a week may be required. At this stage a condition is found occasionally warranting a radical operation or a gastroenterostomy. In still earlier cases two or three weeks are required. Frequently here, if the lesion is confined to the pylorus and metastases are not too extensive, resection may be done, or with adverse conditions for resection the physician should know at least and prior to the incision that a gastroenterostomy is indicated. As a general guide for operative measures the physician should have definite ideas on the following points: (1) He should be reasonably sure of the presence of the disease; (2) he should usually know when the case is beyond surgical relief; (3) in cases which he considers operable, he should have a pretty good idea that the conditions warrant at least a palliative, perhaps a radical, operation. Ulcer cases with stasis may be included here. Some of them cannot be differentiated from cancer by medical means. (4) In certain cases, either early or late, he should know if the cancer is located at the cardia, or lower end of the esophagus, and be aware that no operation, except a gastrotomy as a last resort, should be attempted. In advising regarding operation, the patient's age and his physical condition are features which should be duly considered. The above classes of patients (and Hoffmann figures it that the disease has then been present ten and three-tenths months) constitute the vast majority, perhaps 95 per cent., of all gastric cancers as seen by the consultant. In the remaining small portion of cancer cases, the true conditions perhaps cannot be learned by medical means within three weeks' time. In most of these cases, perhaps all, a surgical exploration should certainly be made, and the operation carried out which seems indicated. But even in these cases a radical operation cannot be done, unless the lesion is favorably located.

New York Medical Journal, November 30, 1907.

Ultra-Violet Ray and High Frequency Currents in Phlebitis.—S. Tousey describes the apparatus used in this form of therapy, and gives the histories of two personal cases. The treatment consists of two essential parts: (1) A glass electrode exhausted to about 0.001 of an atmosphere and yielding ultra-violet rays and visible violet colored light, when traversed by a high frequency current, is applied directly to the surface of the affected limb. (2) The affected limb is treated on general principles during the intervals of two days which elapse between the electrical applications. These measures include support by bandages, strapping, or elastic or laced stockings, massage, suitable ointments or lotions. One or more of these may be necessary in any particular case. Concerning the action of the currents from the ultra-violet ray vacuum electrodes in phlebitis, Tousey says that the ray itself may be demonstrated in the light given off by these tubes. A piece of willemite becomes fluorescent when held near such a tube in operation. This light has a stimulating effect upon the processes of metabolism in the tissues. It also is a powerful agent in the production of ozone, which gas can be detected upon the surface of the body hours after the application is finished. Ozone produced in this way and also by minute sparks from the vacuum electrode is absorbed by the tissues under the influence of the current. Additional quantities are generated in the tissues by electrolysis. This very active form of oxygen acts as a powerful vitalizer of the tissue cells. The electric current itself stimulates the circulation and favors the elimination of chronic exudates and indurations. It is also a stimulant to the vitality of the tissue cells.

Obstruction in the Nose or Throat as a Cause of Nervous and Mental Diseases in School Life.—R. H. Johnston regards the real nature of mental and nervous troubles in these cases as toxic from a deficiency of oxygen in the inspired air. The list of symptoms produced includes mental dullness, restlessness, night terrors, nocturnal incontinence, headaches, stuttering, and various other defects of speech, choreic movements of the face, etc. Mention may be made also of reflex nervous cough, irritability of disposition, pseudomeningitis, etc.

Serum Diagnosis of Syphilis.—A general review of work done along this line, both in its laboratory and clinical aspects, is given by W. J. Butler. He notes that the luetic organ extract is a difficult one to prepare, as it may undergo at any time such changes as render it useless. The mode of its elaboration is described in the paper, but cannot be reproduced here. Concerning one of its clinical applications, it may be said that it has been noted that in the majority of progressive paretics the spinal fluid reacts to syphilitic antibodies, and this fact led to the hypothesis that long years of antibody production on the part of the nervous system lead to pathological degeneration of it; that, therefore, progressive paralysis may be looked on as a wear and tear disease of the nervous system caused by too great a production of antibodies. In infectious diseases in general the immune bodies, as a rule, disappear in convalescence or soon thereafter. Not so with syphilis, as the antibodies may be found thirty, forty, or fifty years later. Just how long a patient who has been effectively treated remains free from antibodies, and probably from active syphilis, must by later work be determined, and upon this rests a point of incalculable importance to the syphilitic. That they do not remain free permanently is in some measure deducible from examinations already made, in that the reaction was often found + in patients who had undergone several courses of treatment at different times, and in whom in all probability the immune bodies after one or other of the cures disappeared. In support of this we may repeat the observation that some cases after effective treatment fail to give a + test. It would appear at this time that the serum reaction may prove a guide, an index, so to speak, to check up and control in a certain measure the destiny of our patient, and it seems not improbable that we might thereby be able to pilot him clear of assaults on his nervous system that result in cerebral or cerebrospinal syphilis, the parasyphilitic affections or visceral lues.

Possible Progressive Growth in Muscular Efficiency After Fifty Years of Life Without Systematic Muscular Exercise.—Horace Fletcher gives an exposition of the system known by his name, the initial factor of which is thorough mastication. Detailing his own experience, he says that he found by this means that many substances ordinarily considered tasteless were quite sweet; that much less food satisfied the appetite; he lost some of his fat, and after four or five months recovered sufficiently his former health to be accepted by a life insurance company which had formerly turned him down. He found himself able to take vigorous exercise without fatigue. The amount of food had been lessened, especially its proteid content, with only beneficial results. The author refers to series of experiments which have been made along these lines at various educational institutions and finds in them confirmation on a scientific basis of what he had already learned in his own case. There is no doubt, he says, but that meat or any form of superabundant proteid, like alcohol, gives certain immediate stimulation, and so-called systematic physical training, or hard work of any kind, will throw off or burn up the nephritic products of such poison breeding metabolism, but the result of a let up in work is disastrous. On the other hand, nutrition that has been prescribed by a healthy earned appetite, limited by an appetite which has been allowed to discriminate through careful buccal treatment, and the whole blessed with true epicurean enjoyment accommodates itself to the bodily and mental activities of the moment, and the body thus nourished, whether the possessor of big muscles or small muscles, is always in training and ever ready to endure unusual strain in cases of emergency.

Journal of the American Medical Association, December 7, 1907.

Spinal Localization.—J. H. Lloyd reports a case of rapidly fatal hemorrhagic meningomyelitis, of presumed

specific origin, with extensive secondary softening and cavity formation, originating in the lumbar cord and stopping abruptly in the eighth dorsal segment. There was complete loss of all modes of sensation below a line drawn around the waist at about the lower costal margin, a little higher at the middle and in front, and slightly so on the back. There was complete motor paralysis and the reflexes were abolished. Pain was complained of at the upper limit of the anesthesia and the spine at the level of the seventh and eight dorsal vertebræ was extremely sensitive. An interesting symptom was sweating above and dry skin below on the line of anesthesia. The case progressed rapidly to a fatal termination and post mortem revealed a large hemorrhage in the anterior fissure and an area of softening and cavity formation begun in the eleventh dorsal segment and extended upward, occupying a large space in the posterior columns, ending abruptly in the eighth dorsal segment. Above this, the cord was practically normal. This softening and cavity formation was probably secondary to the main lesion lower down, and occurred as the terminal process of the case. The localization in this case points to the eighth thoracic segment, and if Sherrington's views are correct, it tends to put the area supplied by the eighth segment in about the same location as given in the diagram of Head who places the umbilicus at the lower margin of the ninth area. It also corresponds closely with the mappings out by Sherrington on the body of one of his monkeys. The article is illustrated.

Mixed Malarial Infection and Gangrene.—E. J. Wood gives an account of a number of cases of symmetrical gangrenoid conditions occurring in his vicinity, probably associated with malarial infection, though this was not stated in some of the very brief histories he collected. One case, however, was observed carefully, and in this, in addition to the lesion mentioned and rather profound mental hebetude, the blood was found loaded with tertian parasites, though there was nothing else at the time suggestive of malaria in the symptoms. Later, however, the quartan parasites appeared in the blood with the other form, and chills and fever appeared. Wood discusses the case and states his conclusions as follows: 1. Malaria may be considered a direct or a provocative agent of symmetrical gangrene of the skin. The skin lesion differs somewhat from the classical description of Raynaud. 2. Tertian and quartan malaria may occur simultaneously, but such a combination is exceedingly rare. Usually one type predominates. 3. Latent tertian fever occurred in Case 8. It is very unusual. 4. Certain peculiar psychoses may be present in malaria and are probably of toxic origin. This question should engage the attention of the psychiatrists in malarial districts or physicians having patients from these districts.

Ventilation in Tuberculosis.—C. Denison describes the bed canopy or window tent as devised by him and emphasizes the importance of free and ample ventilation of the sleeping quarters in the treatment of tuberculosis. Fear of drafts, which he thinks is one cause of the unpopularity of such appliances and of outdoor sleeping, is a needless one. A sleeper, by having warm enough coverings on his bed and a thick woolen hood in winter, or a light soft nightcap in mild weather, can so temper the air movement that no danger of catching cold will result. It is only by such methods as the window tent or outdoor sleeping that thorough renewal of the air that is required can be insured. Denison says: The question of the necessity of sufficient air space, especially during the probably more susceptible sleeping hours, is the most vital one to consider in connection with the present tuberculosis crusade, not second in preventive importance to the quality of air in that space, nor to the infective germ of tuberculosis. He thinks it a mistake to attribute too much to the concentration of germs in habitations and not enough to the cramped and limited air supply.

Measles and Rubella.—The frequent errors of diagnosis between measles and rubella are remarked by H. M. McClanahan, who describes their respective symptoms as observed by him during a recent prevalence of both simultaneously in Omaha. The principal differences observed were the marked prodromal symptoms of catarrhal disorder, fever, etc., with the early appearance of Koplik's spots in measles as compared with the slight or absent prodromata in rubella, and the later appearing, more lasting and confluent eruption in measles. The papules in rubella are more discrete and they appear often as the first noticeable symptom. The fever is not so high as in measles and complications are notably absent. In three of his patients he had the opportunity of observing both disorders occurring in the same patient within a few weeks and noting the contrasting symptoms and course. There are doubtless borderline cases, but careful examination will usually lead to a correct differential diagnosis.

Dengue Fever.—J. Goldberger and G. W. McCoy describe the epidemic of dengue as it occurred in Brownsville, Tex., during the summer of 1907. The town is located on the bank of the Rio Grande, about ten miles from its mouth, and as the water for domestic use is kept in barrels or cisterns, the mosquitos are very much in evidence. The disease was probably introduced from Mexico, and between the middle of June and the middle of August it was estimated that there were about 1,000 cases. The incubation in the one case in which it could be accurately observed was not over six days, the onset was rather abrupt with general malaise, and aching, headache, and occasionally slight chill or chilliness. Pain, in the form of headache with or without rachialgia, lumbar pain, aching of the limbs and eyeache, was a constant symptom. Severe aching in the scapular regions was complained of in many cases, but no joint pains were noticed. The pains varied in intensity and disappeared as a rule with the fever. In many cases there was an initial flushing of the face for two or three days; the skin was usually warm and moist, and, in a little more than one-half of their cases, a more or less pronounced eruption appeared some time between the third and sixth day, lasting from twelve hours to three days. It varied considerably in character and extent, but in the majority resembled somewhat that of measles. Enlargement of the lymphatic glands was observed in only three cases. The rise of temperature began with the onset of the disease and was progressive for two, three, or four days. When it reached its maximum it began to decline, slowly or rapidly, usually reaching normal on the fifth or sixth day; the highest noted was 104.2° F. The pulse followed the fever; in no case was there the typical Paget's sign, a falling pulse rate with a stationary or rising temperature. In four cases nose bleed occurred, but there were no catarrhal or other respiratory symptoms. Blood examinations revealed no parasites that could be considered as of etiological significance. The tongue was usually moist and more or less coated over the dorsum, the appetite dulled and sometimes lost; thirst was almost invariably marked. In some cases there was nausea, and in a few instances vomiting, usually watery and sometimes bile stained, but not severe. Constipation was the rule, but was readily controlled. Albumin was absent from the urine, at least up to the fourth day, after which it was impracticable to obtain specimens, except in one case. One patient had a slight catarrhal icterus, antedating, however, the dengue. On the part of the nervous system, aside from pain, insomnia was observed in several instances, frequently as the result of the former. More or less marked adynamia followed the fever as a rule. A number of patients gave histories of previous attacks, and at least two had had yellow fever. The disease corresponded closely with that observed in the Philippines, but there hemorrhages were not observed and enlargement of the lymphatics was more common. The diagnosis in the presence of an epidemic was not doubtful. Yellow fever, the only disease demanding serious consideration, was readily excluded by the eruption and the absence of albuminuria and jaundice, which would certainly have been present with the fever of such severity and duration.

The Lancet, November 16 and 23, 1907.

Hemophilia Transmitted Through the Male.—A. J. Swanton reports an interesting family history. The disease originally appeared *de novo* in the father. Of his thirteen children the malady appeared in only one, a son, who had been a bleeder from infancy. This son, now a man of forty years, is the father of six girls and one boy, ranging from two months to nineteen years, all of whom, with the exception of one girl of eight years, have shown hemophilic tendencies. Four have died, two boys at eight months and four years respectively, from "convulsions," said to have been due to epistaxis, and one boy, aged ten months, and a girl aged two years and eight months, from pneumonia following measles accompanied by severe epistaxis and bleeding from the mouth. The disease in the father chiefly takes the form of spontaneous epistaxis which is difficult to control and is preceded by malaise and headache. He also suffers from painful swelling of his large joints. All the children look healthy; they have very soft white skin and fair hair. The only surviving son suffers frequently from epistaxis, which is most alarming in its persistence. It is preceded, for a few days, by an elevated temperature with frontal headache, faintness, loss of appetite, and pain in the back. The elbows, wrists, knees, and ankles are swollen and very painful. With the onset of bleeding he perspires freely. Any form of traumatic bleeding is only controlled with the greatest difficulty. He also bleeds per anum when suffering from diarrhea.

Aneurysm of the Right Subclavian Artery Treated by Ligature of the Axillary and Carotid Arteries.—After a reference to a case of this nature reported by the author three years ago with a good result to date, H. G. Barling reports a second case, his patient being a man of forty-four years who complained of pain in the right arm, due manifestly to a subclavian aneurysm. Dry diet, rest in bed and an iodide therapy failed to give any relief except a certain relief to the pain when the patient was perfectly quiet. The patient suffered somewhat from attacks of giddiness. At the time of operation the aneurysm was of the size of a Tangerine orange, and presented the usual physical signs. Details of the operative procedure are given in the original. The wound was drained for two days and union by first intention occurred. There was no disturbance of the general circulation. At the end of a week pulsation could scarcely be detected in the aneurysm, but was still marked over the first part of the subclavian and in the upper end of the innominate; at the end of five weeks, when the patient was allowed up, the aneurysm was quite solid, and slowly since that time pulsation in the first part of the subclavian and in the innominate has become less marked and, allowing for the division of soft tissues and the clavicle, which has, of course, left the arteries unusually exposed, the pulsation of these vessels appears now to be about what one would expect in normal arteries. For twelve months the right arm was kept to the side in the first instance by bandaging and later by a splint and sling, but the patient has been able to use the hand for writing and other details of that kind, and for the last nine months he has resumed his official duties, which fortunately do not involve any physical strain.

The Significance of a Hitherto Undescribed Wave in the Jugular Pulse.—A peculiar wave in the jugular pulse has been noted by A. G. Gibson. It is seen most typically in normal young adults who are in the habit of taking vigorous exercise or who are convalescent from acute disease. It is difficult to describe, but is perfectly intelligible when referring to the sphygmograms in the original paper. The author notes the general acceptance of the view that when the ventricle becomes moderately full the mitral and tricuspid valves float up by reason of eddies behind them in the ventricle, and the closure of the aperture by this means prevents regurgitation. An increase of pressure in the ventricles now causes these free edges to be closely pressed together in apposition. Apart from the filling of the ventricles, auricles, and veins which goes on during diastole and may cause an overflow wave in the jugular vein, this closure, at least in slowly-beating hearts with ventricles of normal size, must occur some time before the auricle begins to contract, for, if not, one must conceive either a slow filling of the ventricle for a slowly-beating heart or an enlarged ventricle. It is conceivable then that this extra wave may be due to the closure of the auriculo-ventricular valves by the natural filling of the ventricle with blood and the slight increase in pressure which the upward movement of the valves would cause in the venous system. Here it may be pointed out that the form of the wave suggests a mechanism of this kind, for no mere overflow wave such as could be caused by a gradual filling up of the ventricles, auricles, and veins alone could cause the nick which has been noticed as characteristic of many examples of the wave.

On the Treatment of Yaws.—A. Castellani gives the results of his experience in treating yaws (frambœsia) in Ceylon. The list of remedies employed includes mercury, the iodides of potassium and sodium, Fowler's solution, cacodylates of soda and of quinine. His conclusions herewith follow: (1) Drugs and preparations which are efficacious in the treatment of yaws are: iodide of potassium, atoxyl, sodium cacodylate, cacodylate of quinine, and mercury. These drugs have also probably a preventive action. (2) The best routine treatment for ordinary cases is iodide of potassium given in large doses. (3) In severe and persistent cases a mixed treatment consisting of a course of iodide of potassium followed by a course of injections of atoxyl or of the cacodylates is of great advantage. (4) The treatment of yaws patients should be prolonged long after the eruption has disappeared, as although the granulomatous eruption speedily subsides the infection in many cases is merely dormant, not destroyed. This fact is shown by clinical experience as well as by experiments on monkeys inoculated with the disease. (5) As regards local treatment it is sufficient to keep the skin clean by washing the eruption twice daily with a solution of perchloride of mercury (1 in 1,000). The ulcerated granulomata may be dusted with iodoform or boric acid. Mercury ointment applied to the ulcerated lesions may be beneficial, but is not sufficient to hinder secondary pyogenic infections. Caustics are not called for unless the ulcers become phagedenic; in such cases pure carbolic acid is the best.

Tubal Abortion.—The history of one case is given by G. W. Fitzgerald. The patient was a primipara of thirty-five years, married nine years. For three years she had had leucorrhea, irregular menstruation, metrorrhagia, and pain in the left side. In June, 1907, she had an attack of acute epigastric pain, and presented some evidences of internal hemorrhage, but her menstruation had been fairly normal, pulse was good, abdominal palpation caused no pain, and examination of the pelvis showed only a cervical polypus, a slightly enlarged uterus, and some infiltration of the right broad ligament. While in hospital for the proposed removal of the polyp, she was seized with sudden epigastric pain; apparently fainted and vomited much coffee-ground material. The next day the polyp was removed, the uterus lightly curetted, and an exploratory incision made through the posterior fornix. The findings in the pelvis at once led to a diagnosis of ruptured extrauterine pregnancy and the abdomen was immediately opened. The intestines were firmly matted by adhesions, and entrance was finally gained to the abdominal cavity by stripping the peritoneum from the muscular sheath and working down along the right of the incision. In this way access was gained to a small cavity and thence to a larger one lying lower down and which had been entered by the incision through the fornix. In this second cavity was a large clot in the middle of which was the amnion. The rest of the tube was much elongated, exceedingly friable, and formed a pedicle for the dilated portion which lay to the right and slightly above the level of the anterior, superior iliac spine under cover of a closely matted mass of intestines. The condition of the patient was now such that all that could be done was to pack hurriedly the cavities with gauze. The next day the packing was removed and bleeding recommenced. After a perilous experience the patient finally recovered. The operator notes that the difficulty in making a satisfactory diagnosis, previous to operation, was greatly increased by the protracted history, the persistent irregularity of the patient's menstruation, and the fact that though, as was subsequently discovered, she had lost a considerable amount of blood her pulse throughout was a normal one. Her anemic appearance, too, was regarded by her relatives as being her normal condition. Then, again, the absence of all pain or tenderness during examination of the uterus and its surroundings was a misleading feature. The presence of two cavities appears to be explained by supposing that there had been, at least, two serious hemorrhages. With each hemorrhage the dilated tube, which all the time appears to have been endeavoring to expel the ovum, was pushed higher up into the abdominal cavity and elongated. The position in which the dilated end was found is uncommon, as is also such a degree of attenuation of the tube. The control of the hemorrhage was rendered doubly difficult by the fact that one had so limited an opening into the peritoneal cavity through which to work, and even this was more or less diminished by the endeavors made to avoid damaging the bowel. On subsequent consideration one cannot but regret that the original incision was not abandoned and an opening made, through skin and muscle, directly over the opening into the peritoneal cavity. It would certainly have facilitated the operation. The introduction and removal of the gauze—which was several yards long—would have been simpler, especially the removal.

Treatment of Innocent Laryngeal Growths by the Galvanocautery.—A. Wylie reports six cases. He says that the use of the familiar forceps often causes injury to the surrounding parts of the larynx, especially when removing a small sessile growth, since they obstruct the view of the larynx and also are powerfully gripped by the glottic sphincters almost as soon as introduced. The galvanocautery burner being thin and light can be guided and observed during the whole of the operation. A fine cautery point should be used on an interrupting handle, introduced cold, and raised to a white heat on application to the tissues. General directions are given for preparation of the patient, anesthesia and after-treatment. Advantages of the method are: (1) Minute growths can be obliterated and do not return; (2) small vascular growths can be removed without risk of bleeding; (3) it is far superior to chemical caustics: (4) there is less danger to surrounding structures; (5) the whole operation is in view of the surgeon; (6) small sessile masses on the true cords are more thoroughly heated than by the forceps; (7) stumps of growths removed by various instruments can be obliterated by the cautery; (8) the galvanocautery cuts off the blood supply and thus kills the

growth, while the forceps often removes only the superficial portions; (9) the liability of local infectivity of papilomata is diminished. One serious drawback is that the galvanocautery destroys the tissue which cannot be subjected to the microscope. The crucial test in diagnosis cannot therefore be applied.

The Relationship between Avian and Human Tuberculosis.—A contribution to the study of this topic is made by S. G. Shattuck, who has been assisted by several of his laboratory helpers at St. Thomas' Hospital. The importance of the subject warrants the reproduction in full of the author's conclusions: (1) The human tubercle bacillus is pathogenic to the pigeon in a very limited degree only. It sets up no disease of the intestine or of the abdominal viscera when introduced (in sputum) with food into the alimentary tract, even for prolonged periods (six months), and in either moderate or excessive quantities. It sets up a local, or a local and glandular, disease only in the pigeon when injected (in sputum) into the muscles or subcutaneous tissues. It sets up a local, or a local and glandular, disease only in the pigeon when injected into the muscles or subcutaneous tissues from the organs of guinea pigs which have been infected by inoculation with human sputum. The impossibility of producing infection in the pigeon by means of tuberculous sputum does not allow the author to accept the statements which have been made in the other direction, for these statements do not rest upon experiment, but on the inferences based only upon possibilities. Although the disease may be spread from bird to bird, it has still to be determined whether there is any further source of infection. His experiments only show that if there is such it is not human. Neither can he accept the statement made by some that the subcutaneous inoculation of birds with human sputum will produce avian tuberculosis, *i.e.* the generalized and fatal disease as it is seen naturally in birds. In none of his pigeons has anything other than a local lesion or a local and a glandular lesion followed; moreover, the disease so induced instead of progressing has (as told by the examination of birds at different dates after infection) retrogressed, and in some disappeared. (2) The avian tubercle bacillus, as tested from various kinds of birds, is pathogenic to the guinea pig in a very limited degree. (3) The human bacillus is not convertible into the avian by inoculation into the bird, *i.e.* the bacilli are not identical. Theoretically it would, of course, be quite possible that the human bacillus after its insertion into the pigeon might lose certain of its characters and become incapable of exciting more than a trivial disease in the guinea pig or in the human subject from which it was originally derived. His experiments do not, however, support this theoretical possibility. Using pigeons into the muscular and subcutaneous tissues of which a salt emulsion of human tuberculous sputum had been injected, he adopted the method of making a salt suspension of the spleen from these birds, killed at different dates after their inoculation (one week, two, four, six, and eight weeks), and injecting this into the subcutaneous or muscular tissues of guinea pigs. In addition he similarly used the local lesion produced in the same pigeons. A fact of great importance to observe here is that the spleens of these pigeons in no case presented any naked-eye disease. In each bird there was a lesion at the site of inoculation; in the birds allowed to live the longest this was of the smallest extent. Although there was no disease of the spleen, the salt suspensions of this organ in every instance produced not merely a local lesion in the guinea pig, but a general tuberculosis. The human bacillus after a sojourn of as long as eight weeks in the spleen produced the glandular and visceral disease in the guinea pig as though it had been transferred directly to this animal from human sputum. It did not produce merely a local or a local and glandular disease, such as it should have done had it acquired the characters of the true avian microorganism.

British Medical Journal, November 23, 1907.

Some Types of Conjunctivitis.—H. H. B. Cunningham refers to the catarrhal and phlyctenular types and to ophthalmia neonatorum, presenting nothing essentially new. Under the heading of chronic catarrhal conjunctivitis, he refers to the form referable to the bacillus discovered by Morax and Axenfeld in 1896. This organism is decolorized by gram, is a diplobacillus, and difficult to grow in culture. This variety of inflammation is known sometimes as "chronic angular conjunctivitis." The subjective symptoms of this affection are very definite: an aching of the eyes, a feeling of heaviness in the lids and of sand in the eyes, which becomes more marked towards evening; the lids are glued together in the morning, and the patient will say that he has to bathe the eyes in order to open the lids. Objectively there is no swelling of the conjunctiva; the fornices and palpebral conjunctiva are injected; there is, if anything, diminished secretion. In angular conjunctivitis the edges of the tarsal plates are injected. This condition does not, as a rule, resolve spontaneously, but goes on to involve the edges of the lids, causing loss of the cilia and in elderly people it will cause eczema of the skin of the lower lid, which in its turn will set up ectropion. The treatment may be divided into general and local. In the first place, we must remove the patient into better hygienic surroundings, or protect his eyes by means of goggles from the effects of dust, etc., and prescribe suitable glasses for any error of refraction; locally, an astringent lotion, such as alum, tannin, or zinc sulphate, is used to bathe the eyes, and a simple ointment is placed inside the lids night and morning.

Berliner klinische Wochenschrift, November 11 and 18, 1907.

The Nature of the Leucocytes in the Urinary Sediment in Nephritis.—Schnütgen says that ordinarily the leucocytes occurring in the urinary sediment in cases of nephritis are spoken of as pus cells. Senator nearly twenty years ago pointed out that in Bright's disease, taking the term to mean nonsuppurative affections, the leucocytes of the urine were not polymorphonuclear cells, but mononuclear cells. This fact has not received the attention that it deserves. It is now known that lymphocytes also take part in chronic inflammatory processes and the cells present in the tissues in chronic nephritis are mostly lymphocytes. In ten carefully selected cases of nephritis in which the urine was collected under precautions designed to prevent contamination with smegma or vaginal mucus and was promptly examined, it was found that lymphocytes occurred in the sediment. In order to demonstrate these Pappenheim's methyl green stain was found very useful. This consists of three parts of methyl green and two parts of pyrolin in saturated aqueous solution. The sediment is first washed with salt solution and is then stained in the hanging drop. The author believes that examination with this end in view will be of service in differentiating suppurative renal affections from Bright's disease.

The Adrenalin-like Action of the Serum After Nephrectomy and in Nephritis.—Eichler has repeated the experiments of Schur and Wiesel and others who have stated that mydriatic substances are present in the serum of nephritics and of nephrectomized rabbits. This property is supposed to be the result of an increased activity of the chromaffine system consequent on the interference with or abolition of the renal function. As a test object the eye of the frog is used. After enucleation it is exposed to bright light to bring about maximum myosis, and it is then immersed in the fluid to be tested, the other eye serving as a control. Eichler investigated the serum of nephrectomized rabbits, that of nephritics, and of rabbits in which a nephritis had been induced by the injection of uranium nitrate. Both of the former gave evidence of containing a mydriatic substance, but the tests on the latter showed only a slight tendency in this direction, the serum having very little mydriatic power and the ascitic fluid none at all. The serum that reacted positively did not, however, raise the blood pressure when injected into rabbits, but the author regards this as natural, since the pupillary reaction is sufficiently delicate to respond to the presence of one part in a million of adrenalin, while one-tenth of a milligram is the minimum dose that will affect the blood pressure in the cat.

The Value of the Cytoscopic Examination of Transudates and Exudates.—Ettinger reports the results obtained in the cytoscopic examination of 103 effusions from 89 patients, involving the pleura, peritoneum, and cerebrospinal canal. He concludes that examinations of this sort by themselves not only do not afford positive information in regard to the etiology of individual cases, but may even be misleading in differentiating between exudates and transudates. The occurrence of lymphocytes alone in a fresh exudate is very much in favor of a tuberculous process, though not invariably so. On the other hand, the presence of neutrophiles, even in very great numbers, is not at all incompatible with tuberculous processes. Epithelial cells also are not pathognomonic of the latter condition, as they may occur in inflammatory effusions. The latter may also change very markedly from time to time in regard to the number of endothelial cells present. Cytoscopy is therefore to be regarded as a useful adjunct to the other clinical methods, but does not possess a decisive value. In regard to the technique of making the preparations, the author recommends washing the centrifuged sediment with salt solution before fixation on the microscopic slide.

Münchener medizinische Wochenschrift, November 5, 12, *and* 10, 1907.

The Genesis of Albuminuria.—Schmidt refers to the fact that it is generally considered that the albumin contained in nephritic urine emanates from the blood. It is assumed that inflammatory changes in the kidney interfere with the integrity of the renal filter and permit serum albumin to pass through and emerge in the urine. Only some of the formed elements are considered as being of renal origin. Schmidt suggests that this view may not be altogether accurate and that perhaps all or almost all of the albumin comes from the renal parenychyma itself. He points out that just as any inflamed organ, for example, the serous membranes or the epidermis deprived of the cutis, may pour out albuminous exudate, so the inflamed kidney may be the seat of an albuminous exudation which will be the richer in albumin the fresher, the more intense, and the more extensive the pathological process is. This exudate may therefore be considered as a sort of wound secretion from the kidney. The point is of more than theoretical interest, for the albumin in physiological or orthostatic albuminuria would probably not have this origin, and by the development of appropriate tests it might be possible to evolve differential diagnostic measures founded on this principle.

Experimental Hypertrophy of the Islands of Langerhans.—Lazarus describes experiments on guinea-pigs that were given phloridzin or adrenalin during long periods of time, either by injection or by mouth. The phloridzin animals showed a very great hyperplasia of the pancreas, in which the enlargement of the islands was most marked, and the adrenalin animals showed similar though less pronounced lesions. Well-marked arteriosclerosis was present involving particularly the abdominal aorta. The author considers that his experiments demonstrate the functional and anatomical independence of the islands, which are sharply differentiated from the gland tissue, and show that it is possible to increase the numbers and size of the islands experimentally as well as to augment their blood supply. It is likely that the islands have some function in regulating sugar metabolism and that it is possible that in human diabetes some therapeutic application may be made of this principle. Phloridzin diabetes is different from the disease in man, for in the former there is hypoglykemia with hypertrophy of the islands, while in the latter there is hyperglykemia and frequently atrophy of the islands. Further experiment is necessary to determine whether the islands of the human pancreas in diabetes are susceptible of stimulation by the use of phloridzin.

The Action of Pancreatin in Carcinoma.—Hoffman studied the effect of this ferment on a carcinomatous new growth of the external auditory meatus occurring in a woman of sixty-eight years. Sections of the tumor showed that it was a carcinoma, and it recurred after operation, finally becoming inoperable. Pancreatin was applied locally and the ulcerating surface became clean, the pain and hemorrhage ceased, and the growth became smaller. The action of the ferment was later restricted through the fact that epidermization took place over a large portion of the growth. This new formed skin was purposely not removed mechanically, as it was desired to study the effect of the pancreatin alone. The patient died suddenly, apparently of embolism, without any meningeal symptoms. Examination of the tumor tissue showed extreme edematous infiltration and moderate cellular growth of the connective tissue. The capillary endothelium was swollen and there were the evidences of deep-seated degeneration, but whether these were the result of the action of the pancreatin or not is uncertain. The lesions resembled those of erysipelas and the author suggests that the effects of this disease, the cautery, and in part the Röntgen rays may act on carcinomatous lesions in somewhat the same way as the pancreatin. He also suggests that pyocyanase, on account of its proteolytic and bactericidal properties, may be found of use in the treatment of inoperable cancers.

Vital Staining of the Spirocheta Pallida.—Mandelbaum describes a method of staining these spirochetes in the living condition. Serum from a chancre or fluid from a mucous patch is placed on a cover glass to form a hanging drop. To this drop is added a loop of Löffler's methylene blue and another loop of decinormal sodium hydrate solution. On examining with the oil immersion lense the spirochetes will be seen at the edge of the drop as delicate pale blue structures which are very different from the *Spirochæta refringens*. In some cases the movement of the spirochetes continues in the preparation and may be seen.

Pyocyanase in the Treatment of Infectious Diseases.—Emmerich describes the effect of the enzyme pyocyanase, formed by the growth of the *Bacillus pyocyaneus*, in inhibiting the growth of and destroying other bacteria. The preparation is obtained by filtering three-week-old cultures through Berkefeld filters and concentrating in vacuo to one-tenth volume. This enzyme destroys the cells of the *Bacillus pyocyaneus* itself as well as those of diphtheria, cholera, typhoid, plague, anthrax, and strepto-, staphylo-, and gonococci. In diphtheria, when sprayed into the throat two or three times a day for two or three days it causes the destruction of the bacilli in the false membrane and in the mucous membrane and prevents the development of those that are not killed. The pyocyanase also has the property of combining and rendering inactive the diphtheria toxin and through its proteolytic power dissolves the false membrane. It furthermore kills and inhibits the growth of the *Streptococcus pyogenes* and staphylococcus, and finally, encourages the return of the mucous membrane to the normal condition. Emmerich reports in detail the histories of a series of cases in which the remedy was used with good effect, one of the patients being the venerable Max Pettenkofer. The author does not recommend the pyocanase as a substitute for antitoxin, but as a very important and effective adjuvant to this.

Acute Circumscribed Edema of the Optic Disc.—Handwerck discusses the condition of acute circumscribed edema with which the name of Quincke is usually associated. Edema of this sort may occur not only on the surface of the body and in regions directly accessible to sight, but also in any of the internal structures, including the brain. On this assumption many acute transitory functional disturbances of the most varied sorts may be explained, and in particular the author calls attention to the possibility of cerebral disorders depending on this cause. In support of this contention he describes a case coming under his own observation in which the edema involved the optic nerve. The patient was a woman of seventy-three years, who for some time had been subject to the appearance of typical edematous swellings occurring about the head and neck, and in one instance involving one-half of the tongue. On one occasion she suddenly began to see objects like white butterflies dancing before one eye. Ophthalmoscopic examination revealed a swelling of the disc amounting to two diopters. The symptoms gradually subsided, and two and a half weeks later no abnormality of the eye ground could be detected. The author considers that all other possible explanations of the lesion, such as thrombosis or embolism of the central artery, could be excluded.

The Results Obtained in Tuberculosis Sanatoria.—Croissant presents an exhaustive series of statistics relative to the results obtained by the sanatorium treatment of tuberculous patients in various stages of the disease as compared with those obtained outside of institutions. While the results of this analysis are not particularly favorable to the institutions, the author considers that the spirit of pessimism that has lately made itself felt in this connection is not justified, even though it is unlikely that sanatorium statistics will ever be able to present results imposing from the numerical aspect. The greatest good is achieved not in point of numbers, but in individual cases, and this is not evident from statistics. In the earlier stages but little more is accomplished within the institutions than outside and therefore it is hardly necessary to set the standard for admission to these so high. More advanced cases must be kept long enough to effect a real cure, longer than is usually the case, and such patients when discharged serve as a very potent means of education and prophylaxis among the masses. A point of the greatest importance is to improve the social condition of the poorer classes in regard to dwellings and mode of life.

Experiments on the Localization of the Cerebellar Centers.—Negro and Roasenda, after exposing the cerebellum in rabbits excited it with the faradic current to determine the motor excitability of single points of the cerebellum. They give these conclusions: 1. By unipolar excitation of the cerebellum there are obtained constantly muscular contractions of the corresponding side, which coincide in time with the stimuli used, after a slight period of latency. 2. With a more intense excitation a contraction is obtained of the homologous muscles of the opposite side. By using electrolysis of the cortical substance to separate the cerebellum from the cortex of the cerebrum and repeating the foregoing experiments the same results were obtained. The conclusion was that faradic excitation of the cerebellar cortical centers reaches the spinal medulla and muscles without passing through the subcortical paths, and the cerebellar impulses are independent of the cortical motor zone.—*La Riforma Medica.*

Book Reviews.

Immune Sera. A Concise Exposition of our Present Knowledge Concerning the Constitution and Mode of Action of Antitoxins, Agglutinins, Hemolysins, Bacteriolysins, Precipitins, Cytotoxins, and Opsonins. By Dr. Charles Frederick Bolduan, Bacteriologist, Research Laboratory, Department of Health, City of New York. New York: John Wiley & Sons; London: Chapman & Hall, Limited, 1907.

The science of medical bacteriology, and especially that branch or development of it dealing with the chemistry of the blood serum, and the wonderful actions and reactions of the complex proteins which it contains or which can be developed in it, is advancing so rapidly that the ordinary practitioner, far from laboratories and research institutions, finds it increasingly difficult to keep pace with it. Many of the older men indeed, those born in medicine before the advent of this science, have but a hazy notion of what it all means. They would gladly acquaint themselves with the theories of bacteriolysis, hemolysis, toxins and antitoxins, agglutinins, and the host of other new things with strange names, but their time for study is limited and they shrink from the attempt to master the subject with all its complexities. By such as these especially this book will be welcomed. It presents the entire subject in the small compass of 150 pages, and presents it, moreover, in so tangible a form and expressed in such clear language that anyone, with careful reading and a little diligent study, can gain the knowledge of the mode of action and interaction of these serum constituents which is essential to an apprehension of the subject and to enable one to follow the further developments of the science as they are presented to him in the periodical literature. Ehrlich's side-chain hypothesis, which is the basis upon which the entire theoretical construction is erected, is very clearly described and illustrated, and once that is mastered one has the key to the entire subject. The main chapters are on antitoxins, agglutinins, bacteriolysins and hemolysins, precipitins, cytotoxins, opsonins, snake-venoms and their antisera, and serum sickness. The book would have been even more useful had the author added a glossary, for the language of the science is, literally, Greek to the beginner, and much time spent in turning back to look up the meaning of strange words would be saved by a list of definitions at the end of the book. The subject has outrun the dictionaries, and a glossary would widen the scope of a work such as this by making of it a supplement to any of the general medical dictionaries.

The Internal Secretions and the Principles of Medicine. By Charles E. de M. Sajous, M.D.; Fellow of the College of Physicians of Philadelphia; Member of the American Philosophical Society, of the Academy of Natural Sciences of Philadelphia, etc.; Knight of the Legion of Honor and Officer of the Academy of France; Knight of the Order of Leopold of Belgium, etc.; Formerly Lecturer on Laryngology in Jefferson College and Professor of Laryngology and Dean of the Faculty in the Medico-Chirurgical College; Formerly Professor of Anatomy and Physiology in the Wagner Institute of Science. Volume Second. With Twenty-five Illustrations. Philadelphia: F. A. Davis Company, 1907.

This is an effort, and an heroic one, to place the science of therapeutics upon a positive basis, to explain the curative action of drugs (disputed by those who cannot cure disease themselves and who will not accept facts unless the reason for them can be demonstrated), and to dispel the gloom of therapeutic nihilism which at one time threatened to annihilate the art, if not the science, of medicine. This volume is the logical complement of the author's first volume, published over four years ago, treating as it does of the practical application to the cure of disease of the doctrine regarding the internal secretions developed in the earlier volume. The chief of the internal secretions is probably the adrenal, as this, the author says, is the oxidizing agent in the blood and also the principle which sustains the life of the cells. The thyroid secretion, as is well known, is also of extreme importance as regards metabolism; how it acts, in the cure of myxedema for example, is unknown, but Sajous asserts that it indirectly promotes the adrenal secretion by exciting a center in the pituitary body which in turn stimulates the adrenals to increased secretion. The function of this pituitary body, the somatic brain as he calls it, is to protect the organism against disease. It is a test organ which detects the presence of toxins in the blood and then excites the adrenals to secrete their oxidizing principle; this principle, when in excess, stimulates the formation of leucocytes (hyperleucocytosis) and also excites the pancreas to produce trypsin, and these three agents—the adrenal secretion, the nucleoproteid (the product of the leucocytes), and trypsin—together constitute an auto-antitoxin to destroy the bacteria and their products. The thyroid, he says, is the source of the opsonins which prepare the bacteria for englobement by the leucocytes. This protective mechanism of the body may be sufficient in itself to repel disease, but often it is inadequate and then it must be stimulated to increased activity by drugs and other ordinary therapeutic measures. It is not by serum therapy, at least not wholly, that disease is to be combated, but by the remedies in common use. These, however, are no longer to be given empirically, for the doctrine of the internal secretions and of the interrelations of the various closed glands explains their action. They do not antagonize the disease directly, but by stimulating the protective agencies—the closed glands—to increased activity.

The theory developed and practically applied in this volume is a fascinating one and, if true, will explain many mysteries and will put the practice of medicine on a firm scientific basis; it will give the physician confidence in his remedies and certainty in their application, and will remove from therapeutics the reproach of empiricism and make of it in time an exact science. The book is one not to be read casually, but to be studied with care. Whether the reader accepts the logic of the author and agrees with his conclusions or not, the study of the work can but stimulate thought and make of the student a better and more enlightened therapeutist, one who will in future seek to know the mode of action of his remedies and give them with discrimination.

Dr. Sajous has written a serious work, one which must, if its conclusions are as correct as its reasoning is sound, revolutionize the practice of medicine. It has the merit of striking originality and it deserves the serious consideration of all thinking men in the profession.

On Treatment. By Harry Campbell, M.D., B.S., F.R.C.P., Physician to the Northwest London Hospital, and to the Hospital for Diseases of the Nervous System, Welbeck Street. New York: William Wood & Company, 1907.

This is not a formal treatise on therapeutics, but a series of chatty essays on various subjects more or less closely related to treatment—hygienic, dietetic, and medicinal. By chatty we do not mean superficial, for the author goes deeply into many of his subjects and treats of them in a thoroughly scientific and philosophical manner; but he does it all in an easy and colloquial style that charms the reader and leads him on from one subject to another, holding his interest and compelling attention without wearying. The essays are not all on treatment, but deal also with such subjects as the education of the physician, his personality, both physical and mental, the examination of the patient, consultations, quackery, etc. The book is one that can be read in leisure moments for recreation, yet not lightly, for it contains much to stimulate thought and is full of practical suggestions.

Surgical Diseases of the Chest. By Carl Beck, M.D., Prof. of Surgery in the New York Post-Graduate Medical School and Hospital, etc. With sixteen colored and 162 Other Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907.

Dr. Beck in the preface to his book calls attention to the fact that abdominal surgery seems to have entirely absorbed the attention of those writers who desired to exploit some particular anatomical region in the form of a monograph. Thus the thoracic cavity has been very much neglected and but few special works on this subject have been published. The field is a most important one, made more so in fact by the development of three great aids to diagnosis and treatment of diseases of this locality—bacteriology, asepsis, and the Röntgen rays. Dr. Beck emphasizes the importance of these factors without ignoring, however, the value of the earlier work. The diagnosis of the various thoracic conditions is also made an important point, to a greater extent than would be expected in a book of a distinctly surgical character. The section on pyothorax deserves particular notice, for it is with this field that the author's name has been largely associated. Pyothorax can be treated only by thorough surgical exposure and drainage of the pus cavity, and this only accomplished by a sufficiently large opening, which involves resection of the rib. Strange to say, this method is still antagonized by many physicians. The interesting historical references contained in the book show that thoracotomy with resection of the rib and drainage were practised in early Greek and Roman times, and with good success if we are to believe the records. Dr. Beck's book constitutes a valuable addition to our array of special surgical treatises.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON MEDICINE.

Stated Meeting, Held November 19, 1907.

DR. WARREN COLEMAN IN THE CHAIR.

An Inflammatory Abdominal Tumor.—Dr. ALBERT KOHN made this report. The patient was a Russian, a capmaker by occupation, 47 years old. He had been in this country twenty years. His family and past history were practically negative. His present illness began gradually one week before admission to Mt. Sinai Hospital, with pains in all the extremities, headache, and chilliness. Three days later he developed severe burning pains in the left hypochondrium and had to go to bed. His abdomen began to distend and he vomited twice. For three days he had to be catheterized; then he voided spontaneously. He lost all appetite. Had severe occipital headache. Coughing increased the pain in the left hypochondrium. The physical examination showed a man well nourished but pale. There was slight ophthalmos. There was a perforation of the septum and a fetid ozena. The abdomen was prominent and symmetrical. There was a slightly movable dullness in the left flank. In the left hypochondrium, extending from the left nipple line to the midline of the abdomen and down to the level of the umbilicus there was felt a mass the size of an infant's head, apparently spherical in shape, resistant, almost cystic to the touch. It was slightly tender on deep pressure. It moved up and down with respiration and over it was dull tympany. When the patient sat up, the lower border of the mass could be felt at the level of the umbilicus. The white cells numbered 6,800, the polymorphonuclears were 72 per cent., eosinophiles 2 per cent., large lymphocytes 6 per cent., small lymphocytes, 20 per cent. The temperature was 101.4°, pulse 80, and respiration 34. Two days after admission there was no tenderness over the mass. On inflating the colon, tympany over the mass increased and the tumor became distinct. Two days later the tumor had markedly diminished in size, and eight days later could no longer be felt. The diagnosis was made of an inflammatory abdominal tumor.

Chronic Splenic Anemia.—Dr. CHARLES H. LEWIS reported this case. Chronic splenic anemia was the term given to a condition of enlarged spleen, of unknown etiology, without leucocytosis or glandular enlargement, with a secondary cirrhosis of the liver and the subjective and objective signs and symptoms ordinarily accompanying or following these lesions, with or without an anemia of varying grades. The patient was an Italian, 40 years old, one year and a half in this country. Four or six months prior to his admission to the Columbus Hospital he experienced some dull and transient pains in the right hypochondrium and on investigating the painful area he encountered a hard swelling which was tender of pressure. Subsequently his pains increased in intensity and frequency and he noticed that his abdomen began to swell. His appetite failed, his breath became short, and his work grew unusually burdensome. He tired easily and finally was compelled to consult a physician who, after a period of medication, tapped his abdomen twice and then sent him to the hospital. During this period there were no skin or mucous bleedings, no hematuria or melena, and no pigmentation. The family history was irrelevant. He had practically been well until this present illness. He was a fairly well nourished man with well marked signs of ascites, and a large tumor of some sort was found in the left hypochondrium. Aside from that nothing material was noted. The leucocyte count was 8,500. After tapping the abdomen the tumor was easily recognized as an extremely large spleen in which two notches were plainly palpable. It was not notably tender on pressure. The border of the liver was readily felt, the left lobe extending well over the epigastrium. Its edge was firm and roughened. The aspirated fluid measured about two gallons; it had a specific gravity of 1.006 and the qualities of an exudate. The blood examination showed a moderate secondary anemia of a chlorotic type. No new symptoms manifested themselves during his stay in the hospital. The treatment was tonic and symptomatic but with no demonstrable retardation of the gradual and progressive loss of muscular and cardiac strength. The temperature remained normal until the day before the end, when it rose to 101°. He died nearly two months after admission, and at least six to eight months after his first symptoms. He was tapped ten times while in the hospital. No abdominal or retroperitoneal glands were enlarged. The stomach was dilated but the vessels were not varicosed; no hemorrhagic areas were seen. The spleen was of uniform dark blue color, of normal consistence, and the proportions were relatively normal. The notches were well marked. The weight was excessive, about four and a half pounds, about twelve times the weight of the normal spleen. The liver was enlarged and nodular and was nearly one-half larger than the normal liver. Its surface resembled closely that of the atrophic hobnailed liver, but the nodules were larger as though due to a hyperplasia rather than to the contracting connective tissue of an atrophic cirrhosis. While pathologically this case came well within the chronic splenic anemias, particularly the later stage known as Banti's disease, it lacked some features usually present.

The Bacillus Coli Communis as an Occasional Cause of Typhoidal Infection.—Drs. WARREN COLEMAN and T. W. HASTINGS presented this paper, which was read by Dr. Hastings. The close biological relationships of the various members of the typhoid-colon groups, and the fact that the paracolons were more nearly related to *Bacillus coli* than to *Bacillus typhosus*, naturally led to the suspicion that some strains of *Bacillus coli* also might be capable of producing the typhoid symptom-complex. Their attention was first called to the question of systemic infection by the colon bacillus pursuing a typhoidal course in 1903, when Buxton and another recovered colon bacilli from the blood of two patients in Bellevue Hospital who were considered clinically to be suffering from mild typhoid fever. These cases had already been reported. They reported the histories of the only cases they had been able to find which would bear analysis. They wished to emphasize the fact that they were not attempting to prove that all strains of *Bacillus* coli were capable of causing a typhoidal fever. It was well known that the cases were not numerous, that the colon bacillus might invade the blood and produce a typical sepsis. Fehling had recently stated that only eight cases had been published in which the colon bacillus had been obtained during life from the blood. While the number of such cases was undoubtedly small, Fehling placed it too low. It was probable that the colon bacillus might pass into the blood without developing there, and later appear as the cause, or as a secondary invader, of localized inflammatory processes. The frequency with which the *Bacillus coli* entered the blood immediately before or after death had been probably overestimated.

American Mineral Waters in the Light of Recent Analyses.—Dr. JAMES K. CROOK read this paper. He said it was well known that mineral waters possessed no mysterious or occult virtues in the treatment of disease. No mineral water would be accepted by the medical profession for alleged medicinal properties supported only by the testimonials from bucolic statesmen and romantic old ladies. In these days it might almost be said that the most important thing about a mineral water was a trustworthy analysis. It was a matter of keen disappointment to learn by these new analyses how much mistaken they had been in regard to the chemical constitution of some of their best

known waters. In forming conclusions in reference to the extremely unsatisfactory state of affairs developed by the Bureau of Chemistry investigations certain facts came up for consideration. 1. A great majority of the advertised analyses of our mineral waters were made many years since, when methods were not so exact as at the present day. 2. Some mineral springs are sensibly influenced by the wetness or dryness of the season both in strength and in volume; the greater the volume of the water the weaker it was in mineral ingredients. 3. While many springs were of deep origin and showed no apparent fluctuations in their rate of flow, there was no positive proof that even these had not become more or less modified in character during the long period since the old analyses were made. The subterranean aqueous current which constituted a spring when it reached the surface, could not be counted on continuously to come in contact with earth strata which yielded a uniform produce to its solvent power. Underground streams, as well as those on the surface, were liable to change their course and, while losing certain of their former contents might acquire new ones. 4. The fact must not be overlooked that the Government analyses were in each case made from samples purchased in the open market. It was therefore possible that some of the waters examined by the Bureau of Chemistry were spurious or adulterated. 5. The chemical ingredients set forth in the analyses of mineral springs represented hypothetical combinations only. No chemist maintained that the salts set down in his analysis existed in exactly that form in the water. With all due allowance for the above considerations, it must be confessed that we were in a state of inexcusable ignorance regarding the chemical constitution of these agents. Mineral water therapeutics must remain in a backward and unsatisfactory state until this was remedied. All of the mineral springs should be submitted to analysis at least once in ten years, or until we were able to arrive at a correct estimate of their potency, and whether they were gaining or losing in strength. The decennial revisions of the works of materia medica and pharmacy should present a brief acount of the mineral waters, so that the medical practitioner might be in possession of as authentic and authoritative a source of information regarding these as he had in the case of other therapeutic agents.

SECTION ON PEDIATRICS.

Stated Meeting, Held November 14, 1907.

DR. GODFREY R. PISEK IN THE CHAIR.

A Case of Thyroid Implantation in a Child.—Dr. LOUIS FISCHER presented this case. The child was first seen by him December 8, 1902, when she was two years old. She could neither walk nor talk. The tongue was very thick and protruded constantly. The lips, eyelids, and the skin of the face were thickened, coarse and rough. The nose was short and flat. The skin had a jaundiced appearance. The fontanelle was widely open anteriorly and posteriorly. The face was broad and the eyes set very wide apart. There was a marked depression on each side of the temporal bone. There was also a frontal protuberance. She had nine teeth when twenty-two months old. The first tooth appeared one month after thyroid treatment was commenced, or when the child was sixteen months old. The body was well developed and fat. There was no evidence of rickets. The internal secretions were very torpid. Constipation was very obstinate. The child had a great fear of water. The hair was thick. The thyroid gland could not be felt. The pulse was 90 and the temperature subnormal. The respiration was 16 while the child was quiet, and 24 when crying. The urine was normal. Treatment was commenced by giving one grain of thyroid three times a day; this dose was rapidly increased so that after the first week the child took two and a half grains three times a day. This treatment, together with attention to diet, etc., was continued and the child developed very fast. The bowels became regular and the teeth appeared at regular intervals. The growth in one month amounted to 3⅛ inches. At the end of one year she had grown 13½ inches. She had measles in 1906, the rash remaining visible for about two months, particularly on the legs. She had a bad breath at all times. Her hair fell out about once a year. The skin peeled off, especially on the palms and soles. There was constant tremor. She had laughing spells which sometimes continued all day. Her mother believed the child masturbated. Her mental condition was about equal to that of a child eighteen months or two years old. She was taken to Mt. Sinai Hospital, where Dr. Lilienthal operated May 8, 1907, transplanting the thyroid through an abdominal incision. She remained in the hospital about two months. Normal conditions prevailed during the first month after the operation and she did not seem to suffer because of the stopping of the thyroid feeding. Later fever developed, the child became emaciated, and a diagnosis of pyelitis was made. She returned to her home and made an uneventful recovery. She was now taking five grains of thyroid three times a day. Her condition had greatly improved. She sang and played with her toys and was far more intelligent than before the operation. Implantation of thyroid grafts from animal to man by using sheep's thyroid had been done by Horsley. An entire lobe or part of the gland was removed from the animal and buried in the connective tissue. Human thyroids were used in 1883 by Kocher and others, but the combined results were no better with the homethyroids than those with the heterothyroid gland.

Report of a Case of Congenital Goiter in a Child, with Operation.—Dr. EDWARD WADSWORTH PETERSON reported this case. The patient was five weeks old when admitted to the hospital. The patients were healthy. There was no syphilis, tuberculosis, cancer, or goiter in the family. The mother had had one miscarriage at the second month. This was her first child. The labor was easy and uneventful. The child was normal except for a swelling on the right side of the neck. There was difficulty in breathing for the first two hours after birth, but this soon subsided and up to the time of admission there was no dyspnea or dysphagia. Apparently the tumor caused her no inconvenience whatever. Examination showed an enlargement on the right side of the neck anterior to the sterno-cleidomastoid muscle, just below the lobe of the ear, filling up the submaxillary space, and extending downwards nearly to the clavicle. It was smooth, moderately firm in consistence, and did not fluctuate at any point. Below and on the sides there were distinct palpable nodulations. At operation the tumor was dissected out without any difficulty. Several times during the operation work had to be suspended as the infant ceased to breathe. For twelve hours after the operation it was necessary to resort to artificial respiration occasionally. Except for the high temperature following the operation there were no special features until the ninth day, when the child had a convulsion lasting about five minutes. On the thirteenth day there was twitching of the extremities, and the eyes rolled from side to side. On the fourteenth day there were almost constant slight convulsive movements of the hands, arms, and legs, with twitching of the facial muscles, and rolling of the eyes. The pathologist reported the tumor to be a congenital goiter. The interesting features in this case were the presence of a congenital tumor which proved to be a goiter; the abnormal location of the thyroid; the accidental thyroidectomy; the development of tetany on the ninth day which continued until thyroid extract was administered.

DR. HERMAN SCHWARZ asked if the child was still getting thyroid extract. Also whether or not the tumor had

been examined to see whether the parathyroids were there or not.

Dr. Peterson replied that the child was still taking thyroid extract. In removing the tumor he split the capsule and enucleated the gland proper. The parathyroids were not removed. He did not know how to explain the tetany, a condition which only developed when the parathyroids were removed. He expected to show the patient at some subsequent meeting.

Proteid Incapacity in Infants and Children.—Dr. Henry Dwight Chapin read this paper. He said that a number of forms of proteid were used successfully in infant feeding, and no pediatrician in practice confined himself to any one form. The day had passed when it could be said that an infant had proteid incapacity merely because it did not tolerate whole milk or diluted cow's milk. In many instances when the character of the proteids was changed infants not well had commenced to thrive. These infants really had capacity for certain forms of proteid but showed great capacity for other forms. Infants could not thrive without proteids, and if they had real proteid incapacity they would soon die of inanition. Therefore, the use of the term proteid incapacity should be restricted to those cases where no forms of proteid were long tolerated, and the term proteid idiosyncrasy applied to those where one form was tolerated when another was not. The cases of proteid incapacity which were treated successfully were really those of proteid idiosyncrasy, caused possibly by impaired digestive organs or by conditions they did not understand but which undeniably existed. It should always be borne in mind that proteid did not mean a simple substance as did fat or carbohydrate, but a series of highly complex bodies which differed in form, taste, composition and nutritive value. It was possible that many of the poor results in infant feeding were due to the exclusive use of proteids deficient in iron and phosphorus. In conclusion it might be said that the class of cases which actually showed actual nently physically unfitted, and those who might be only proteid incapacity was made up of those who were permatemporarily unfitted, through digestive disturbances, for digesting proteids. Those in the first class would die. Many in the second class could be saved by mother's milk only, or by the use of very light fluid diet that remained fluid or soft in the stomach, until digestion became stronger. In some of these cases the use of vegetable proteid with milk proteid, especially vegetable proteid rich in iron (oat or legumen), which he had termed mixed proteid feeding, might cause a general upbuilding, and improved digestion would follow. Whenever there was difficulty with proteid in a fairly well nourished child mixed proteid feeding, using high proteid gruels with the milk, should be tried, for there might be only proteid idiosyncrasy.

Carbohydrate Incapacity in Infants and Children.—Dr. Charles G. Kerley read this paper. He said the results of clinical observation drawn from his own work without theories would be given. Among the sugars the most usual manifestation of sugar excess or sugar incapacity was regurgitation between the feedings. This was particularly apt to happen if cane sugar was used. Maltose might produce this symptom but in lesser degree. The capacity for milk sugar was greater than for maltose or cane sugar; it was assimilated with less disturbance than the other sugars, and might be given in larger amounts. It would thus serve a better purpose as a food in supplying a greater amount of energy and heat producing material. Cane sugar, on account of its sweetness and difficulty of digestion, could be taken ordinarily in but half the amount that milk sugar might be taken. He used cane sugar only under conditions in which the expense of milk sugar was a burden. Vomiting and regurgitation often attributed to fat incapacity would be found dependent upon sugar excess. Fat and sugar might produce this regurgitation with sugar as a most prominent agent. In vomiting sugar should be reduced as the first step in the treatment for the reason that fat was the more valuable nutritional factor of the two, supplying twice the number of calories. The claim that milk sugar might produce alimentary glycosuria in infants was not without foundation. Maltose incapacity was evidenced by regurgitation and vomiting and through its laxative properties. A useful field for this form of sugar was to supply carbohydrate to the constipated bottle-fed. The systemic manifestations of sugar incapacity in infants were few. Irritability, scalding urine, and eczema were the most frequent signs of intolerance or excess. There was no age limit for cooked starch feeding. Starch indigestion was supposed to manifest itself through a distention of the abdomen by reason of fermentation of starch in the intestine. This might take place, but it was a very inaccurate sign. The stools of starch-fed children presented practically the same gross appearance whether they contained free starch or not. If starch was not digested it did but little harm. The removal of the starch from the food in children with distended abdomen produced but little or no effect on the tympanites in most cases, the distention being due to other causes. The chief harm from starch feeding was in constipation, which sometimes followed its use. This might be prevented in the use of some dextrinizing agent which converted the starch into a laxative maltose. It was rarely wise to use starch in stronger mixtures than three per cent. in children under one year of age. Cane sugar capacity of older children varied greatly. The so-called lithemic children were all sugar susceptibles. The most usual manifestation of sugar poisoning was a persistent hyperemia of the mucous membrane of the upper respiratory tract. There was not the slightest doubt in his mind but that the consuming of large quantities of sugar by the growing population was one of the great dietetic errors of the day.

Fat Incapacity in Infants and Young Children.—Dr. John Howland presented this paper. He said the radical belief that the fat was decidedly the most disturbing element in infant feeding was gaining ground rapidly in this country where top milk modifications had been so generally used. It was by clinical observations that attention was first directed to the question of fat incapacity. The limit to fat incapacity could not be expressed in percentages, for it differed so with each individual child. One saw the greatest differences in infants apparently of equal health in their ability to handle fat. Fat incapacity was very commonly developed under artificial feeding, much less often under breast feeding, and it showed itself suddenly even when the offending diet had been apparently well borne for weeks or even months; when once it developed it had a pronounced tendency to persist. The symptoms of fat incapacity might be roughly divided into gastric, intestinal, and constitutional, although these were more or less associated. Keller first showed with great exactness that an increase in the fat of the food beyond certain limits caused a great increase in the ammonia-nitrogen in the urine. He was led to believe that acids were absorbed presumably from the intestines which passed through the organism without being burned and were paired with ammonia for their excretion. Steinitz, however, was able to prove that with the ingestion of a quantity of cream there was an excessive loss of alkali by the intestine; he also showed that more fixed alkali was actually eliminated than was absorbed. This meant that a constant loss of fixed alkali was going on and fixed alkali was absolutely necessary for the performance of normal processes in the body. The result of this withdrawal of alkalies was the same as if an acid intoxication was present; in fact it was a relative acid intoxication. Any acid intoxication meant that the fixed alkalies ordinarily available to neutralize the acids formed in metabolism were insufficient for this purpose. The ammonia furnished, if for more than a short time, must come from proteid either circulating in the

blood fluids of the body or already built up into an integral part of the organism. In the one case it was depriving the body of materials for building; in the other it was wrecking a part of the structure already built. An acid intoxication interfered with the most important functions of the body and were this the only result would still be sufficient to prove the dangers from an excess of fat.

Dr. John Lovett Morse of Boston, Mass., considered Dr. Howland's paper a most admirable one. But he feared that it might create a wrong impression on people who were not familiar with infant feeding. He was afraid that people who tried to fill in the proper amount of fat were going to do harm. Every one who had much experience in infant feeding knew that too much fat caused symptoms. On the other hand, they knew that a normal breast-fed baby got four per cent. fat in the food. They knew, too, that they could feed babies for years on a modified mixture of three or four per cent. fat, and the vast majority of the babies would do well. Babies did not do well on milk that ran 6, 8, 10, or 12 per cent. fat. This was a point that he thought should be emphasized. It was not the ordinary and proper amount of fat that did harm, but the excessive large fat.

Dr. Rowland G. Freeman believed that, in infant feeding, the element that most often gave trouble was the proteid. He believed that curds influenced and diverted proteid digestion; when one made the proteids more digestible the curds diminished. Pepsin had a marked effect upon the curds, while peptones had no effect whatever. Dr. Chapin had spoken of one class of cases with deficient proteid digestion which would die; he thought it was well to emphasize the fact that this was a small class. Almost all babies, when properly fed, and given proteid in digestible form, would thrive. The babies that died were hospital babies. It was a rare thing for a baby with deficient proteid digestion to succumb to this trouble. When the proteid was not well digested a cereal decoction was most valuable, or whey mixtures, or better peptonized wheys. As to sugars, he thought it was very rare, if the lactose was in normal amounts, that trouble resulted. In a series of experiments made for the purpose of comparing cane sugar and sugar of milk, taking two groups of cases, it was found that a large proportion of the children did as well on cane sugar as on sugar of milk. Still there were many cases that would not do well on sugar of milk. Many did well on cane sugar, but a certain number only did well on sugar of milk. As to the matter of fat, in spite of Dr. Morse's warning, it should be emphasized that fat in large amounts caused disturbances, and he believed that delicate children would do better if the fat was no higher than the proteid.

Dr. E. H. Bartley said that in listening to the papers read he asked why putty-like stools were always composed of either fatty acids or soaps; and in case of alkaline stools, ammonia soaps. That was hardly a correct statement. That was true to a considerable extent, and he had examined many stools and found fatty acids easily dissolved out by ether soaps; there was also proteid in considerable quantities, perhaps not a curd but the residue left from digestion of casein or other material. Many passed stools composed of fatty material which indicated proteid rather than fat indigestion, and strangely enough the two seemed to go together. In cases of fat indigestion, or difficult fat digestion, one was likely to have an excessive amount of ammonia produced; therefore the alkaline stools were not from soaps or fats but from the proteids. An alkaline reaction could come from only one of two sources: either an excessive amount of serum in the intestines, or the administration of an alkali; a possible source was in the alkaline fermentation, so that it often happened that proteid fermentation went on with fat indigestion. It was difficult to analyze what did take place. The alkaline reaction of stools should be more emphasized. Again, there were many stools that were acid in reaction and in the presence of fat indigestion. It seemed to him that the buttocks were often reddened through the irritation of butyric acid rather than from the alkali. An alkaline stool was rather the exception than the rule. In speaking of carbohydrate incapacity, especially of the excessive use of sugar in children from two to ten years of age, he said he had been studying this for many years, and he had tried to fathom the cause of certain symptoms, symptoms to which he himself had been subjected. He said he could develop a headache by eating invert sugar, that was sugar cooked with acid salts. He could eat rock candy or crystallized sugar without producing that effect. But it was the invert sugar that did it. Glucose would do it. He, therefore, concluded that it was the invert rather than pure cane sugar that caused the symptoms. Maltose did not do it to the same extent. Lactose did not do it in his particular case. In children who had sugar incapacity the invert sugars seemed to have a worse effect than cane sugar. He had seen these effects in eating ordinary candy. In such a case there was fermentation or absorption into the circulation; then it passed directly to the liver; therefore, the symptoms might not entirely be due to the fermentation. They came too soon. The effect of the excessive use of sugar in children was most likely to occur from ten to twelve hours after eating. If one did not get vomiting soon after, then next day.

Dr. T. S. Southworth said it was interesting to note the position the different readers took concerning the meaning of the term incapacity. The fact should be recognized that there might be a real incapacity and an apparent incapacity, as well as an absolute incapacity at times and a relative incapacity. So that when the question of capacity was brought up one should look at it from different standpoints. Dr. Chapin had spoken of proteid incapacity and of proteid idiosyncrasy. An incapacity for casein did not imply incapacity for the other types. Dr. Dunn of Boston had brought out admirably in a recent paper a fact, showing that where casein was badly digested, casein could be reduced by the introduction of soluble whey, and so successful gains could be inaugurated. It made a difference in considering the question of incapacity, or relative incapacity, how the foods were manipulated. When one analyzed the methods of men prominent in infant feeding one saw that they arrived at good results in different ways. There were those who by keeping the proteids low were believed to run the fats up considerably higher than perhaps seemed advisable. There were others whose work showed that by keeping fats low they could get the children to take larger amounts of the muscle-making proteid. These results could sometimes be obtained upon proteids and sometimes upon fats by additions made to the mixtures. The results of such additions depended upon the chemical and physical changes produced, whether they were cereals, alkalies, or malted preparations. All agreed with Dr. Kerley's position as to the excessive use of sugars. A good stool was supposed to be a yellow one, yet many such were poor stools. With the further study of them he believed they could have better ideas of the difficulties in infant feeding than they now had simply from a consideration of symptoms alone. He said he would like to take exception to what had been said regarding the so-called curd. When this mass was examined microscopically it would be seen to consist of fatty acids and soaps. But that was not the way they were formed. When one subjected fat to the action of rennet, fat was enclosed in its meshes; there was both proteid and fat. As this passed through the intestine there was a great deal of proteid decomposition. When the mass was spread out and examined there would be found an immense quantity of bacteria scattered throughout. They had destroyed the proteid framework of the mass.

Dr. Louis Fischer said that, in studying the digestive capacity of a given infant, one must consider first, were they dealing with a normal infant and a healthy stomach plus normal functions, or were they feeding a sick infant with abnormal digestive powers. There was a decided difference in the capacity or incapacity of such infants in dealing with the required percentage of fats, proteids, and carbohydrates. A healthy infant might assimilate two per cent. or more of fat during its first month without gastric disturbance. A dyspeptic infant might show gastric disturbances with a two per cent. or less fat. The same rule applied to the digestion of proteids. Proteid indigestion might result from the feeding of one per cent. of proteid in a weak stomach and the same symptoms might continue until one cut down the caseinogen to 0.25. It was in this class of cases that one might be forced to dispense with caseinogen and feed nothing but whey proteid. His experience was that the newborn infant would tolerate almost any formula of fat, sugar, and proteid for a number of weeks because the stomach was healthy. The advocates of whole milk feeding from birth were fortunately not many. In the few cases in which he had seen this method used there invariably was a "stomach breakdown" due to an overtaxing of the individual function from excess of proteids plus the high fat. In artificial feeding one must study the individual condition and if, for instance, there appeared an intolerance for proteids one might be forced to reduce the proteids to such a low percentage that serious consequences, such as rachitis, might follow. The tendency to-day was to overfeed. This overfeeding was not limited to fats and proteids but especially to carbohydrate feeding. The laity had been educated to the belief that infants could not be healthy unless they showed weekly gains; hence stuffing with cream mixtures was in vogue. Rotch, in speaking of a feeding mixture that contained three per cent. of fat, mentioned an anxious mother who added a teaspoonful of cream to each feeding, thus changing the formula which should contain three per cent. of fat to one containing six per cent. of fat. The use of more than a level teaspoonful was another instance where the anxious and well-meaning mother intended to help the physician but usually to the detriment of the baby. If proteid or fat incapacity caused severe gastric disturbances, such as vomiting, colic, or lumpy stools, then the temporary substitution of whey, with or without condensed milk, was useful. Dr. Fischer said he had reported elsewhere several cases of pyloric spasm and, in one of these, the constant vomiting was due to a very high fat. The chemical examination of the breast milk cleared the mystery, showing a five per cent. fat. By pumping off the milk and diluting the same with two parts of water the food was tolerated. Thus it was apparent that what appeared to be an intolerance or a milk idiosyncrasy was really an irritability provoked by the abnormal ratio of the food elements. He mentioned this as an instance of the mother's own milk which disagreed because of the high fat content. In some cases of artificial feeding the gastric machinery would not respond. In addition to dyspeptic symptoms the infant would show atrophic symptoms and emaciate. In this class of cases cow's milk and all modifications of it should be stopped and human milk, and nothing but human milk, would prolong life and develop the infant.

Dr. Herman Schwarz said that some German claimed that the difficulty in cow's milk was chiefly in the casein and a greater number of cases of indigestion were due to the casein, which was due, in turn, to the high fat. Yet Czerny had made the statement that there was no such thing as casein indigestion. There was no doubt that infants could digest starch. He did not believe that by examining the stools and testing for starch with iodine one could determine the child's capacity for starch. High fats were very injurious to infants.

Dr. Chapin said that perhaps he had not made himself clear on the point referred to by Dr. Freeman. He did not mean that complete proteid incapacity was at all common, but he made a distinction between incapacity and idiosyncrasy, real capacity and idiosyncrasy. By changing the proteid often it could be kept down to the right point. In some institutions where one could have fresh air and proper hygienic surroundings proteid capacity would be contributed to. He said he would like to take up the cudgel for fats. Many years ago the pendulum swung for high proteids, while now it swung for high fats. While Dr. Howland's paper was very valuable, he assured Dr. Morse that he had obtained a wrong impression. There were top milks and top milks. The greatest advance had been made when Dr. Meigs brought out the top milk system. Top milk feeding was the best method of giving the baby the proper amount of fat.

Dr. Kerley said that cane sugar was digestible, but one could not give it in equal quantities with milk sugar, grain for grain. In regard to the bacteria in the stools affecting starch, all knew that starch in the intestines was acted upon in adults as in children and a certain amount was destroyed in that way. A great deal was utilized in the youngest children for nutriment.

Dr. Howland, referring to Dr. Morse's criticism, said that he purposely had kept off percentages of fat used. He had tried to point out clinical symptoms met with and how explained. Excessive high fat was dangerous, as all knew; the amount should be between 3½ and 5½ per cent. of fat. The chemical labor involved in metabolic experimentation was tremendous and it was impossible to decide the limit of fat a child could take; he said that that limit was variable. He did not mean to say that skimmed milk mixtures should be used by any means. He believed it was the greatest mistake in infant feeding to use a too high percentage of fat. Steinitz, in considering the alkali in the intestine which caused a relative acid intoxication, meant thereby that not enough alkali in the body to neutralize the ordinary acids formed in metabolism.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, Held November 25, 1907.

The President, Dr. Walter Lester Carr, in the Chair.

Annual Reports.—The reports of the Comitia Minora, Treasurer, Board of Censors, Committee on Public Health, Committee on Audit, Committee on Legislation, and of the Milk Commission were read, as well as that of the Counsel, and were ordered to take the usual course. The society had one hundred and ten new members, and thirty-eight were lost by death. It now had a total membership of 2,064 in good standing. The Treasurer's report was listened to with interest. He had a balance of $5,193.21, of which amount $4,917.46 were in the Knickerbocker Trust Company and $12.00 were in checks of suspended banks. The Milk Commission reported that there were nineteen dairies supplying the city with certified milk. The inspectors had visited over three hundred dairies, and had spent two days each week in laboratory work.

Report of the Counsel.—Champe S. Andrews, Esq., made this report. He said that the prosecutions that had been conducted up to May 13, 1907, were instituted for violation of Chapter 308 of the Laws of 1905. The prosecutions since instituted had been under Chapter 344 of the Laws of 1907. The routine work of the society had been conducted as heretofore, but with more effect because of the strength of the new medical law and the increased cooperation from the public authorities. Prosecutions had also been begun in Kings and Westchester Counties, and the effectiveness of the new medical law was shown in every line. He said this law was important because it defined the practice of medicine, it conferred upon the Re-

gents the right to revoke the license of any physician who was guilty of crime or fraud or deceit in his practice; the penal provisions of the Act were changed to make the following violations under the Statute a misdemeanor: (*a*) The practice of medicine by a person other than a regular physician. (*b*) The practice of medicine under cover of any license or diploma illegally obtained. (*c*) The use by a person other than a registered physician of a title or designation tending to imply or designate him as a practitioner of medicine. (*d*) The practice of medicine by a licensed practitioner of medicine under any name other than the name under which he was registered. (*e*) The advertisement to practice medicine by a person other than a registered physician. He said that previous to the passage of this law it had been almost impossible to secure conviction against a professional abortionist. The Police Department being confronted with this matter from time to time asked the society to devise ways and means by which the evil could be corrected. In the Hoffman case, which he outlined, they had succeeded in convicting the defendant of maintaining a nuisance in that she maintained a house where there was reason to believe that abortions were habitually performed, though there was no proof of any specific act of abortion. Formerly before a conviction of an abortion could be made it was necessary to prove beyond a reasonable doubt that an abortion had been produced and that the person charged committed it, but under the Hoffman case this proof was not necessary. Circumstantial evidence including an advertisement in a newspaper was brought to show that there was reasonable ground to believe the woman engaged in the abortion business. Upon this the Court of Appeals recently affirmed the decision of the Court of Special Sessions, saying that the theory advanced in this case was without precedent, either in this country or in England. Under this holding it is possible for the public authorities to rid this county and State of physicians and midwives who are engaged in the abortion business. The Woodbury case was of special importance in that a corporation advertised to practice medicine without being a registered physician. It was a well-known principle that a corporation was a person within the meaning of the law, and on this theory it seemed fair to presume that no corporation had a right to practice medicine. This case would no doubt mark a milestone in the legal work of the medical society. The unlicensed midwife had always been a menace to the community, and the Legislature at its last session had passed a law defining the practice of midwifery, placing the regulations of midwives under the control and supervision of the Department of Health of this city. Since the passage of this law the Board of Health had prepared a set of rules and regulations, which, if adopted, would restrict the practice of midwifery to those capable of being midwives, and placing them under the supervision of the Board of Health. The total number of persons prosecuted since the last annual report was 80 under the old law, and 700 under the new law; the total number convicted under the old law was 47, under the new law 439; cases disposed of otherwise than by conviction, 9 under the old law and 180 under the new law. There were 20 cases still pending. There were four persons imprisoned. The aggregate fines imposed under the old law amounted to $4,675; under the new law, $35,062.95.

The Legal Work of the County Medical Society, with Special Reference to the Principles which Guide Its Conduct.—Dr. Floyd M. Crandall presented this paper. He said that each county society might be denominated the business agent of the medical profession. One of its most important duties was the enforcement of the medical practice laws and the protection of the public against illegal and criminal practitioners of medicine. It was the first of a group of societies to which had been entrusted the duty of enforcing certain provisions of the criminal law. If the impostor could be debarred from the newspapers and mails he could be practically exterminated. Little had been said of the efforts that had been made to place the work of enforcing the medical practice laws on a more sound and comprehensive basis. To this end certain systematic series of prosecutions had been taken up for the purpose of establishing legal principles and precedents. Many prosecutions had been instituted not alone to convict an individual criminal, but more as a step toward establishing a principle of law, as in legal practice precedent was a most important and necessary factor. The enforcement of medical practice laws had been an almost unworked field until within the past six years, and there were but few precedents, principles, or guiding landmarks. Prosecutions were conducted along well-established lines, and the worst offenders and up-to-date criminals had learned to operate outside of those lines. In regard to the practice laws the old idea seemed to be that the practice of medicine consisted in the administration of drugs, and in times past medicine and drug giving were indeed synonymous terms. As a result of this limited definition a swarm of new systems of practice had arisen, having one feature in common, namely, they used no drugs. This repudiation of drugs circumvented the medical law, and escaped those annoying requirements of preliminary education, four years in college, and a State examination. Test cases were taken to court in which the question was raised as to whether the defendant undertook to diagnose and cure disease. The method of treatment, whether with or without drugs, was made incidental to the main question. These cases established the desired precedents. In the decision of the Appellate Division there was a clause which stated that to limit the practice of medicine simply to the administration of drugs or the use of surgical instruments would be to eliminate the very cornerstone of successful medical practice, namely, the diagnosis. The determination of what the trouble was must be the first step in the practice of medicine. The judges in this case then asked the pertinent question, "Would the physician, who by his skill discovered incipient consumption, advised open air treatment, and refrained from administering drugs not be practising medicine?" It was by this kind of work that a definition of the practice of medicine was finally obtained. The next important work of the society was the campaign against abortionists. There was substantial ground for the belief that one hundred thousand abortions were committed annually in New York, and while the crime could not be stopped it could be limited. This work was forced upon the society by complaints from members, from the Police Department, the Health Board, and the District Attorney's office. Action was first taken against the midwives in Manhattan borough, where there were about one thousand. Miss Crowell, who made an investigation and study of their work, classed 176 out of 500 investigated as probably abortionists. These women used instruments, and many had been convicted under the new law for agreeing to perform a surgical operation and doing any overt act tending to consummate that agreement. The counsel advanced a theory that to conduct a house where abortions were habitually performed constituted a nuisance, and as such could be abated. The Hoffman case was appealed, and in the decision of the Appellate Division the conviction of the lower court was affirmed, and in the decision the court said: "While the offense of abortion was one thing; that of maintaining premises open to the public for the purpose of consummating that crime was another and separate offense against the peace and good order of the State." This was a most important decision, and rendered easy a problem that three years ago was considered almost impossible of solution. Very recently this conviction was further affirmed by a unanimous decision of the Court of Appeals. There were also,

men in the profession who advertised themselves as specialists in this kind of work, and the conviction of one of these after two appeals served to establish the principle of law that it was a crime to attempt to commit abortion. In referring to the charlatans who played upon the credulity of young men, he said that they were mostly registered physicians, and were very hard to reach. The work of the society, however, had been very successful, and they had reached these offenders on such charges as grand larceny and extortion. The advertisements of this class of men were most objectionable, and half a hundred extortionists were put out of business through the Post Office Department, without going to court. There was at present a case before the Court of Appeals, which, if decided as in the Appellate Division, will mean that in New York a man, even though he hold the degree of M.D. from a college not recognized by the Board of Regents, and may use that degree in a social or literary way, he cannot use it for professional or business purposes, unless he is licensed to practise medicine and is lawfully registered. The case against Woodbury, in which it was shown that the business was established by a layman and owned by a layman, but in which registered physicians were employed to do the professional work, will, if upheld by the courts, establish the principle that the license to practise medicine was a strictly personal one, and hence a corporation, having no personal license could not legally practise medicine, or advertise to do so. Other principles of law had been established and other methods of legal attack had been adopted, but these instances served to give an idea of the work. The high character of the legal work was shown by the fact that among more than nine hundred prosecutions but one case of false arrest had been brought against the society, and in that case the society easily won. In every case the principles of law had originated with Mr. Andrews, and had been developed by him. He acknowledged the aid given by the District Attorney's office and by the Police Commissioner. He said the Medical Unity Bill was in reality a general medical law, one of the most important and comprehensive that had been enacted since the great law of 1806. A very important provision was the one relative to the revocation of the license to practise medicine. Lawyers had long been able to disbar their disreputable brethren, but the medical profession had stood with tied hands when a physician had turned quack and resorted to a personal or professional life of dishonor. The license could now be revoked for many misdemeanors, including fraud in practice. To those who felt that the work of the society should be limited to scientific and professional work, he said that legal work was one of the essential objects for which the society had been organized. The title of the legislative act which called this society into existence read "An Act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this State."

The Relation of the Medical Society of the County of New York to the District Attorney of New York County.—Robert C. Taylor, Esq., made an extemporaneous speech, and said that the medical society bore no other relation to the office of the District Attorney than did other societies or citizens. He called attention to the great difficulty in getting evidence; when he was counsel for the society all kinds and sorts of complaints were made by all sorts of people, and the office was greatly handicapped by lack of sufficient evidence. Evidence, of course, must be secured before anyone could be sent to prison. The processes for getting such evidence interfered greatly with their work, and naturally made them go slow. In the District Attorney's office there were thirty lawyers, but they had no detective functions. Of the great mass of complaints brought to their office there was not one out of a hundred that gave any well determined and distinctly sound set of evidence which could be submitted to a jury, grand or petit. It was essential that some outside body should procure evidence, as by detectives, etc. If they could get order out of chaos, they would then be able to get results from the District Attorney's office.

Report of Special Committee on the Examination of School Children. — Dr. Colman W. Cutler, Secretary, made this report. He said that under the present system the Department of Health had the medical oversight of the public schools, especially directed to the detection of communicable diseases. Physical defects were noted as they were discovered in the course of the routine examinations, and many such children were referred to physicians and to institutions. There should be an adequate method of indexing each physically defective child, which record should contain a statement of the condition as diagnosed by the medical inspector, or of the vision, as noted by the teacher, the treatment and the result, and which record should be on file in the school, so that it would be available for the principal or teacher and for the medical inspector, in order that the future progress of the child and his attendance might be controlled. In cases where children were sent to physicians or dispensaries for treatment, the medical profession could aid the school authorities by noting briefly on a card whether the disease was contagious or not, and such facts as would aid the teacher in showing a proper consideration for the child, as when hearing or vision was defective. The termination of treatment should also be noted, so that the child might be readmitted to the school without unnecessary loss of time. Until a definite census of the physical defects of school children was obtained, with information regarding the adequacy or inadequacy of present methods of meeting such defects, hasty action of a paternal nature by the city or State authorities was not favored by the committee; but it was the expression of the committee that there was a proper economic standard for this work, as children physically defective were less liable to be charges on the community if the physical weakness were corrected. The public school system failed to provide for the increasing number of mentally backward and deficient children. Such children were unable to benefit by the regular school instruction, and it was an injustice for the normal children to associate with those mentally backward and deficient children. In many European countries secondary or supplemental schools were in successful operation. In view of the foregoing, the Sub-Committee on Mental Defects of School Children suggested: First, that under the supervision of the Board of Education a census and record of the mentally backward and deficient children in New York be made. Second, that a paid commission be formed, under the supervision of the Board of Education, to examine and classify the mentally defective and deficient children. This commission should comprise at least two neurologists. The commission should classify all new pupils, and at stated intervals reclassify them. The commission should be empowered to remove for institutional care and training all those mentally defective children who had shown themselves unteachable or incapable of such instruction as to render them ultimately self-supporting. The commission should have the power to reinstate in the regular school for normal children those pupils of the ungraded classes whose mental condition had improved sufficiently to warrant the transfer. The commission should outline the organization, equipment, teaching, personnel, and general management of these secondary schools for mentally defective and deficient children. Feeble-minded and imbecile children should be regarded as ineligible for these secondary schools; they should be at once transferred to State institutions for this class. These suggestions were in process of being acted upon by the Board of Education. This report was signed by Drs. Walter Lester Carr, Chairman; Charles E. Atwood, L. Pierce Clark, Colman W. Cutler, Arnold Knapp, and Henry Koplik.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending December 7, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	422	180
Diphtheria	326	33
Measles	476	19
Scarlet Fever	372	19
Smallpox	2	..
Varicella	167	..
Typhoid Fever	71	18
Whooping Cough	8	1
Cerebrospinal Meningitis	15	5
Malarial Fever	..	..
Totals	1855	275

Bacteriological Treatment of General Paralysis.—At a recent meeting of the Edinburgh Medico-Chirurgical Society, a discussion was held on the relation of bacteria to general paralysis. Dr. W. F. Robertson and D. McRae, in speaking of the treatment of this disease and of tabes dorsalis by vaccines and antiserums, declared that the two types of diphtheroid bacilli used by them both showed marked virulence to mice, and produced in rats a disease resembling general paralysis. Probably there were several different but closely allied species of diphtheroid bacilli which were capable of producing the same effect. They had treated by vaccines 8 cases of general paralysis and 1 of tabes, in most of which there was a distinct improvement in the patients' physical and mental condition, followed by relapse after several weeks. In one case of general paralysis the improvement persisted for a year, when the patient was removed from the asylum. Their antiserum they obtained from sheep, administering it hypodermically or by the mouth in doses of 20 c.c. A temperature reaction followed, and in their opinion this was diagnostic. It consisted in a rise to 100° F., when the serum was given hypodermically. The rise occurred within twelve hours, and had passed away in twenty-four hours. Out of 12 cases of general paralysis thus treated for over a period of three months, 10 had shown marked improvement. Two cases of tabes which had been similarly treated showed progress, the severity of the lightning pains had diminished, and the length of the periods of remission had increased. Nine control cases had been subjected to the antiserums and in none did any specific reaction occur. Several cases of general paralysis had also been subjected to treatment with the serum of normal sheep and also with antistreptococcic serum, and in no case were the injections followed by any reaction similar to that which ensued upon injection of the antiparalytic serum.—*British Medical Journal.*

Acute Miliary Tuberculosis Following Intubation of the Larynx.—Arturo Primavera says that traumatism has a great deal to do with the generalization of the tubercle bacilli from a local focus so as to produce acute miliary tuberculosis. The inflammatory reaction caused by traumatism may set in movement the bacilli or break the capsule of fibrous tissue that encloses a tuberculous focus. In general acute miliary tuberculosis is not a primary process coming from without, because the tubercle bacillus has not the power of such rapid proliferation. There must always be some focus of tuberculosis which prepares the enormous number of bacilli that are needed to create innumerable miliary tubercles. Hence there is an endogenous infection, an autoinfection, resulting from a focus in some one of the organs. It may appear in a person apparently perfectly healthy from a latent focus, or in an apparently cured individual. Tuberculous vessels are the most frequent starting point of miliary tuberculosis. Surgical operations may cause a generalization of the process. The author reports two cases of miliary tuberculosis which followed intubation of the larynx and the frequent removal and reintroduction of the tubes due to continued difficulty of breathing. In both cases there were marked tuberculous changes of an advanced type found in the larynx, which in all probability had begun before the process that necessitated intubation. An acute miliary tuberculosis occurred at an early date after the intubation; the traumatism of the tube had much to do with generalizing the tuberculous process.—*Giornale Internazionale delle Scienze Mediche.*

Optic Neuritis in Endocranial Affections.—Gaetano Samperi calls attention to the importance in the diagnosis of endocranial affections of the ophthalmoscopic picture, which by showing alterations in the vascularization and nutrition gives important diagnostic data. According to the old theory of the causation of ocular changes any reduction in the intracranial space will compress the cavernous sinus and cause venous stasis resulting in atrophy of the optic nerve. The author analyses three cases observed recently by himself so as to show that mere pressure is not the cause of the optic neuritis. According to his theory it results from poisonous products generated by the endocranial process mingling with the blood and producing poisoning of the nerve sufficient to cause inflammation, just as uremic poisoning does in Bright's disease. The location of the lesion is of great importance in determining optic atrophy, on account of the intimate connections of the lymphatic system. A tumor of the anterior cranial fossa or the region of the chiasma quickly brings on neuritis, because its metabolic products are easily and rapidly carried to the connective tissue spaces of the optic nerve.—*Giornale Medico del Regio Esercito.*

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending December 6, 1907:

SMALLPOX—UNITED STATES

			Cases	Deaths
Colorado, Five Counties	Oct.	1–31	13	..
Illinois, Belleville	Nov.	17–23	1	..
Springfield	Nov.	22–28	8	..
Kentucky, Covington	Nov.	24–30	1	..
Indiana, La Fayette	Nov.	19–25	1	..
Massachusetts, Fall River	Nov.	20–23	2	..
Montana, Seven Counties	Oct.	1–31	13	..
Pennsylvania, Altoona	Nov.	3–9	2	..
Tennessee, Nashville	Nov.	24–30	2	..
Texas, San Antonio	Nov.	17–23	4	..
Virginia, Richmond	Nov.	17–23	2	..
Washington, Spokane	Nov.	17–23	12	..
Tacoma	Nov.	17–23	2	..
Wisconsin, La Crosse	Nov.	17–23	5	..

SMALLPOX—FOREIGN

Argentina, Rosario	Aug.	1–31	.	1
Austria, Vienna	Nov.	3–9	1	..
Brazil, Bahia	Sept.	8–26	113	7
Rio de Janeiro	Oct.	21–Nov. 3	25	9
Egypt, Geneh	Oct.	1–21	25	9
France, Cannes	Oct.	1–21	11	8
Germany, Bremen	Nov.	3–9	1	..
Great Britain, Liverpool	Nov.	10–16	1	..
India, Bombay	Oct.	23–29	.	1
Calcutta	Oct.	6–10	.	3
Madras	Oct.	19–25	.	1
Italy, General	Nov.	1–7	34	..
Java, Batavia	Oct.	13–19	10	1
Malta	Nov.	3–9	6	1
Mexico, Aguas Calientes	Nov.	17–23	..	1
Mexico	Oct.	13–19	.	3
Russia, Libau	Nov.	3–9	1	..
Moscow	Oct.	20–Nov. 2	4	..
Odessa	Nov.	3–9	1	..
St. Petersburg	Oct.	20–26	1	..
Warsaw	Sept.	22–Oct. 5	.	21
Spain, Cadiz	Oct.	1–31	.	16
Valencia	Nov.	3–17	66	8
Vigo	Nov.	10–16	..	2
Turkey in Asia, Bagdad	Oct.	13–19	32	6

CHOLERA

India, Calcutta	Oct.	5–19	.	101
Madras	Oct.	16–26	.	2
Negapatam	Oct.	5–11	.	7
Russia, General	July	1–Oct. 20.	10,107	4,772
Russia in Asia, Astara	Nov.	0–3	3	..
Tiflis	Nov.	10–.	.	1
Philippine Islands, Manila	Oct.	13–19	23	21

YELLOW FEVER.

Cuba, Habana Province – Bainoa	Nov.	24–Dec. 3	2	1
Habana	Dec.	2–	1	1 (from Union de Reyes)
Venezuela, La Guira	Oct.	28–Nov. 9	1	..
West Indies, Barbados	Nov.	19–21	7	4

Six cases from British Cruiser, *Indefatigable*, in quarantine on Pelican Island.

PLAGUE—UNITED STATES.

California, San Francisco	Nov.	27–Dec. 1	6	1

Total to Dec. 6, 109 cases and 65 deaths.

PLAGUE—FOREIGN.

Australia, Cairns	Sept.	15–Oct. 12.	6	2
Brazil, Bahia	Sept.	8–Oct. 26.	30	33
Para	Nov.	10–16	.	54
Pernambuco	Sept.	16–30	8	8
Rio de Janeiro	Oct.	21–Nov. 3	14	6

Oct. 30, 7 cases and 2 deaths on S. S. *Orleanais* from Marseilles, via ports

India, General	Oct.	6–19	26,336	18,615
Bombay	Oct.	23–29	.	22
Calcutta	Oct.	5–19	.	14
Japan, Formosa	Oct.	20–26.	1	1
Mauritius	Oct.	11–31	32	30
Peru, Paita	Nov.	4–10	5	4

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Original Articles.

THE SALICYLATES IN DIAGNOSIS AND TREATMENT.

BY A. HAIG, M.A., M.D., OXON.

LONDON ENGLAND.

THE cure of acute rheumatism by salicylates is today regarded as a matter of certainty. In so many hours and with a proper dose we are certain to find that the temperature has fallen and that the pains are relieved. I sometimes think that on this account but little attention is given either to the mode of action of these drugs or to the exceptional cases in which they seem to fail, though these are the very cases that throw most light, not only on the action of the drugs, but also on the causation of rheumatism.

Again, though the favorable action of salicylates is almost a certainty in acute cases, it is a very different matter when we come to deal with chronic disease. And here again I think the matter is well worth going into if only in the hope of effecting some improvement in the results obtainable in chronic cases.

But salicylates do not always succeed at once and completely, even in cases that must be classed as acute or at least subacute rheumatism. The ordinary dose is given, but the temperature does not fall, and the joints are not relieved of pain. On investigation you probably find that the patient is somewhat debilitated or that the joints are encased in cotton wool. In the latter case it is generally sufficient to remove the wrappings and keep the joints cool to insure a speedy and satisfactory convalescence. If the patient is debilitated the same result may be obtained by keeping him moderately cool, and thus preventing profuse perspiration.

Profuse perspiration was a favorable condition in the treatment of acute rheumatism by alkalies, but it is another matter altogether, and often a most unfavorable condition, in the treatment of these cases by salicylates. If the case is acute, with high fever, a little perspiration is a matter of no consequence, but in subacute cases, with debility, a profuse perspiration may entirely prevent the favorable action of salicylates.

A hot climate may again prevent the best action of salicylates to such an extent that other treatment has to be used, and some have even gone so far as to say that the arthritis met with in hot climates is not rheumatism. But even in moderate climates in the warm season the action of salicylates may be upset by heat and perspiration; but here their good action can be insured by keeping the patients cool and applying ice to the joints.

But perspiration was a favorable condition in the treatment by alkali because it was equivalent to an increased dose of alkali, for perspiration eliminates acid from the skin and thus increases the alkalinity of the blood. But when we come to deal with the salicylates, increased alkalinity of the blood is an unfavorable condition, for we know that they act best in acute cases with high fever in which the alkalinity of the blood is diminished, and they relieve at once the worst joints in which the tissue fluids are most acid.

And this has a chemical explanation, for the compound which salicylates form with derivatives of uric acid is more soluble in dilute acids than in dilute alkalies. (See my Researches in "Uric Acid," Ed. VI.) Further, I have for many years pointed out that salicylates relieve in acute rheumatism in direct proportion to their power of eliminating uric acid compounds; that salicin has least power, while salol comes next to it; salicylate of soda is still better, while salicylic acid is again better (and it contains no alkaline base), and acetylsalicylic acid (aspirin), in which there is an added acid, is best of all. In all these compounds it is the salicylic acid which acts; but dose for dose its power is diminished by associating it with alkali and increased by associating it with an acid. Before aspirin was invented I used to give small doses of acids concurrently with salicylate of soda, and could then relieve cases in which the soda salt alone might fail. In all cases salicylic acid relieves in direct proportion to its power of eliminating uric acid compounds.

Further, we know that by giving first alkalies and then salicylates we may not only fail to relieve acute rheumatism, but may even produce a very decided relapse; of this I have recorded several instances in my book on "Uric Acid," and I have heard of many similar cases, in fact many relapses are due to something of this kind. It seems, then, that the action of salicylic acid is dependent on its power of eliminating from the body the compounds of uric acid, and that if this power is interfered with by association with alkali, by perspiration, or by debility (the two latter being equivalent to alkali), it may fail to relieve or cure.

Here, then, is the explanation of the comparative failure of salicylates in chronic disease, for this is practically always associated with debility and an increased alkalinity of the blood.

Where there are dyspepsia and increased action of the bowels the action of salicylic acid is aided by drugs which diminish the diarrhea and hence reduce the alkalinity of the blood; and in some cases of this kind the addition of a little pulvis opii compositus to the salicylic acid will greatly increase its power.

Hence the rule in chronic disease with debility is "feed up, give tonics, acids, etc., restrain dyspepsia or diarrhea, feed up on acid-forming foods (*e.g.* meat, fish, fowl, and eggs), give wines which are acid, get the patient strong, send him to a bracing climate, give tonics to prevent the depressing effects of salicylates, and then try salicylic acid and opium, and now they may succeed and do well, when without this assistance they only failed or did harm."

If the patient cannot be got into good or at least moderate health by the above means, if there is morbus cordis or other organic disease which renders this impossible, then salicylates will fail to help the arthritis and it is better not to give them, especially in cases of morbus cordis, when they may do harm and increase the depression.

Again, it is always a mistake in starting to treat a patient for rheumatism (except in acute cases where it does not much matter) to cut down food and leave off wine or beer. For the same reasons, when a patient is convalescing on salicylates, acid-forming foods, wine, etc., should be kept on, and they are the more necessary the more the temperature falls and the more evident are the signs of debility.

And now with regard to diagnosis: The mere failure of a salicylate to cure or relieve an arthritis is no proof that it is not rheumatic. Only when we have looked into all the concomitant conditions can this be said.

There must be no external heat sufficient to cause profuse perspiration, no great and general debility tending to the same result, no severe dyspepsia or chronic diarrhea, no severe respiratory or circulatory disease causing dyspnea and its result, increased alkalinity of the blood.

If all these disturbing factors are absent and if salicylates given in correct combination and proper dose (as for acute rheumatism) quite fail either to relieve a severe arthritis or to lower the temperature, search should be made for those conditions other than uric acid which may produce arthritis and on which salicylates have no influence, *e.g.* septic arthritis or that due to traumatism or new growth.

Indeed, I would go further and say that when salicylates promptly and decidedly relieve any acute febrile trouble associated with local irritation in the fibrous tissues of any part or organ of the body, such inflammation and temperature are probably due to uric acid and not to microbes, traumatism, or new growth, etc.

But I need hardly remind my readers that microbes causing fever and diminished alkalinity of the blood may, and often do, precipitate an arthritis in those subject to it, in other words, having plenty of available uric acid in their tissues or viscera; and a traumatism also in a gouty or rheumatic subject (*i.e.* one well charged with uric acid compounds) very often precipitates a urate irritation and will therefore be relieved to a greater or less extent by salicylate treatment. This is well seen in the arthritis which may complicate enteric or scarlet fever in such subjects and here salicylates will relieve the pains and lower the temperature, but not completely reduce it, for the other lesions of the specific fevers account for a part of the febrile movement.

Hence, in any case in which a salicylate relieves pains and lowers temperature, but does not bring it down completely, the possible presence of enteric or other specific fever must be kept in mind.

Again, it is, I think, common experience that fractures of bone or old scars in fibrous tissue generally react to changes of weather and season by some increase of local irritation or pain, and this is so because they form centers of defective circulation and diminished alkalinity in which urates most tend to congregate; but let such sufferers shut out (as far as possible) urate compounds or xanthin from their food, and in a few years' time, when the tissues begin to get relatively clear, such irritations will cease to trouble and salicylates will no longer be required to relieve.

I may also mention here that in many of these local troubles the application of a little oil of wintergreen will often suffice both to relieve the patient and give the doctor a key to diagnosis. And as the dose absorbed into the blood from a local application is generally small this treatment may be used even in some of the cases above mentioned in which there is organic disease, sufficient to contraindicate the administration of salicylates on a larger scale.

And in some of these cases an external application may be all that is required, combined with tonics, feeding up, and a bracing climate as mentioned above.

Salicylates affect *under favorable conditions* all irritation and fever due to uric acid even when such uric acid irritation has been precipitated by microbes, but they have no influence on irritation and fever produced by septic conditions alone.

THE ANTE-MORTEM CLINICAL CONDITIONS AND THE POST-MORTEM FINDINGS IN AN IRREGULAR CASE, WITH PRESENTATION OF PATHOLOGICAL SPECIMENS.*

By MARGARET A. CLEAVES, M.D.,

NEW YORK.

Mrs. ——, age 62, widow, consulted me first October 31, 1906, and was under my care from that time to the day of her death, October 8, 1907. The father died of Bright's disease at the age of 48, the mother of Bright's disease, aged 65. During childhood she had measles; was ill only one day. Menstruation was established between 12 and 13, normal, every 28 days, regular, duration 5 days. At 16 she became very anemic, attributed to the use of camphor, which she ate because she liked it.

She was married at the age of 27, gave birth to three living children, and had two miscarriages. Births were normal in every way and patient was well during pregnancies. Miscarriages occurred during the third month, without any apparent cause, and between the first and second births.

While in Rome, soon after marriage, she contracted a fever, probably malarial, which lasted three months; was confined to bed part of the time, and became very thin and weak. At times during adult life she had severe asthmatic attacks; none of late years. The menopause was established at 50 years, no profuse flowing and no bad symptoms of any sort.

Present condition: In 1900, six years previous to consultation, she began having uterine hemorrhages, staining clothes slightly at first. This continued to increase. In 1903 she had severe hemorrhages, and consulted a physician in San Francisco, who upon examination made a diagnosis of uterine polypus hanging in the vagina and "as large as his fist." For a period of fifteen months he administered electrical treatment. The polypus "disappeared in six weeks" from beginning of treatment, but the flow continued just the same.

The patient returned to New York in September, 1905. Had no further attention, although hemorrhage continued until, in February, 1906, a very severe hemorrhage led to a physician being called.

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No examination was made, but drugs were administered. The flow was unchecked. For the year prior to consultation she was continuously more or less constipated. She suffered also from irritative cough of gastric origin. During this year impaired heart action was pretty constantly present, evidenced by attacks of sinking and fainting. She was unable to go about for months, could not be left alone because of threatened heart failure, and had lost much weight. She was practically taken out of bed to come to the city for the purpose of medical care.

At the time of consultation, her skin was very sallow, even jaundiced, and cheeks brightly flushed in the afternoon. This had been habitual for a year or more. She had little strength, breathless upon the slightest exertion, flowing profusely, able to sit up but a part of the day. Appetite was fair, digestion more than fair, but the bowels were constipated. Urine contained albumin and much indican, at first excessive. Soon after coming under care, granular, then hyaline, casts were present. Toxemia present. No pain, save discomfort of enfeebled heart.

Physical examination: Liver enlarged with some hepatoptosis; gall-bladder enlarged, protuberant. Heart feeble, fluttering, irregular, and inefficient in its action. Whiskey and ammonia carried constantly to combat characteristic sensation of sinking and fainting.

Pelvic examination: Vagina free, no adhesions, vaginal vault stretched taut or widely dilated, cervix completely effaced, cervical canal patulous, mucous membrane of cervix and vagina intact, uterus enlarged, lower segment through taut vaginal vault giving the impression of a superincumbent mass, as does the fetal head, although of less resistance and size.

Vagino-abdominal examination showed the uterus to be movable. Recto-abdominal examination yielded to the sense of touch the same impression as conveyed by a pregnant uterus and also of a fibromyomatous uterus, but lacking in the characteristic density of the latter. The uterus was very freely movable and could easily be rocked back and forth between the suprapubic hand and rectal examining finger, much more freely than on vagino-abdominal examination, as the tension of the upper vaginal vault limited the former. There was constant hemorrhage.

By speculum, introduced with great difficulty owing to the vaginal tension, the wide gaping os was revealed. Absolutely no evidence of the severance of a uterine polypus, but an appearance suggestive of a retained uterine growth. There was no rectal complication other than a slight proctitis.

Diagnosis: Because of the remoteness from the menopause, the question of malignancy was carefully considered from the first, but was excluded in the absence of uterine pain of any sort and evidences of infiltration and fixation. No glandular enlargements. Despite many irregular symptoms, and in the absence of any evidences of a pedunculated growth, although she positively stated that she never passed the polypus per vaginam, a uterine fibromyoma was diagnosed and the question of beginning degeneracy raised.

Treatment: For the six years prior to my knowing the patient she had positively refused operation and was in no condition for surgical measures when I first knew her. Therefore, every possible remedial measure was utilized to secure control of the hemorrhage and to establish more nearly normal metabolism and nutrition. Under the use of vaginal hydroelectric applications of the continuous current 20 to 40 M.A., supplemented by exposure of the body superficies to the energy of a 25-ampere arc, the hemorrhages were under control in from four to six weeks after treatment began.

An examination of the blood made three weeks after coming under care gave the following result: Hemoglobin, 65 per cent.; leucocytes, slightly below normal; differential (200 cells counted); polynuclears, 66.0; transitional, 6.5; lymphocytes, 23.5; large mononuclears, 4.0; eosinophiles, 0; basophiles, 0. While the red cells were, on the whole, uniform in size and shape, there were a few larger than normal, and a number of microcytes, but the lack of uniformity was not marked. Poikilocytosis, basophilia, and chromatophilia were not present, nor was there an increase of blood plates. No nucleated red cells were seen. Pallor was found in more than moderate degree. The number of leucocytes was slightly diminished, but the differential was within normal limits.

The electrical applications used were characterized by current distribution, rather than current density, while the vaginal cavity afforded one contact and the abdomen the other. Static electricity was used for the purpose of assisting tissue change and improving nutrition. Tonics were administered and the heart controlled by the administration of nitroglycerin, digitalis, and strychnine. Patient became able to walk several blocks, heart action stronger, but evidences of toxicity never disappeared. After some eight weeks two apparent bits of tissue were passed within two to three days of one another, which upon examination showed the following: Ovoid, moderately firm specimen about one inch in diameter. Surface dark red, smooth, and covered with a thin layer of yellowish-white matter closely adherent to the surface on section, mottled white and red.

Microscopical examination showed the tissue to be made up of fine fibrillæ arranged in a close network, the meshes of which were filled with amorphous matter. Here and there at long intervals were a few polynuclear leucocytes. In places the outlines of numerous bodies of red cells were seen and scattered thickly through the tissue were many fragments of cell nuclei. The tissue was degenerated and stained with difficulty.

Diagnosis: Fibrin, red blood cells, and leucocytes; blood clot degenerated.

Microscopical examination of second flattened pieces of tissue 1¾ inches by ½ inch, showed degenerated, partly organized blood clot, similar in appearance to the previous specimen.

Subsequent to the passage of these blood clots, she began to have a dirty, watery discharge with a slight odor at first which became more marked as time went on.

From the cessation of hemorrhage to the time of her death October 8, 1907, she continued to have a dirty, watery, sometimes blood-stained discharge, with the passage of bits of necrotic tissue and a large volume of pus (from 0.25 to 2 per cent.) in the urine when not removed by catheterization; albumin, granular and hyaline casts, and quantities of indican were uniformly present. Appetite not uniformly good, but a very considerable quantity of nutritious food was ingested. Bowels moved every day in response to enema, but not freely. All laxative drugs set up nausea and griping, and as the enema had to be administered because of pressure of the uterine body on the rectum, laxative medication was avoided as much as possible. Olive oil was administered in ordinary doses from time to time. With the continuance of the discharge, the

uterine tumor grew smaller, the vaginal vault became flaccid and wrinkled, the os less widely gaping, and the cervical canal less patulous. Coincident with these changes, noted in from three to three and a half months, the bowels functioned without the use of the habitual enema. Toxicity remained. As a result of the heart's failure to compensate in connection with the hepatic complication, the abdomen and all the tissues of the body, but especially the back, buttocks, and lower extremities filled with fluid in February, 1907. The ascites was extreme, the legs being enormously distended, and the skin tense and shining.

Under a further reinforcement of the heart and the daily exposure of abdomen, back and legs, as well as the precordial region, to the energy of electric incandescent light, carried to the point of excessive sudation, the fluid entirely disappeared in from four to six weeks, and never reappeared.

After the passage of the organized blood clots because of the discharge, the uterus was kept carefully irrigated from three times a week to daily with physiological salt solutions, peroxide of hydrogen, weak solutions of bichloride of mercury, but nothing controlled the odor and quantity of discharge as did the pancreatic lotion, which was used from the middle of July to within a week of death after the cleansing irrigation.

During my absence from the city from the 3d to 8th of July the patient was intrusted to the care of another physician. Upon my return I found her more toxic than usual, bowels less active, heart very feeble and uncertain, and tissues waxen to translucency.

On July 15, at my request, Dr. H. C. Coe saw the patient. Upon vaginal examination he found a mass to the right of the uterus, which led him to raise the question of a superposed secondary growth or a possible thrombosis. This mass, in addition to the condition originally noted, I confirmed by touch. It had not been present upon examination prior to July 3. Dr. Coe regarded the condition as a degenerating uterine tumor and the case as an absolutely inoperable one. In his opinion curetting was inadvisable owing to the danger of penetration and further infection. He estimated length of life at from two to three months and regarded the condition as initially some form of degenerating growth. It was after this visit that I began to supplement the uterine irrigation with pancreatic lotion. This I did because of the beneficent action of this lotion in modifying the odor and discharge in malignant cases, and while I could not regard the case as malignant, I felt it incumbent upon me to give her the benefit of the doubt after the question had been raised. Enteroclyses of physiological salt solution were used to reinforce the heart, and acted as well to very thoroughly clear out the upper intestinal tract. Holadin was administered internally, and ox-gall exhibited more frequently than before to stimulate hepatic function. Under this régime appetite, which never absolutely failed until the last, improved, also nutrition, and from July 29 to August 17 hemoglobin increased from 36 to 92 per cent. The red cells, however, presented the appearance of secondary anemia.

Despite slight nutritional gain, lessened discharge and odor, a marked increase in the polynuclears was noted early in August, with corresponding decrease in lymphocytes and slight increase of blood plates.

There had been an understanding for some time between myself and an absent son that if it could be arranged, Dr. Howard A. Kelly should see the patient. This was for the son's satisfaction, as I had the most perfect confidence in Dr. Coe's judgment, and felt that nothing had been or was being left undone to save the patient's life. I wrote the son, however, that I was willing to have Kelly or any reputable physician in consultation.

On September 1, when I was absent from the city professionally, Kelly saw the patient. He was secured en route from the woods to Baltimore, to minimize expense, and I was unable to return to meet him on account of the professional engagement calling me away, but had him met by the physician whom I left to look after the patient during my absence. The following letter contains his opinion:

"September 2, 1907.

"Dear Dr. Cleaves:—I saw Mrs. ——, with your assistant ——, and went carefully into her condition. She has an enormous gall-bladder, with some hepatoptosis, but the great trouble, of course, is the condition of the uterus, with its foul discharges. This must be either a sloughing fibroid or a carcinoma; I believe it is the latter. I am at a loss to account for her excessive anemic poisonous condition, unless it is due to reabsorption.

"I think that her condition offers but little hope, but what little there is I would give her by using an anesthetic of gas, which, skilfully given, ought not to upset her, and allowing five minutes for a thorough curettage of the uterus. This ought to remove a great deal of débris and to open up the uterus, so that it could be washed out thoroughly day by day. If, after getting good drainage in this way, and cleaning up the surface, she showed any decided improvement, I would then think of a radical operation, either under gas or cocaine anesthesia. I would do these things if she were my own near relative, difficult and almost hopeless as the case seems to be.

"Always faithfully yours,

"Howard A. Kelly."

In Dr. Coe's absence from the city, as well as of the other men suggested by Kelly, Dr. W. Healy was asked to operate. After a thorough examination of the patient, he made a diagnosis of uterine fibroid, but absolutely refused to operate upon the ground that there was great danger of perforation as well as further infection. This decision relieved a position of great strain.

So intense was this patient's dread of pain that when I attempted at one time to give a necessary hypodermic injection of medicine under ether spray every drop of blood seemed to leave the surface of her body, while her look of abject terror exceeded anything I ever saw in a human being.

The night of September 5 my assistant reported to me that within ten minutes after the uterine irrigation she had a violent chill lasting ten hours accompanied by excessive sweating, necessitating many changes of night dresses and bedding.

After this the patient was very lethargic, sleeping almost continuously, and very inattentive to things about her. She was never told that she had a condition which meant death, and, despite her constantly recurring heart attacks, had splendid courage as long as there was no question of pain. Her temperature fluctuated pretty constantly from subnormal to 102°. Soon after my return on September 11 her lethargy diminished, she slept less, and became more alert. This alertness, even to extreme nerve irritability, was contrary to a lifelong habit of quiet and calm, and bore a direct relation to the question of operative measures which had been raised. The last of September she began passing by the rectum much pus intermingled with blood. There was no pain, simply the distress oc-

casioned by constant desire for the bed-pan and some burning. On September 30, within half an hour of the uterine irrigation, she became very chilly. I remained with her for several hours, as I feared another chill, but there was no exacerbation. Temperature rose to 102°, and the day following the rectal discharge became profuse, continuing during the week that remained of her life. During that week she passed at least one-half a pint. With this excessive rectal discharge the vaginal discharge practically ceased. During this time there was great nausea, vomiting of pure bile, inability to take or retain food, dry and brownish coating of the tongue, changing to white, dry, and fissured lips, and every indication of some severe gastro-intestinal disturbance. There was, however, no abdominal pain, tympanites, and no pelvic soreness then or ever. In the last days there was a discomfort in the splenic region upon lying on left side. The vomited matter was largely pure bile, and throat and lips felt scalded from contact. The stools were at times greenish in color, varying to a light yellow; semisolid, slight, and on two days there were found some tiny concretions. These upon examination gave no response whatever to biliary tests. The intense wakefulness and alertness was so great that on October 2 and 3 veronal, 5 grains, was administered, and again on the 5th. This induced a desire to sleep almost all the time. None was given after the 5th, but instead, on the 6th, 7th, and 8th, 1/8-grain doses of morphine by mouth were administered to secure the inward euthanasia so acceptable to patient and friends alike when hope no longer exists. In all but little more than one grain was given, but it held her peaceful, happy, and comfortable to the last. Nausea and vomiting were not so bad the last day or two, while the lips grew more moist and the tongue less coated.

The evening of the day of her death in the private apartment in which she lived an autopsy was held by Dr. W. M. Higgins and assistant, with the following result:

Specimen No. 17,502.—Mrs. ——, age 64, frame spare, muscle fair, adipose fair; diaphragm: right side, fifth rib; left side, fifth space. Pericardium normal, surface smooth, not adherent. About half an ounce of clear, colorless fluid in cavity. Heart: The wall of the right ventricle is about 5/16 of an inch thick, of the left ventricle, in systole, 5/8 inches. Both the inner and the outer surface of the walls are smooth and show a moderate degree of fatty infiltration. The cusps of the aorta are free but stiff, very much thickened, and are covered with a layer of calcareous matter which extends into the aorta, forming a solid, thin tube. The cusps of the mitral valves are also thickened, and on the adjacent wall are a number of vegetations, hard and firm, the largest about the size of a small hazel nut. The other valves appear to be normal. Arteries: The coronary arteries are patent, but show a number of small, calcareous patches. The aorta is calcareous, the whole wall being covered as far the descending portion, and there are numerous plaques throughout the entire length. Pleura: Each cavity contains a small amount of serous fluid. The entire surface is free, no adhesions. All the lobes of the lungs are emphysematous; the lower lobes are very slightly congested. Liver: The liver is enlarged, projecting two inches below the ribs on the right side and extending across to the ribs on the left side covering the spleen as far as the seventh rib. The right lobe is divided into two parts, between which the gall-bladder projects. The outer surface is smooth, consistence firm. On section the surface mottled throughout with many fine light-yellow and reddish spots.

The gall-bladder is closely adherent to the under surface of the liver; the organ is about 6½ inches long, extending as far as line drawn through the umbilicus. It is tensely distended, and in form is about the shape and diameter of a large, long potato, the distal end being a little smaller in diameter. The wall of the bladder is very thin and a little roughened. The cavity is filled with a turbid, thin, gray fluid, and in the upper half firmly imbedded in a small pouch is a stone 1⅝ inches long by 1¼ inches wide and 1 inch thick. The stone is hard, dark gray in color, and is covered with a thin layer of dark-brown granular matter. In the distended opening of the duct there is a second stone, freely movable ovoid, with surface rough and irregular, ⅝ of an inch in diameter. The duct is somewhat thickened, but is patulous throughout. The surface of the spleen is smooth, consistence very firm, size 6½ inches by 4½ inches, adherent to the surrounding tissue, and on section dark, bluish gray in color, very firm, and with a number of dark-red areas. The stomach is normal. The intestines are normal. The surface of the rectum is congested and shows a number of small, dark patches. Kidneys: Capsule is a little adherent in places; surface generally smooth, congested; consistence, firm. On section, markings distinct. The suprarenals are normal. The peritoneum is normal. Pelvic organs: The uterus is 3¾ inches long and 3 inches wide. The outer surface is smooth and without any adhesions. On section the uterine wall is moderately soft and flabby and on the average ⅛ to ⅜ inch thick. The cavity of the uterus is occupied by a fungoid growth of moderately firm consistence, closely adherent to the wall of the uterus. On the left side, throughout the entire extent the mass is soft, necrotic, and broken down, forming an abscess cavity about 2½ inches long, filled with soft, necrotic matter. The cervix is patulous. The ovary is small, about 1 inch long, firm, cirrhotic, and shows a few small cysts. The tubes are of normal size and appearance. The bladder appears to be normal. The brain was not examined.

Microscopical Examination.—The heart muscle, on the whole, is of normal appearance. There is a slight degree of fatty and some round-cell infiltration, with a very slight replacement by fibrous tissue. There are no marked changes in the lungs; slight evidences of congestion. The liver is congested. The intercellular spaces are distended with red cell and pigment, and very many of the cells have undergone fatty degeneration. There is a marked degree of round-cell infiltration throughout, especially around the interlobular vessels, and in many places there are large foci of round cells with fibrous formation and cell degeneration and necrosis. The spleen shows chronic congestion with marked pigmentation. In the kidneys the larger blood-vessels are somewhat distended, and in some of the sections there is some fibrous tissue formation, but on the whole there is a very slight deviation from the normal. The ovary is markedly cirrhotic, with many small follicular cysts. Uterus: In the sections taken from the body of the uterus there is a decided increase in connective tissue, running in fine fibrillæ between the muscle fibers with congestion and infiltration. On the outer half the inflammation is comparatively slight, with some round-cell infiltration and small foci of pus cells. The inner half, next to the canal, the tissue is intensely infiltrated with small, round and epithe-

lial cells, and there are large areas of necrotic matter. Sections from a nodule in the wall of the cavity near the cervix consist of small, round and lymphoid cells, blood, some fibrous tissue, and granular, necrotic matter. Sections from near the cervix are largely blood and fibrous or necrotic matter. In the sections from the cervix there is marked increase in connective tissue, with a moderate degree of inflammation. The epithelium is hypertrophied, but regular, glands few and distended, forming a number of very small cysts.

Diagnosis: Chronic endocarditis with hypertrophy, arteriosclerosis, hypertrophic cirrhosis, chronic splenic congestion, chronic cholecystitis, with gallstones, chronic inflammation of uterus.

Dr. Higgins examined the lumen of the large intestine most carefully to find the source of the purulent discharge, but without result. At first I had suspected a retroperitoneal abscess and questioned whether it had broken through and discharged itself into the rectum. No post-mortem evidences of such a condition could be found. The character of the pus and blood passed was such as to indicate a quick passage through the intestinal tract. There were no post-mortem evidences of any suppurating foci either in the intestine or in the pelvis. Taking into consideration all the clinical symptoms and post-mortem findings, it can only be accounted for by the condition of gall-bladder and duct. There was no pus in the gall-bladder, post mortem, however. At my request Dr. Higgins will present the uterus and appendages, also the gallstones removed.

The fungoid growth noted in the uterus is very clearly shown, and there is a line of demarcation between it and the uterine wall despite its firm adherence to the latter. The small amount of fibrous tissue in the nodule near the cervix should not be lost sight of, nor the fungoid growth.

The pathologist's diagnosis of chronic inflammation of the uterus is not questioned, but it is clearly recognized that he had to do with the end product, so to speak, not with the original pathology. It will be agreed that in her chronic endocarditis with hypertrophy, arteriosclerosis, hypertrophic cirrhosis, chronic splenic congestion, chronic cholecystitis with gallstones, she had sufficient pathology to have caused her death at a much earlier date.

Chronic endocarditis was given as the cause of death and the complications were numerated. But it is the uterine condition which is regarded as irregular and which led to varying opinions and recommendations by unquestioned authorities.

1. This patient was in the habit, a habit continued in defiance of orders to the contrary, of placing cotton within the vagina to prevent extreme saturation of her clothing with hemorrhagic discharge. This was constantly done prior to and at the time of the passage of degenerated blood clot as well as afterwards.

2. The vaginal douches were administered by a member of the family with the os dilated and the cervical canal patulous. Absolute asepsis was oftentimes questioned.

3. A uterine polypus was found hanging in the vagina in 1903. The patient received electrical treatment with the continuous current. The method of application was unscientific, the administration unskilled, and dosage extreme. This polypus disappeared between treatments, *i.e.* from one day to the next, but hemorrhage was not controlled. The patient, an observing woman, says she never passed it.

4. With the cessation of hemorrhage blood clots were formed, remained *in situ,* and degenerated, interfering with free drainage. In some way there must have been an infection. Of its source I do not know.

5. What was this tumor which was felt upon examination and which showed itself post mortem in a fungoid lining as it were of the organ?

A uterine polypoid growth suspended in the vagina was subjected to the action of the constant current. In this instance the current was short circuited through a vaginal bipolar electrode. The patient was permitted to turn on the current from a wall plate switchboard, while lying on the operating table, and instructed to take all she could.

The continuous current has an especial action upon unstriated muscular tissue. If uterine contractions are to be avoided the current should flow interruptedly. According to the history given it was not so administered. The os was wide open and cervical canal also. It would be possible for the uterus to withdraw within itself, a polypoid growth attached as the post-mortem conditions would indicate, in this case, just inside the cervical canal, but by no means could such electrical applications cause it to drop off unless it gradually sloughed away.

Deduction: under the influence of the treatment given, the source of hemorrhage was not acted upon, but the uterine organ in contraction drew the polypus (probably a fibroid polypus) back within. I have no authority back of me for this deduction and know of no other instance and only make it from my knowledge of the action of the current, the clinical conditions, and the post-mortem findings.

The patient gradually failed from then on, presenting symptoms of toxicity which steadily increased. Free drainage was maintained until degeneration of blood clots. The presence of a degenerated blood clot was sufficient to interfere with free drainage, and in its absence an infection became, opportunity offering, a simple matter.

I can only raise these questions and vouch for the absolute asepsis other than indicated.

The amount of dirty fluid and necrotic discharge thrown off was sufficient to disintegrate and diminish a tumor of very considerable size. Post mortem as compared with my vaginal examination there remains but the smallest part of it.

In 1903 a simple surgical operation could have been readily performed. Electricity skilfully used accomplishes much in many pelvic conditions and works no harm when so used, but under no circumstances should it be used against a polypus, especially when already delivered and suspended in the vagina.

The patient herself was responsible for non-surgical interference. To many patients the thought of a surgical operation is a living death. But in the hands of a skilful physician a pedunculated growth could have been removed as a part of treatment without the patient's knowledge by means of the perfected electrothermic angiotribe. There would have been no pain nor hemorrhage and complete asepsis. At the time of coming under my care her attitude towards surgical measures was the same as before, her heart was very inefficient and she was toxic. The only pelvic operation admissible at that time would have been a complete hysterectomy, as a curettement would have been inadmissible. Another indicated operation was one for the removal of the gallstones. In all probability she would have succumbed, if not immediately, at

least from the ultimate effects thereof. Her life could hardly have been prolonged to any greater extent in any event, and while she had the unpleasant discharges from the uterus, a misfortune and not foreseen, they were no more exhausting than the hemorrhage had been. She never had a pain, the thing she most dreaded, and lived her days hopefully to the last.

The excessive anemic and poisonous conditions constantly present from the first and referred to by Kelly in his letter could readily be accounted for by the heart and liver condition with consequent imperfect functioning.

In the absence of any evidence of an abscess or a new growth I am at a loss to account for the condition of enlargement and tumefaction to the right of the uterus found in July by Dr. Coe and substantiated by myself other than as a periuterine inflammation. In the absence of post-mortem evidence I can only believe that the exudate thrown out became fully absorbed under the constant régime of uterine irrigation, vaginal douches and bipolar application of the induced (faradic) current.

Conclusion.—1. The case is of especial interest because of the years (six) intervening between the menopause and beginning of hemorrhage.

2. The differing and incorrect diagnoses as to the uterine condition.

3. The difference of opinion as to surgical measures.

4. The disappearance of a polypoid growth which had been delivered, with post-mortem evidence of its return to the uterus.

5. The prolongation of life without pain under so tremendous a pathological handicap.

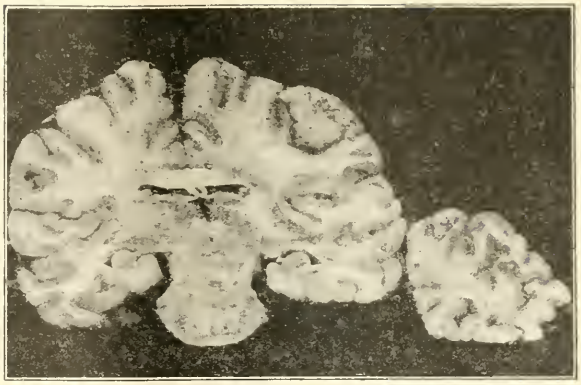

Fig. 2.—Sections across brain through foci.

EPILEPSY; GENERAL TUBERCULOSIS; SYPHILIS.*

By J. F. MUNSON, M.D.,
SONYEA, N. Y.

This patient, M. H., a negress, was admitted to the Colony, October, 1906, aged 17 years. She was the second of eight children, only two of whom are living. The mother died of tuberculosis at the age of 32. The patient states that she has a younger brother aged 7 years, who is deformed in the chest and back and is not very bright mentally. She was strong as a child. Walking and teething began at 2½ years. She had measles at 10 or 12 years of age and about this time she also had typhoid fever. Puberty occurred at the age of 12 years. At 15 she had nervous prostration followed immediately by "St. Vitus's dance."

The patient has both nocturnal and diurnal seizures. During her residence at the Colony seizures were reported as follows: October, one petit mal; November, two grand mal, one P.M.; December, one g. m.; February, one g. m., one P.M. The first attack occurred at the age of 17 years. "A woman enticed her to C——, and she was unconscious for about twenty-four hours. They think she was drugged and used for immoral purposes. She also fell down stairs while there; she was not in bed after this fall. After this her courses ceased and she had her first attack." There has been amenorrhea since the onset of the epilepsy. The seizure "began with a smothered feeling, and then she did not know anything. Those who have seen her in later seizures say she always stiffens out in seizures and lies quiet but froths at the mouth." The second attack occurred one month after the first and was of a similar nature. Since then she has had seizures of increasing severity. The last attack (before history was given) was in August. This attack "began by her feeling smothered; she thinks she was in the attack about half an hour. She felt very weak afterward and the left side began to twitch." The patient is said to have no warning; but "sometimes her hand begins to twitch just before an attack"; there is also the description of the smothered feeling and also the statement that before some seizures she is "nervous and feels as though pins were sticking into her." The left side is most involved. Consciousness was lost in all but one attack. She is said to bite her tongue. After the attack "she feels hateful and sometimes cannot talk." She "sometimes cannot see and sometimes sees double." Once "she knew what was going on, but could not open her lips for five minutes." There is no definite history of specific disease.

*From the laboratory of the Craig Colony for Epileptics.

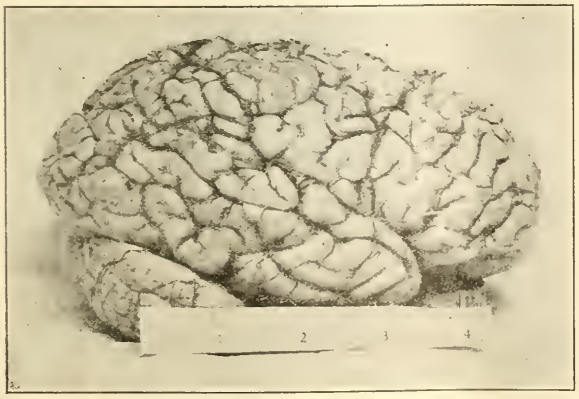

Fig. 1.—Lateral view to show foci on cortex

On admission, October, 1906, the patient states that during seizures she is never unconscious, but knows what is taking place and feels herself coming to in half an hour. She says she never bites her tongue. Temperature on day of admission at 6 P.M.,

Fig. 3.—Tuberculous ulcers at the ileocecal valve and in the cecum.

was 99.8° F., pulse 98, respiration 20. Next morning temperature 98.9° F., pulse 80, respiration 18.

Status Præsens: Height, 5 feet. Weight, 90¼ pounds. Skin dry and scaly. A few large indolent patches resembling beginning ulcers. Many small, dark-red papules. Considerable itchiness. Lymph glands not enlarged. Left cornea shows three opacities. Counts fingers with left eye at 9 inches, distinguishes objects at 6 inches. (These distances are probably too great.) Reads with right eye at 10 to 12 inches. Pupils negative. Taste slightly impaired.

Expansion of the thorax (4.5 cm.) is slightly better on right side. No cough or pain in deep inspiration; no dyspnea. Impaired resonance over left apex. A click is heard below left clavicle during deep inspiration. Breath sounds indistinct over both lungs posteriorly but in no place absent. There is apparently hypercesthesia of left side of chest. Cardiac dullness is limited by the border of the sternum on right, by the third rib above, and is just within the midclavicular line on left. Apex beat in fifth intercostal space. Some accentuation of pulmonic second sound. In sitting posture, pulse rate is 114, small in volume, easily compressible. Spleen not enlarged. Must get up to urinate every two hours during night since seizures began. Urine negative.

Has some headache in left frontal region, but says right frontal region is more sensitive under percussion than left. Wrist jerks active, no tendo Achillis obtained at time of examination. Other reflexes negative. Dynamometer shows 35 left, 25 right hand. No paralysis; coordination normal. No tremor. Mental state good. An effort was made to dilate the pupils but they did not dilate beyond half normal excursion and both were irregular, showing adhesions (synechias). As specific disease was suspected, mercurial treatment was begun, with continued improvement. Left eye did not improve. (W. T. S.)

In January, the note states that her health is apparently quite good but always complains of not feeling well. There is no pain, only slight nausea after meals. In February, rapid mental deterioration is noted. She is frequently confined to bed for one or two days with intestinal autointoxication. Late in February, progressive mental and physical deterioration again noted. Enuresis. (S. H. P.)

March 5. The patient has steadily failed. Yesterday noon she refused food and in the afternoon was found in collapse in the day room. The pulse was regular in force and rhythm but weak and small, rate 120. Heart action good: there is systolic murmur at the apex following but not replacing the first sound. Temperature 96.4° at 4:30 P.M. Pupils equal and moderately dilated. Both sides of thorax showed impaired resonance and blowing breathing, no râles. The abdomen is retracted. Cheyne-Stokes respiration present. She did not respond to stimulation. At 7:55 her temperature was 92.1°, respiration 8. A mild attack was reported at 8:00 P.M. She died at 8:05 P.M. (G. E. R.)

An autopsy was performed March 5, at 2 P.M., eighteen hours after death. Brain: Both convexities congested. Left side negative. On right side, there is an area the size of a half dollar at the middle of the posterior central convolution and extending on to the supra marginal gyrus, which is firmer and lighter in color than the surrounding cortex and feels almost cartilaginous. (Fig. 1.) On the inner surface of the dura over this focus are two or three

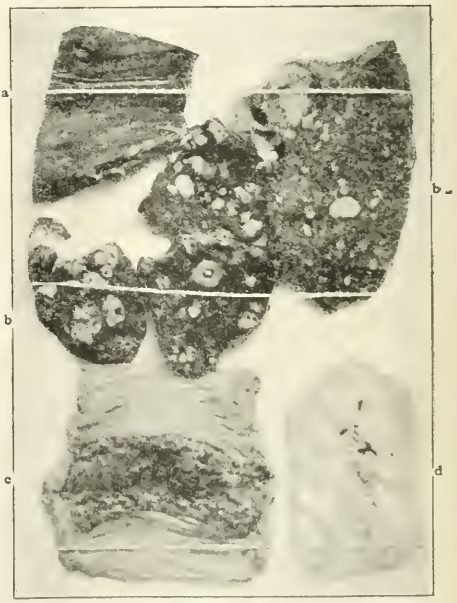

Fig. 4.—*a*, Liver showing tubercle in the left upper corner; *b*, lungs; *c*, intestinal ulcer; *d*, osteoma of the dura.

osteomata (Fig. 4, *d*). There is a focus the size of a penny at the anterior end of the middle occipital gyrus. This is similar to the above. On section through these areas (Fig. 2) they are seen to be masses of firm yellowish cheese-like material, ap-

parently beginning outside but involving the gray matter. There are in places a few blood-vessels seen on the cut surface of the larger focus. There was a small area of clot on the dura just anterior to the osteoma.

Both lungs have the appearance shown in Fig. 4, *b*, the right, however, being less involved. Some of the white areas are nodules with soft, cheesy center, while others, those with central openings, are tubes which branch (bronchi). There is emphysema. There is a cavity the size of a hen's egg on the surface of the upper lobe of the left lung. The heart contained mixed clot. The mitral valve is 3 inches in circumference and the flaps are short and irregular in thickness. Mediastinal lymph glands much enlarged and caseated. The aorta shows patches of endarteritis. Peritoneal cavity contains whitish, cloudy fluid having some fecal odor. Intestines adherent in places, especially around the ileocecal valve and lower two inches of ileum, which seems to be the site of the perforation (Fig. 3). Omentum, parietal peritoneum, spleen, and liver contain nodules of caseous matter. In the lower ileum are several ulcers about an inch in width encircling the gut, and others less advanced; the ileocecal valve and cecum also show these typical tuberculous ulcers. The anterior wall of the stomach also shows points of caseation. The peritoneal covering of the urinary bladder is studded with tubercles and its mucosa is coated with mucopurulent material. The Fallopian tubes are almost 1 cm. in diameter and filled with caseous material. Small nodules can be seen below the uterine mucosa.

The histological changes found are caseation necrosis (tuberculous). There is no sign of repair about the tubercles and giant cells are present in sections from the liver and lymph glands. In places there is hyaline change. The caseous nodules in the lung are in part simple tubercles and in part caseous degeneration of the bronchial walls.

In the above case we have an individual whose heredity is tainted with tuberculosis and who has a younger brother who is deformed and defective. The patient's personal history is likewise unfavorable. She has had typhoid fever and has suffered from nervous prostration and St. Vitus's dance. While the assigned cause for the epilepsy is the introduction into immorality above mentioned, we must consider this as a coincidence only, or at most as the last increment necessary to touch off the already unstable equilibrium of the patient. It would seem that during this experience, she contracted syphilis. The anatomical distinction between tuberculosis and syphilis is hard to make in some cases, and in this case, in view of the clinical history, we must make this differentiation. Apparently, both the gross and microscopical appearances are in favor of tuberculosis. There is no evidence of a tendency to repair, and microscopically giant cells were found in several organs. It was not possible, however, to stain the tubercle bacillus in any specimen.

From the anatomical findings, it seems as if the cause of the epilepsy lay in the focal lesions of the right cortex. This is confirmed by the observation above recorded, that the seizures begin on the left side. There were no other symptoms of cerebral tumor except for the slight nausea reported. The eye condition may or may not have been due to the focus in the occipital region. We do not know just what the condition was; the condition of the iris suggests that there had been inflammatory processes which might acount fcor the poor vision.

The frequent attacks of intestinal autointoxication are easily accounted for by the intestinal infection. This was of high grade and a perforation through one of the ulcers situated near the ileocecal valve was the cause of death, permitting the escape of fecal contents into the peritoneum. That the intoxication with the products of absorption was intense is shown by the temperature during the fatal illness.

THE HIGH-FREQUENCY METALLIC DISCHARGE.

A NEW TREATMENT; ITS POSSIBILITIES.

By FINLEY R. COOK, M.D.,

NEW YORK.

Recently we have had brief and incomplete reports from the Paris Surgical Congress, where Dr. de Keating Hart demonstrated a new treatment for the eradication of cancer. The method is described as one of fulguration, and consists in the application of electric sparks from an insulated probe, charged with a high-frequency current of considerable voltage, to a malignant growth, after which the growth is alleged to have softened and finally vanished by volatilization.

In the autumn of 1904 I began to experiment with the high-frequency current discharged from the point of an insulated wire. Very early in my experience I was led to believe that this method of application of the high-frequency current possessed considerable value as a therapeutic agent, and in its escharotic action in morbid growths differed widely from any other mode of treatment, differing radically in its action from the galvanic current.

It differs from the electrolytic action of galvanism in that it is more powerful, more rapid, and affects a much wider area of tissue; it also appears to have a peculiar selective action on morbid cells, or cells of lowered vitality, as well as a stimulating action on healthy cells. It was these peculiar features of the metallic-point high-frequency discharge which led to its employment in the treatment of epithelioma. It will be interesting to learn in just what varieties of malignancy Dr. Hart has used this form of treatment, but personally I have had no experience with this method in the treatment of deep-seated growths, and doubt very much its adaptability in any but superficial cases. In all the malignant cases in which I employed this method the same results undoubtedly could have been accomplished by the use of radium or of the *x*-ray, and in all but one of very recent date a number of *x*-ray exposures were given as a preventive measure against recurrence, making it impossible to estimate its value as a radical cure. It is not, however, the purpose of this article to consider the high-frequency current in the treatment of cancer, but simply to review in a general way various other affections in which this technique has been employed with very unique and gratifying results.

In the first place, this current has been found exceedingly useful in the reduction of morbid and hypertrophied tonsils. Its application is practically painless, causes the tonsil to shrink and undergo rapid degenerative changes, and is followed in from three to five days by complete exfoliation. In the case of soft and moderately enlarged tonsils, complete reduction is readily accomplished at one sitting. Inasmuch, however, as a reaction of more or less intensity is apt to ensue, it is preferable in aggravated cases to divide the operation into a number of sittings. This method seems to be especially adapted to the removal of tonsils in the adult, where

more or less danger from hemorrhage attends the operative procedure.

As the growing tendency to consider morbid tonsils a menace to health has resulted in an increased demand for their removal, and the electrical treatment appeals more to the majority of patients than any operative measure, it would seem that in these cases we would have a wide field for the employment of the metallic high-frequency discharge. Though I have had no personal experience in utilizing this current for removal of adenoids, I believe by some modification of technique these cases could be treated with equal success.

In certain cutaneous lesions, the high-frequency metallic discharge was found to be effective, especially so in those characterized by hyperplasia, namely, acne, acne rosacea, papilloma, moles, etc. In the treatment of simple acne, where each individual lesion receives a separate charge, it seems possible to accomplish as much in a few minutes' treatment as would require as many days or weeks by any other method. The papules shrivel, the contents of the sebaceous glands escape, and desquamation is rapid, leaving no scars. The latter fact deserves special emphasis. It is this peculiar property of the high-frequency metallic discharge which particularly recommends its employment on the face.

Very satisfying results were also obtained by using this method in the removal of scars, it being found superior to the *x*-ray treatment, which requires very strong and prolonged exposures and a tedious wait for results. The same technique was employed in two cases of suppurating sinuses from broken down tuberculous glands; one was of six months, the other of three months' duration. Likewise in these cases both its escharotic action on the remaining pathological tissue, and its highly stimulating action on the surrounding normal tissue were quite manifest. Healing resulted in a comparatively short time, and the scars were insignificant.

A number of cases of acne rosacea were submitted to this treatment, one of which, of over eleven years' standing, was in a stage of marked development; the nose was of an immense size with marked nodulations, and caused an unsightly disfigurement. The patient had been under the care of several specialists and had apparently received every treatment usually employed for this affection, including the *x*-ray, galvanic needle, and scarification. Multiple discharges were made over the entire nose, during which process large cavities containing sebaceous material were opened and shriveled, leaving a thick layer of necrosed tissue surrounded by an active area of hyperemia. Subsequently the necrosed area dried, shrank, and assumed a blackish hue. Six days later it began to loosen, and was readily removed *en masse* without any sloughing. The underlying surface was in an active, healthy condition of granulation, and new skin was already rapidly encroaching upon the denuded area. Epidermatization was complete ten days later. The result was highly gratifying, and it would seem that in these cases particularly the high-frequency metallic discharge was unique in its effects and probably the only reliable mode of treatment in severe cases.

Appreciating the peculiar escharotic properties of this current, one would naturally expect it to exert a favorable influence in the treatment of hemorrhoids. About a dozen cases were submitted to this treatment, some of which were unusually severe, and one in particular was the worst case I have ever seen. The treatment was successful in every case, and I am firmly convinced that in this current we have a positive electrical cure for both internal and external hemorrhoids. So far in my experience the results of this treatment have been as positive as those obtained by any radical operative method ordinarily employed. Inasmuch as the treatment is attended and followed by little or no pain, it would seem to appeal especially to that large army of sufferers who, for one reason or another, refuse to submit themselves to any surgical method requiring the administration of a general anesthetic. Two of the patients treated were past 70 years of age, and one, a female, was a neurasthenic.

The high-frequency current discharged through an ordinary glass vacuum electrode, the routine method for delivering the high-frequency current has been claimed by some workers in this field to exert a favorable influence in these cases. It is undoubtedly true that this discharge is capable of reducing congestion, of contracting hemorrhoidal veins, and of alleviating pain, but no minor measure, possessing only a sedative influence, can accomplish an absolute destruction of hemorrhoidal tissue. The metallic discharge produces an immediate escharization.

In the majority of cases the operation was divided into a number of treatments. In no case was it necessary to dilate the sphincter, and in sensitive subjects local applications of a 10 per cent. solution of cocaine or a hypodermic injection of sterilized water controlled the pain. For bringing down the internal hemorrhoids, suction obtained from an ordinary ear-pump operated by an electric motor was used. By reversing the valve of the pump compression was utilized for replacement. In this manner both retraction and reduction were quickly performed without manipulation, and not only accompanied by no pain, but without the patient being aware of it. In no single case did the treatment cause an hour's confinement to bed or interrupt the patient's daily routine duties. The favorable results so far obtained lead us to believe there is a still wider field for the use of the high-frequency metallic discharge.

The following are a few illustrative cases in which this therapeutic measure has been employed:

Case I.—Miss N. H., aged 55; examination, February 7, 1907; gave the following history. Stated that as far back as she could remember she had suffered from tonsillitis during the winter months. The past six years these attacks had been more frequent and more severe. The past two years she had had an irregular cough and expectoration, lost twenty pounds in weight, had irregular chills and fever and night sweats, lost all interest in work, and was about to abandon her position as a teacher. One physician had treated her for malaria, another thought she was suffering from pulmonary tuberculosis. Examination of chest negative. No enlargement of spleen. Blood examination negative. Both tonsils were moderately swollen and flabby, and multiple crypts were filled with cheesy deposits. There was chronic catarrhal pharyngitis.

Moderate high-frequency discharges were made over the surfaces of both tonsils. The application was not painful. At the end of a week (February 14) the tonsils had markedly shrunk, no morbid crypts were in evidence, the cough had subsided, and there was only slight expectoration. The patient had improved greatly in general health and had gained five pounds; she complained no more of chills and fever. Although it seemed hardly necessary, another slight treatment was given. The patient was seen again October 15. There had been

continued improvement in the general health. On exposure to wet and cold, she had contracted a mild laryngitis, but the tonsils were in a normal condition, and she has had no tonsillar trouble since her first treatment, February 7. She had gained twelve pounds.

Case II.—Master K., aged 14; examined April 2, 1907; weight, 94 pounds. Came to New York from boarding school, where he had just recovered from an attack of follicular tonsillitis. Mother stated that he was subject to sore throat, was lagging behind his class at school, was irritable, nervous, and mentally dull. Tonsils markedly enlarged, interfering with breathing. Nasal voice, a few small patches on tonsils in evidence. Naso-pharyngeal catarrh.

Both tonsils received the high-frequency metallic discharge. The lad stated that the treatment was not painful. April 4, tonsils covered with a whitish membrane. Being anxious to complete the reduction of tonsils as soon as possible, that he might return to school, I made a few more light discharges. The patient was seen again April 10. He stated that three days previously he had expectorated several masses of whitish material. Weight, 99 pounds, an increase of five pounds in eight days. He had noticed an increase of appetite, and there was a marked improvement in spirits. This patient was seen two weeks later, having returned home for a short holiday. Tonsils were remarkedly reduced in size and normal in appearance. His mother stated that she had received excellent reports of his improvement in his studies. His weight was 104 pounds, a ten-pound gain in three weeks.

Case III.—Mr. P., aged 56. Seen March 28, 1907. Stated that for many years he had suffered from sore throat. On examination tonsils were found to be swollen, and several crypts were distended with exudates. Complained of loss of appetite and chilly sensations. Treatment applied. March 29, both tonsils were covered with white patches; moderate reaction had followed the treatment. Patient was seen again April 3. Upon examination the tonsils were seen to be markedly reduced in size; the surfaces was cleared of escharotic tissue and presented a normal appearance. He spoke of a decided improvement in general health. The patient was seen again October 15 when he stated that he had had no further trouble with his throat; he had gained in weight and was enjoying better health than he had for many years.

Case IV.—Mr. L., aged 46. Examination April 10, 1907. Patient had suffered from attacks of sore throat as far back as he could remember; had always been susceptible to changes in climate, and exposure to wet or cold resulted in tonsillitis. Many of these attacks had resulted in tonsillar abscess. The past two years follicular tonsillitis occurred more frequently; the past two months his throat had given him constant trouble. Complained of a loss of appetite and general malaise. Both tonsils were enlarged and congested: the crypts were hypertrophied, containing mucous plugs and inspissated exudates. The right tonsil received several discharges. Two days later it was found covered with a thick white necrosed layer of tissue. Slight reaction followed treatment. April 15 the tonsil was clear. The left tonsil was now treated in a similar manner. The tonsil cleared four days later. Patient stated that he had never felt better. The tonsillar stumps remaining were such as usually result from tonsillotomy. This patient was heard from October 15; he had gained in weight, and his general health was excellent. Had had no trouble with throat since treatment.

Case V.—Miss K., aged 26. Examination, December 4, 1906. The past six years or more patient had had an extensive eruption on her face. During the greater part of this period she had been under the care of the family physician at various times. Although the condition had improved from time to time she had never been entirely free from an embarrassing disfigurement. Many small papules, pustules, comedos, and pits covered the face, including forehead and chin. Diagnosis, acne.

Albolene was applied, electric massage, numerous comedos expressed, alcohol applied abundantly; several individual papules received high-frequency discharge. Under treatment these papules shriveled, leaving crusts of devitalized epithelial cells. The treatment being moderately painful, the following change was made in the technique. An ordinary glass high-frequency electrode was held in the left hand of the operator, his body charged first with the high-frequency current of 5 amperes; the right hand, holding the insulated metallic electrode, was applied to the face, and quick and intermittent discharges made by placing a finger on and off the proximal end of the metallic conductor, while the fine distal end rested against the face. One week later, desquamation was nearly complete, leaving no marks of treatment. The same method was adopted at each visit once a week until the entire face had been treated. Four weeks after the first treatment the face was absolutely free from any eruption, and has remained so up to the present time. Moderate exposures to the *x*-ray were subsequently given to stimulate the sluggish sebaceous glands and to act as a preventive measure.

Case VI.—Mrs. X., aged 50. Examination, October 1, 1906. For the past ten years the patient had suffered from acne rosacea. She stated that she had been under the care of many physicians, two of whom were specialists. One of the latter told her she never could be cured and that she must never allow anyone to treat her with the needle, as the resulting scars would make matters worse. She was assured that the treatment about to be applied would leave no scars, although a needle-point would be employed. The nose was enlarged and of a bright-reddish hue and nodular about the tip. Dilated blood-vessels covered the cheeks and sides of the nose. Because the application was somewhat painful and the patient very nervous, it was decided to treat only a small area at each sitting. The treatment was applied every other day, and continued for two months. After each sitting the area contracted and dried, leaving small crusts. A few days later the crusts would loosen, and were then removed. She returned to her home in the South with her nose and face absolutely cured. The patient was seen again September 13, 1907, and has had no return of the trouble. She spoke again of the feeling of mortification which she had so long endured, not only in the presence of strangers but in the presence of her own family. She said her gratitude was more than she could express.

Case VII.—Mr. S., aged 30. Diagnosis, acne rosacea. This patient stated that he had been afflicted for seven years with an increasing enlargement and deformity of the nose. Married, had a family of three children to support. He was employed as a waiter in one of the leading New York hotels, and was given a leave of absence by the proprietor, who told him he could not return to his position until he was cured. He had been in many hands, among them two noted specialists, and had lost all hope of being cured. The nose was of an immense size, nodular, covered with pustules, red,

and inflamed. The same treatment was applied as in the previous case and in a similar manner, with the same result. The treatment covered a period of ten weeks, after which he resumed his position.

Case VIII.—Mrs. N., seen September 5, 1906, presented a mole on her right cheek of long growth and of unusual size; the presence of coarse, black hairs made it very conspicuous.

A 2 per cent. solution of cocaine was used hypodermatically, after which the high-frequency discharge was applied until the entire growth was shriveled to the level of the surrounding skin. On the following day there was slight redness with swelling around the seat of application. This patient was not seen again until October 10, 1907; at this time no scar was visible except upon minute examination, when a small, white spot was seen to be the only trace of the former disfiguring lesion.

Case IX.—Mrs. W., aged 56. Was seen October 3, 1906. For the past seventeen years she had been afflicted with painful and bloody stools. At times the pain was most excruciating, and during this period she had also suffered from obstinate constipation, requiring the daily use of cathartics. For many years she had suffered with headaches and nervousness. She had tried all manner of local applications, which gave but temporary relief. She had a morbid fear of undergoing an operation. There were three external hemorrhoids of moderate size, swollen, inflamed, and exceedingly painful to the touch. There were also four or more internal hemorrhoids, varying in size from that of a marble to that of a hickory nut; they were inflamed, as was also the surrounding mucous membrane.

These were exposed by means of suction obtained from an air pump operated by an electric motor. At the first treatment the high-frequency metallic discharge was applied to the external hemorrhoids under local anesthesia. During the discharge they dried up and contracted. One week later healing was nearly complete. The internal hemorrhoids were attacked one at a time to minimize the pain and reaction which might follow. Five days intervened between treatments, and at the end of a month the patient was completely cured. She had suffered but trivial pain and had gone about during the entire time. The patient was seen again in October, 1907. She had gained in weight and general health and no longer suffered from constipation.

Case X.—Mr. T., aged 72. Seen July 16, 1906. The patient stated that he had suffered from hemorrhoids at intervals as far back as he could remember. He had a strong prejudice against an operation. Bleeding had always been the dominant symptom, and there had been times when he had lost large quantities of blood. There was an internal hemorrhoid about the size of a walnut, indurated and inflamed; there was also moderate prolapse of the mucous membrane.

Employing no local anesthetic, it was thought preferable to make as mild discharges as possible with the high-frequency current at each sitting. There were four treatments at intervals of five days. At the end of three weeks a radical cure was effected. This patient was seen again in September, 1907, and stated that he had had no recurrence of his former trouble. This elderly patient, although quite feeble, came from a long distance to the city for each treatment, and at no time after any treatment had he suffered as much as he usually did at periods of exacerbations.

Case XI.—Mr. L., aged 70. Seen February 9, 1907. This patient stated that his rectal trouble dated as far back as the Civil War. For the past two years or more his symptoms had become much more severe. He complained of pain in the back, very profuse rectal hemorrhages, prolapse of the rectum, and an enlarged inflamed tumor. For the past six months he had lost considerable weight and strength, and his suffering had been so great that he was about to give up business, although he was a remarkably well-preserved man for his years. During the latter period the prolapse was almost constant, and he was repeatedly making ineffectual efforts to replace the swelling; in fact, the prolapse had become practically constant. His hemorrhages became more profuse, and at times actually saturated his clothing. Notwithstanding his critical condition, he was positively determined not to undergo any surgical operation. He presented a swelling somewhat larger than a walnut indurated, inflamed, and ulcerated. The rectal mucous membrane was relaxed, inflamed, and showed evidence of a prolapse of long duration. There were several bleeding points in the area of ulceration.

The high-frequency metallic discharge was applied at each treatment, given once a week for twelve weeks in succession. The tumor was reduced in size at each sitting, and at the end of this time there was absolutely no trace of the hemorrhoidal tumor. No local anesthetic was employed, although the applications were moderately painful. He complained of no reaction after treatment, but, on the other hand, felt better. During this time the patient continued uninterruptedly with his regular employment.

So far in my experience it has not been deemed advisable to attempt a radical cure of severe cases in one treatment. I believe, however, that it could be accomplished in all cases.

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FIBROID TUMORS OF THE UTERUS AND THEIR TREATMENT.*

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We are all aware that the specific cause of fibroid tumors of the uterus is still obscure, although many seeming causes have been brought to light. To the writer the most plausible cause, the one which keeps most prominent in his mind, and the one upon which he bases his method of treatment, is that of irritation or inflammation. Edmond B. Wilson says that "cytologists are laboriously endeavoring to ascertain in what measure the chromosomes are qualitatively different, in respect to the process of growth and differentiation. If such qualitative differences are definitely proved to exist, a new and great field will be opened in cellular physiology and pathology. . . . . Already attempts have been made to bring the facts of tumor formation and the like into relation with disturbances in the chromosome groups."

He further says, "it should not be forgotten that in nuclei which show little or no visible differentiation of the chromosomes, profound changes *might* take place without giving visible sign of their presence. Such changes might be immediately induced by any one of many conceivable causes, by parasites, perverted form of metabolism, the presence of a specific form of toxins, and so on, and having once arisen might persist for an indefinite number of cell

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generations, long after the initial exciting cause had passed away."

It is claimed by the most competent authorities, whose names are too numerous to mention, that the fibromyomata of the uterus contain essentially the same cell elements as the uterus itself, namely muscular tissue and fibrous tissue. The quantity of each tissue is quite variable, in some fibromyomata the muscular, and in some others the fibrous element predominates. This led some of the older surgeons like Tait to classify these tumors according to the predominant tissue of which they are composed, but it does not matter at this time which cell in these tumors outnumbers the other.

The essential point for us to know and consider is that the cell tissue in the fibroid tumor is like that which is found in the organ from which it springs. Now, if these facts, which are authenticated by every writer on fibroids, are kept before our minds, we shall have the premises whereby we can form a theory of the cause of these tumors that will be of as great assistance in the treatment of them as Erlich's "side-chain" theory of immunity has been in developing the serum treatment of bacterial infections.

The cells of the uterus have special power to reproduce themselves in response to a special stimulus; this stimulus is a physiological one, pregnancy.

We must bear in mind that the cells of the uterus, as all cells of the body, are endowed with life, and that they have a physiology and a chemistry which, if disturbed by some new environment, may bring about great changes in the cell function.

If the conditions for cell activity are normal, such as nutrition, nerve stimulation, etc., then we have a normal functioning uterus; but if the environment is changed we must expect an excessive function of some of the cells, while others are dormant, producing possibly an asymmetrical uterus.

A knowledge of the experiments of Burke and Loeb must cause the thinking physician to pause and seriously consider the effects of cell irritation, as he studies the histological and pathological conditions of a fibroid tumor. Burke's sterilized bouillon responds to the quickening influences of radium, and Loeb's unimpregnated ovum, when subjected to the irritating influence of cyanide of potassium, assumes the first stages of growth as in the normally impregnated ovum. If these experiments of Burke and Loeb are true, why are we not justified in believing that the normal cell of the uterus is influenced to reproduce itself under the stress of a continuous irritation? This is practically the Theory of Veit, Cohnheim-Ribbert in regard to the origin of myomata of the uterus. The etiology of fibroid tumors is in a large measure undetermined, yet there are many obvious causes that may be grouped as (1) mechanical and (2) infectious; under the first, mechanical, we have congenital and acquired causes.

Congenital causes would embrace the embryonic inclusion theory of Durante, as well as congenital deformities, such as anteflexion, constriction at the os uteri, undeveloped uterus, etc.

Acquired mechanical causes include displacement from weakened ligaments, lacerations of the cervix uteri, with a large amount of cicatrical tissue, a partially occluded cervical canal as a result of faulty trachelorrhaphy where the scar tissue was not fully removed, and spasm at the internal os due to a hyperesthesia of the mucous membrane at this point.

The enumerated mechanical causes of fibroid tumors operate by obstructing the free flow of the natural secretion of the endometrium from the uterus, thus causing an irritation and stimulation of the structures of the uterus that cannot be unlike the normal stimulus to these structures by pregnancy. It is well known that the sinuses of the head must have good drainage or an infection will sooner or later occur. This is true of that uterine cavity which retains its products of membrane secretion. This secretion is a natural medium for infection, after which it becomes a chronic cell irritant. Howell says "irritability is that property of living matter by virtue of which external influences are responded to by changes within the cell. The changes may, in turn, induce secondary phenomena." Cell irritation is, I think, the real cause of fibroid tumors.

Prolific causes of uterine fibroids are the infections that are introduced from without; therefore they are preventable. I may mention gonorrhea as one source of infection. I am sorry that I have no tabulated statistics on the results of gonorrhea in women as a cause of fibroid tumors, but will say that my observation has been in practice that quite a percentage of women who have been afflicted with uterine fibroids have the characteristic marks denoting that once they had been victims of gonorrheal infection. I have observed that it is possible to locate foci of inflammation somewhere in the genital tract of all women who have ever suffered from this disease, and this is the reason why I believe that gonorrheal infection is a cause of uterine fibroids. Gonorrheal infection has a degenerating influence upon uterine tissues.

Infection during miscarriages, whether due to instrumental interference or to other causes, is a source of constant uterine irritation. I have seen a few cases of uterine fibroids that I thought were due to an infection following curettage. One case in particular, the patient was thirty-eight years old, who had a curettage and in about two years developed a small fibroid. There had been ever since the operation a subacute endometritis.

Fibroids are said to occur more frequently in the unmarried and sterile than in the child-bearing women. This can be accounted for when we are reminded that the reproductive organs in these women have no rest (from puberty to the menopause) from menstruation, which is accompanied by an extra amount of blood to the uterus every twenty-eight days. The uterus of the child-bearing woman has a rest from menstruative congestion for eighteen months, and sometimes longer, with each child.

The *diagnosis* of a fibroid tumor of the uterus is made with comparative ease. Usually when the patient consults the physician the tumor is of such proportions that to determine it from other pelvic tumors is only a matter of a few minutes' time.

The tumor is always a part of the uterus. Introduce the uterine sound into the uterine cavity, and then, by the aid of bimanual examination, it will be readily ascertained whether the tumor is a part of the uterus or not.

A careful study of the history of the case will reveal its benign or malignant nature. It is with some difficulty that a differential diagnosis is made between a large edematous retroflexed uterus and a small fibroid tumor of the fundus of a retroverted uterus.

In the case of an edematous uterus, on digital examination it is possible to indent or pit the uterus on pressure, whereas in the fibroid uterus it is not possible to indent the enlargement.

Treatment will also clear up this point. When the retroflexed uterus is restored to its proper place, if the enlargement is due to edema it will soon subside, while if due to a tumor it will remain the same.

If the diagnosis is not easily determined the patient should be examined under an anesthetic.

It is agreed that all fibroid tumors of the uterus develop from the muscular coat and grow, either towards the peritoneum or the uterine cavity, or out into the pelvic tissues. If the tumor is wholly confined within the muscular wall of the uterus it is called an interstitial or intramural fibroid. This tumor is usually accompanied by hypertrophy of the uterine walls. When the tumor is beneath the peritoneum it is called subperitoneal. When it projects into the uterine cavity it is called a submucous fibroid. If tumors are found in the broad ligaments they are called intraligamentous.

The *treatment* of fibroid tumors should be (1) prophylactic, (2) surgical, (3) medical, (*a*) constitutional, and (*b*) local.

Prophylactic treatment of uterine fibroids should be, in part, educational, while the girl is yet a child. The best of hygienic surroundings and a sensible mode of dress should be adopted. The girl up to puberty should be allowed to live the free and easy life that is accorded to her brother of the same age, with romping, horseback riding, outdoor games, fishing, etc. The girl should wear garments that will not restrain the freedom of muscular movement. She should wear low-heeled shoes, so her poise can be maintained without tax to the nervous system. If obedience to such hygienic rules is insisted upon for the little girl, it will favor a normal development of the generative organs, with less tendency to the development of uterine fibroids. The girl, as she approaches puberty, should be informed of the evil consequences of illicit sexual intercourse. She should be informed that gonorrhea and syphilis not only cause sterility, but also by their irritation cause a chronic hypertrophy of the muscle of the uterus, which sometimes terminates in a uterine fibroid.

I am satisfied that dysmenorrhea at puberty is a symptom that should engage the serious attention of the physician and a symptom whose cause should not go untreated. Of my last fifty cases of fibroid tumors, forty-nine women gave a distinct history of having had pain at the first menstruation. The other patient gave a history of having a miscarriage followed by infection. Many of these cases, no doubt, could have been averted if the cause of the dysmenorrhea had been removed at puberty.

A constant irritation, acting chronically, as the symptom dysmenorrhea indicates, is a menace to any woman, and I believe a direct indicator that some day a fibroid tumor will develop. Therefore, the physician who does not impart this information to a patient who suffers from dysmenorrhea at puberty sadly neglects his duty to that patient. The discussion of this question alone could profitably engage our attention during the whole of this session. I appeal to my fellow-workers to give this subject, dysmenorrhea at puberty, and its relation to uterine fibroids, their serious, earnest thought.

Surgical Treatment.—Should all fibroid tumors be treated by removal, as might be advocated by Noble of Philadelphia, Kelly of Baltimore, and others, who are equally efficient in operative technique? I am free to say that many times tumors might better be removed if patients could always be in the hands of such expert operators, for it would shorten their period of invalidism, with but a slight death risk. Noble says if the operation is done early the mortality is reduced from 5 per cent. to 1 per cent.

In view of this death rate, conceded by Noble, which increases in less expeditious and skilled hands, I would say that there are many cases of fibroid tumors of the uterus that should not be removed by the knife, because they are amenable to constitutional and local treatment. Noble argues for an early operation when the tumors are small and are not pressing on neighboring organs, before the patient becomes anemic, and possibly a malignant degeneration has taken place. Noble wishes to operate early, because of the great tendency that fibroid tumors have toward malignant degeneration and other complications, such as twisted pedicle, cystic degeneration, etc., which complicate about two-thirds of all cases of fibroid tumors.

The constitutional and local treatment of fibroid tumors should begin at the time or before that at which Noble regards the operative treatment on debatable ground, namely, when the fibroid tumor is subperitoneal. If patients suffering from fibroid tumors could reach the physician in the very early stages of the tumor's development, it would be fair to say nearly 100 per cent. could be cured by constitutional and local treatment. During my experience I have not as yet a failure to report when the patient was seen early in the progress of the tumor's development.

The symptom above every other symptom that should lead a physician to explore the pelvic organs with the view of finding an abnormality of the uterus, and to detect a tumor in its earliest stages is *dysmenorrhea.*

Who has not examined the pelvic organs of women and found retroverted uteri, enlarged and edematous, with an uneven surface of the fundus, and perhaps in a few years has examined the same patients again and found that well defined fibroid tumors have developed? This must be a common occurrence with all of us if we are observant. At this stage of the tumor's development is when the physician can do the greatest good in treating fibroid tumors without the knife.

I should give these rules for operating: (1) If the patient has neither time nor means to take the knifeless method; (2) if there is severe hemorrhage or sign of cystic or malignant degeneration; (3) if the patient has the tumor cachexia with complications; (4) if the tumor continues to grow, after a few months' knifeless treatment; (5) if the tumor is submucous.

The knifeless treatment is based upon the supposition that all uterine fibroids are due to a chronic irritation, which is a result of an influence which is chemical, and that favors an overnutrition of a special group of uterine cells. These uterine cells multiply as they would if normally stimulated by pregnancy until they become an aggregation of cells which keep up the irritation by their changed physiological and chemical action.

It is for the gynecologists to imitate nature in instituting a treatment that will be effectual in the cure of this trouble. We all know that at the menopause many uterine tumors disappear. This is due, no doubt, to the change in the blood supply, with a more favorable condition for absorption by the lymphatics.

We must consider that the uterus is an organ of a peculiarly large blood supply. "It is supplied by four arteries which divide and subdivide until that portion of the womb which is not made up of muscle tissue and nerves is composed of a highly complex and finely divided blood supply." (Griffith.)

The blood supply of these organs is affected by the mind, and this should be taken into consideration as we treat the patient constitutionally. Remedies that quiet the nervous system are beneficial, such as asafetida, valerian, etc. These remedies, combined with fluid extract of hydrastis, are the ones upon

which I rely. The hydrastis should be given for a long time, in small doses (10 minims) before meals. Hydrastis is, as you know, a stomachic, aiding digestion and assimilation, in this way building up the body resistance through a more perfect metabolism. I believe that some day a serum which will be effectual in the treatment of tumors will be discovered, and will be more reliable than that now used in the treatment of exophthalmic goiter.

By local treatment we should try to establish good drainage. Women who have uterine fibroids usually have a characteristic smelling leucorrhea, and many of them will complain of having a disagreeable odor about them.

If the uterus is retroverted or retroflexed it should be placed in its proper position and sustained there with proper support, and all causes, as far as possible, of irritation or passive congestion should be removed. Uterine douches as a daily routine should be prohibited. I am not so sure but that the uterine douche is the cause of many of the ills peculiar to women.

I have no specific remedy to offer, to be used locally, but the one I have mostly relied upon is picric acid in glycerine, 3 grains to the dram. Two or three drams of this is placed in the vagina, twice weekly. I also use ichthyol and glycerine, boroglyceride and pure glycerin. Sometimes it is well to alternate with these remedies. The cotton tampon should be placed at each treatment and the patient instructed to remove it the following morning, but not take a douche. The tampon acts as a brush to thoroughly distribute the remedy over the neck of the uterus and walls of the vagina, which will remain until the next treatment. This treatment should be persisted in for one, two, or three years. Persistence is the price of the reward in these cases.

You might ask, What do you expect your local remedies to accomplish.

First, they deplete the tissues of serum, diminishing capillary pressure, which favors a normal cell function and also favors a normal function of the lymphatics.

Second, I am persuaded that a small amount of the drug works into the uterine canal by the ascending mucous currents, as described by Bond, of England. If this is so, and I have no reason to doubt it, the inflammatory foci of the endometrium are disinfected, become gradually removed, and the function of the uterine tissue is restored to its normal state.

My paper is based upon my last fifty cases of fibroid tumors treated in private practice.

Of the fifty, forty-nine complained of dysmenorrhea at puberty. Three were operated on by an able surgeon, with two deaths. One has been advised to have the tumor removed, but refuses to be operated upon; her general condition is improving under treatment. Twelve others are still taking treatment. The remaining thirty-three were fully cured, or so much relieved that they discharged themselves.

It was Sir Charles Dilke, we believe, who once called the banana the curse of the tropics, and held that where it abounded human progress and ambition disappeared. In a measure, the knife applied to fibroid tumors of the uterus is the curse of the physician, because it is easier to remove the growth than to study its cause, which may be removed before the tumor develops into a formidable affair.

In conclusion, I wish to say, any physician or surgeon who wholly disregards the elements of irritation in the cause of tumors will utterly fail; but he who bears this in mind, and assists the uterine cells to a normal functioning activity, will not wonder why some one else does succeed, but will himself succeed in the removal of the cause, and in the treatment of uterine fibroids without the knife.

THE IDENTITY OF VISUAL AND COLOR SENSATIONS.

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Every form of matter when sufficiently heated has the property of emitting rays of light. "Heat," says Locke, "is a very brisk agitation of the insensible parts of the object which produces in us the sensation we call heat and dominates the object hot, so what in our sensation is heat, in the object is nothing but motion." No body in nature is absolutely cold and every body not absolutely cold emits rays of heat, due to the molecular motion or vibration of the atoms throughout its entire structure. Thrust a piece of iron into the fire and as it begins to warm its atoms begin to vibrate through wider ranges. The old vibrations are intensified and new and more rapid ones generated. As the augmentation increases a faint glow appears and finally it becomes white hot. The molecular motion has increased to such a degree as to cause an undulation visible to the eye. If heat is motion and increased motion develops light, it is obvious that light is likewise a form of motion. This molecular vibration is a mode of motion exerted by all natural forces when in action. Sound, heat, and light are all produced by it. It is the motion of the atoms of which the objects emitting light or heat are composed, that is conveyed by some medium but not by any sensible part of the bodies themselves. It is the cause of that which our sensations designate as heat, light, or sound.

We are indebted for our knowledge of light, in a large measure to our knowledge of sound, our conceptions of one being defined by the conceptions of the other. It was only by our knowledge of waves of sound that we suspected the existence of waves of light. And while sound and light are apparently so widely different in their effects, they have many things in common. They may be even more closely associated than we have yet conceived. There are some individuals in whom certain sounds give rise to certain definite sensations of color.

We may compare them in another way. The pitch of a note depends upon the number of vibrations per second, or, in other words, upon the length of its waves. Pitch corresponds in a way to color. At one end of the spectrum we have the color red, at the other extreme violet, with all the prismatic colors intervening. Beginning at red, the pitch of light increases, the sensation of blue, indigo, and violet resulting from more rapid vibrations than red or orange.

Sound is conveyed by the undulations of the air. Where there is no air there is no sound. There is no sound from a bell in a vacuum. Exhaust the air from a glass globe so that it is reduced to an hundred thousandth of its density and the transmission of light through it is not appreciably affected. Hence it must have some medium other than air for its transmission. An ancient theory of light held it to be something emanating from the eye, not something from without entering it, and it was only by assuming the existence of some medium other than air that the undulatory theory became tenable.

These vibrations, generated by a luminous body, are conveyed to the eye by a hypothetical medium

that we call luminiferous ether. It is supposed to fill all interstellar space, however vast, as well as all interatomic space, however dense. This ether, then, pervading all space, transmits each wave of light through it. It is not disturbed by wind or water or by any other force but light. We have never seen it, yet we know that it is a substance of some kind and has elasticity and density, or it could not transmit light and radiant heat at the enormous velocities it does. It must be homogeneous and continuous, that is, free from structure of any kind. The nearest analogy to it is a jelly, although it is, of course, infinitely less material. By passing a ray of light through a prism, we break it up into its constitutent parts or decompose it, forming a spectrum. Light in passing from a rarer to a denser medium, as from air to glass, is, unless it strike the medium at right angles, bent in its course. The velocity of light in glass is less than in air; it is, so to speak, compressed. If it strikes the glass at an angle and is bent from its straight course, if the surfaces of this glass are not parallel, as in a prism, a specturm is formed. The more waves in a given distance, the greater will be the angle; or, in other words, the greater the refraction. A red ray has about 39,000 waves to the inch, a violet about 57,000, hence the violet is refracted the most and the red the least. This difference in refraction is due to the difference in wave lengths of the different colors. Each color of the spectrum, then, must have a definite number of vibrations or wave lengths. Though we have never seen these waves of light, their length has been definitely ascertained. The number of vibrations, per second, necessary to produce the different colors are as follows: Violet, 699,000,000,000,000; indigo, 658,000,000,000,000; blue, 622,000,000,000,000; green, 577,000,000,000,000; yellow, 535,000,000,000,000; orange, 506,000,000,000,000; red, 477,000,000,000,000.

To complete the proof that white light is the sum total of all the colors, we can recombine the constituents so as to form a white light, either by reversing the process of decomposition and sending the colors of the spectrum through a prism, when they will recombine and form a white light, or if instead of one prism we use two. In this case, the first will form the spectrum and the second reunite them. Another way to prove this is to take a circular disk and color the sectors or spaces from the center to the circumference with the colors of the spectrum in the proper proportion and place. Rotate this disk rapidly and it will appear white; owing to the rapid motion, the colors will blend and the impression of a white color is due to their joint effect. Red, green, and violet combined in certain proportions will produce white, therefore all possible colors may be made from these three colors, and hence they are the primary or fundamental colors, and the ultimate spectrum may consist of three instead of seven colors. Light falling on any surface is either reflected, refracted, or absorbed. There is no color generated by a natural body whatever. We see all non-luminous bodies by reflected light. When the white light of the sun strikes an object, there is thrown upon it the sum total of all colors of the spectrum. Some of these colors are absorbed and some reflected. Those that are not absorbed determine the color of the object. If a ray of light fall upon a black surface, all the colors are absorbed and there is no color, for black is an absence of all color. If the same ray fall upon a blue surface, all the colors but blue are absorbed and we have the sensation of blue and call the object blue. In other words, the portion of light that is rejected determines the color of the object.

That the vibration of light brings about some change in the retina and is thence conveyed to the brain, whereby the form of an object is made apparent, is accepted without question, but as to the perception of color, there are several theories. At one time the discovery of visual purple, as it is called, a highly sensitive substance diffused throughout the outer segments of the rods, bade fair to explain the phenomenon. The fact that it is wanting in the cones and especially at the fovea, proved that it was not essential to distinct vision. It disappears when the eye is exposed to light, but is restored by darkness, so that while it is undoubtedly of some use in the visual process, just what part it plays has not been determined. We know that the percipient part of the eye is the retina, that the optic nerve fibers are insensible to light, that, however perfect the retina may be, if this medium of communication be cut off there is no vision and if there be disease at the central organ there is likewise blindness. So all three of these organs are necessary to vision.

At the present time it is practically assumed that we have two kinds of vision, one for form and another for color. In accounting for the perception of color there are many ingenious theories.

In 1807 Thomas Young propounded the theory that the retina contains three sets of color perceiving elements, red, green, and violet, all other colors resulting from a mixture of these fundamental elements. Helmholtz supposed that every kind of white light excited these three elements with varying degrees of intensity. This is the Young-Helmholtz theory. It assumes the existence of fundamental color sensations and the existence of three end organs and conducting fibers. These end organs each contain their own photochemical substance, capable of being decomposed by a certain color. Each one of these ends sets into action all kinds of light, but with varying degrees of intensity. Some are stimulated more strongly by red rays, less so by green, and least by violet. They are designated as the ends for the perception of red. Each kind of light affects all three groups, but with less intensity. The red ray excites most strongly the ends for the perception of red, and we get a red sensation, because the degree of excitation for the perception of red exceeds that of other colors. A green ray excites the ends for the perception of green more strongly than for the other two kinds and gives the sensation of green. A violet stimulates the ends for the perception of violet more strongly than for red or green, and we have the sensation of violet. Orange excites strongly the ends for red and less so those for green, with a resulting sensation of orange. When the ends sensitive to red, green, and violet are stimulated simultaneously and to the same degree, the resulting sensation is white. All these end organs are present in the most sensitive part of the retina and each has separate nerve fibers connecting them with the cells in the special part of the brain where each produces the distinct sensation of its particular color.

Hering's theory starts from an analysis of the sensations which we have in looking at a color. All but four pure colors excite a mixed sensation. In orange we see a certain amount of red; one shade of yellow has a tinge of green. Among all the

various shades we can distinguish a distinctive shade or tint of some color that excites in us a simple mixed sensation. Of all the shades of yellow there is one in which no other color save yellow is perceptible. There are but three colors, except yellow, that excite in us a simple unmixed sensation, pure red, pure green, and pure blue. They are called the primary colors and form two pairs—red and green and yellow and blue. They are contrary to each other, as they can never be seen at the same time in the same color. If the two colors of a pair are present in the same part of the retina at the same time, the color sensation perceived is of that color which is in excess, never both. We can perceive a blue which affords simultaneously the impression of some red or green, but never yellow. If they are blended in certain proportions so that they neutralize each other, the sensation is white or gray.

Each color may occur in different degrees of intensity, depending on the fact that every color produces, besides its own color, also the sensation of white. That is to say, colors in addition to their own valence, have also a white valence and the brilliancy of the color depends upon the mutual relation of these two valences. The primary colors have but one valence with the white valence, but the mixed colors possess two. There are visual substances in the retina at the terminations of the nerve fibers, the action of light upon which produces chemical changes. The visual substances are of three kinds, the white black, the red green, and the blue yellow. The white valence which all possess depends upon the dissimilation which they exert upon the visual substance for the perception of black and white. Assimilation of this substance, in the absence of light, produces darkness. The red green and the blue yellow are not altered by every kind of light, but only by that kind that has a corresponding color valence. Pure red would only dissimilate red green substance; pure green would cause its assimilation. If pure red and pure green fall upon the same spot on the retina at the same time, it depends upon the proportion between the two whether decomposition or regeneration takes place, and the sensation may be either red or green, but never both. If assimilation and dissimilation are simultaneous in the same substance, they antagonize each other and there is no color sensation, only that of white, because of the decomposition of both colors in the white black substance.

Oliver's theory is as follows: "The peripheral portion of the human visual apparatus is adapted to the receipt of undulations equivalent to those existent between the extremes of naural color vibrations. As all natural imponderable stimuli are the resultant of a mere difference in the number of vibrations of one and the same ether, the organs for the receipt of the different varieties must be but analogues and modifications of each other. Therefore the most rational theory that can be brought forward is that color perception takes place in each and every nerve filament, and consists in the passive separation of a specific nerve energy equal to the exposed natural color, from a supposed energy-equivalent resident in the nerve tip, by an active chemico-vital process of the impinging natural vibration upon the sensitized optic nerve tip; the separated energy being transmitted to the color center, where it is recognized, the healthy nerve tip returning to its energy-equivalent the moment the specific energy, separated by the received natural vibration has been forwarded for recognition, when it is again ready to receive any other natural color vibration that may be cast upon it."

Preyer believes that the color sense is due to an extremely refined sense of temperature. The spectrum is divided into a warm and a cold half, opposed to each other. The colors with the longer waves furnish the warm colors, while the shorter furnish the cold ones. This sense of temperature is present only at the most sensitive terminations of the nerves. Color sensations vary only in quality and intensity, the quality depending on the rapidity of vibrations and intensity upon the degree of stimulation. At the termination of each optic nerve fiber are two cones, one excited by cold and the other by warm colors. The ganglion cells of the retina receive these excitations and transmit to the brain either one or the other, never both at the same time. The cones are so arranged that the warm cones, sensitive to red and yellow, are at equal distances from each other and from the cold cones, sensitive to green and blue. Thus all color excitations are present even in the smallest retinal image. There must be simultaneous excitations of the two pairs of cones for any color perception. The increasing excitation of any color results in white and the decreasing in black. If red and green are excited equally, neither produces any effect upon the brain.

Muller held all visual sensations to be based on six chemical processes of the retina corresponding to the sensations of white, black, red, green, yellow, and blue.

Carpentair distinguishes three functions of the retina, luminous sensibility, chromatic sensibility, and visual sensibility, while Paunard concluded that the retinal elements involved in distinct vision are the same as those involved in color perception. Carpentair denied this, but pointed out that luminous sensations of very small dimensions, although corresponding to a retinal field smaller than the rod itself, are recognized in their proper colors, and concludes therefrom that the same rod must be capable of transmitting different colors.

At the fovea centralis, or point of most distinct vision in the retina, the two external layers of the retina, the outer nuclear layer and the layer of rods and cones are practically the only layers present, and it is known beyond all doubt that the essential percipient elements of the retina are in these two layers. Probably one is as necessary as the other, and their interdependence makes them both necessary for the function of seeing, although the layer of rods and cones has been assumed to be the only layer concerned in the light perceiving process. However this may be, a ray of light on entering the eye passes through the outer molecular layer before it impinges on the rods and cones; whether it affects them or not is a matter of conjecture.

The outer nuclear layer is so called because of the characteristic elements it contains, the nuclei or nucleated cells, sometimes called granules. These are of two varieties, differing in size, the larger being from 9 μ to 13 μ in length and the smaller from 4 μ to 9 μ. They are known respectively as the rod or cone granules according as they are connected with a rod or a cone. They are enlargements or varicosities of the delicate filaments which extend uninterruptedly through the whole layer, these fibers being modified nerve fibers and directly or indirectly a continuation of those derived from the optic nerve. The rod granules contain an elliptical

nucleus, and are composed of a strongly refracting substance. The cone granules are distinguished by a somewhat pear-shaped enlargement and by their closer relation to the rod and cone layer. They are essentially molecular in structure, as are the rods and cones. According to the theory of luminiferous ether, these granules and rods and cones, however minute they may be, contain this ether and their molecules are vibrating like those of larger bodies, the rate varying according as some external force or stimulus is applied. Sound waves and light waves may be compared for the purpose of illustration. A tuning-fork is struck sharply against the table and its prongs are set to vibrating. A sound is heard. Each to and fro movement forms in the air waves or undulations which rush forth in all directions. Some of them strike upon the tympanum of the ear and produce synchronous vibrations which, stimulating the auditory nerves, are transmitted to the central organ and there interpreted as sounds. In a similar way, a luminous body gives off rays of light. In place of a blow to create the undulations, as with sound, we apply heat, which increases the molecular vibration to a point when the body glows; these rays then, speeding at the enormous velocity of 186,000 feet per second, enter the eye, and by the intricate mechanism of that organ are accurately focused on the retina. Here a somewhat similar process takes place to that in the ear. The molecules of the constituent elements of these two layers are already in a state of vibration, but their amplitudes are not sufficient to create in the brain the sensation of light. Their molecular motion is similar to that in any body before it is heated sufficiently to emit perceptible rays of light. By the stimulation of the ray of light these molecules are immediately set into an increasing vibration until they are in unison with the entering wave of light. If the ray be red, the rate of vibration will be less than that of violet, but whatever the color, the molecules of the cones, rods, or granules will be in unison with it, and this vibration acting as a further stimulus, creates a nervous energy that, transmitted to the visual centers in the brain, is there properly interpreted as red or violet or whatever color the original cause of the vibration may have been. Each cone, rod, or granule vibrates to but one color at a time but is capable of so doing to any color, just as the nerves of the fingers can tell us whether an object is hot or cold but not giving a hot and cold sensation at the same time.

That this molecular motion can be imparted at a distance is easily proved by the action of the sun's heat. By means of a lens, the rays of the sun, distant 90,000,000 of miles, can be concentrated and sufficient heat produced to make a metal glow. This is not the result of conduction or convection, but radiation. In other words, the undulations of the rays of light from the sun produce a synchronous vibration in the metal. These percipient elements of the retina are of so peculiarly sensitive structure that they are almost immediately affected. Yet there may be an almost inappreciable length of time necessary for them to attain this perfect harmony, and it may require this same inappreciable time for them to cease vibrating. By a most delicate apparatus it can be demonstrated that the eye does not perceive a ray of light at the exact instant it strikes the retina, and a very simple experiment will show that retinal images persist after the cessation of light. Whirl a red-hot poker about the eye rapidly in a dark room and there is the appearance of a ring of fire due to the fact that luminous impressions persist after the cessation of light.

A prolonged sound, however musical, becomes positively painful; after a time the ear tires of the prolonged vibration. So with luminous impressions or vibrations, there is a diminution of retinal sensibility from the beginning of visual impressions. If one eye be used exclusively in reading for a little time, the difference in the sensibility of the two retinæ will be very apparent. If a white spot on a black background be gazed at steadily for a moment and then the gaze directed to a white surface, a black spot corresponding to the white one in form and size will be seen. This is due to the fact that that part of the retina on which the white spot impinged becomes less sensitive, or, in other words, tires, and when the direction of the eyes is changed the vibrations cease but those parts of the retina which are exposed to a comparative absence of light are fresher, and when another surface is looked upon they immediately appear brighter, the contrast giving the appearance of an opposite picture from the first. If the eye be fixed too long upon a luminous point, the local diminution of sensibility becomes fatiguing and even permanent injury may result. Gazing at the sun or an arc light sets the molecules into such violent vibration that the percipient elements are for the time being paralyzed. A dark spot will persist for a long time of the exact form of the sun or electric light.

These facts show that, first, it requires an instant for the molecular elements of the eye to vibrate synchronously with the ray of light impinging on them; second, an appreciable time is required for these vibrations to cease, and third, continuous vibrations are fatiguing. If there were not some energy, however slight, being exercised in the retina there would be no fatigue. A mere chemical or thermal process would entail no weariness. It may seem inconceivable that so slight a force as a ray of light, an imponderable thing, can affect so material a thing as the molecules of the granules and rods and cones, yet that it is not an impossibility is proved every day by the wonderful performances of electricity. By wireless telegraphy an imponderable force is sent hundreds of miles, and then exerts an influence on instruments which, compared in size with these molecules, are as grains of sand to mountains.

If the sensation of light is caused by this vibratory action, it follows that the sensation of color is generated in the same way, for white light is but the sum total of all colors. If we interpose a platinum wire in the circuit of an electric current, we place resistance in its path and where there is resistance heat is developed. Before the current is turned on there is but the normal amount of molecular vibration within the platinum; that is, there are no visible rays of light thrown off, or the vibrations are not sufficiently rapid to affect the retina. The wire appears black or gray. As the current begins to generate heat the molecules begin to move more briskly or through wider amplitudes, and as the heat increases and the vibrations also, a point is soon reached when the wire appears red. The molecular motion is now sufficient to generate rays of light of sufficient rapidity to affect the retina. Soon this motion has become such that if the light from this wire be allowed to pass through a prism we shall see an orange color beside the red, and after a time we get a complete spectrum. As each successive color appears, the preceding one becomes more vivid. These colors

must have been produced by reason of the heat, for they were not in the wire or in the electric current.

It is thus evident that there is no difference in the quality of the vibrations of white or colored light. The difference in sensation is only in quantity or rapidity of vibration.

If the rate of vibration of the molecules does not correspond with that of the various colors entering the eye, the sensation at the central organ will not be the same. The molecules of every cone, rod, and granule are set into a corresponding rate of vibration with the color which impinges on them. These vibrations stimulate in some way the filaments of the optic nerve with which they are connected and by them are transmitted to the central organ or visual centers of the brain, where they are correctly interpreted as visions.

The inappreciable time for the eye to perceive correctly is because of the time for this synchronous vibration to be attained. We may have another color before the real sensation is obtained, but so quick is the change that it is not perceptible. As we stand beside a piano and make a musical tone with our voice or a violin, we hear a corresponding tone, for one of the wires is vibrating synchronously. Whether it vibrates at a lower rate before this unison is attained we do not know, so quickly does this unison follow.

The time required for the unfatigued eye to recognize the color red is 1.28 seconds; for green, 1.42 seconds; for violet, 2.32 seconds. Violet has 699 trillion undulations per second, red has 477 trillion, showing that an appreciable time is required for the unison to be attained and for further showing that it takes longer for those colors which have a more rapid vibration to produce this harmonious vibration in the retinal elements than for those of less frequency.

Every color of the spectrum has a definite number of vibrations, never more, never less. The red ray enters the eye at the rate of 477 trillions of undulations per second. The molecules of the granules and rods and cones are immediately set into a corresponding rate of vibration. This produces some kind of a stimulation that is transmitted to the organ of conscious vision where it is transformed to sensations of vision. No color or picture that may appear on the retina is transferred to the consciousness as such: it is a mere interpretation.

The eye as an organ is not commensurate with the entire range of solar radiation. It is not capable of receiving visual impressions from all the rays emitted by the sun. Beyond the violet there are a vast number of rays totally unfitted for our powers of vision; and below the red are others that fail to awaken in our eyes the sensation of color. Beyond these two extremes the eye ceases to be useful as an organ of vision; for though these waves strike the retina with more or less rapid recurrence, they fail to arouse a corresponding vibration and so to awaken the sensation of light. We always think of the form of an object as its distinguishing visual characteristic. If our premises are correct, it follows that color should be its peculiar attribute in this respect. If there were no color there would be no visible form. In a dark room the forms of objects are indistinct because the dim rays of light emitted, or, more correctly, not absorbed, are of so nearly the same length that, striking the retina with nearly the same rate of vibration, they do not give any sensation of contrasting color nor any clear outline of form. The color of distant objects is usually apparent before its form becomes distinguishable. Two differently colored, contiguous objects are made conspicuous by the contrast in color rather than by their form. Hence we are justified in saying that it is color, rather than form that gives us visual sensations. In other words, visual sensations are but color sensations.

That ultra-violet rays are not perceptible to the eye shows that the molecules of the retina are incapable of vibrating beyond a certain rapidity, as there are sounds beyond the capacity of the ear to hear. Color blindness exists in some eyes, because there is a lack of ability of the retinal elements to vibrate in unison with certain colors, as in some ears there is an incapacity to distinguish between certain sounds. Some people have no appreciation of harmony; they cannot sing and may not be able to tell one note from another, and, strange as it may seem, many such do not know of this disability. They can make all kinds of sounds and noises, but they are discordant. This condition corresponds to color blindness and often the same disabilities will be found to exist in the same individual. There are similar defects in the mental sphere. In the case of defective speech, aphasia, there is no fault of the articulation, but the person has lost the power of expressing his thoughts in language, although he may be able to write them. He still has a correct mental vocabulary, for he understands what is said to him, knows when he has spoken wrongly, and has unimpaired reasoning powers. This is true also in amnesia, where the patient has lost the memory of spoken words. Words spoken to him are no longer sounds calling up special groups of ideas, for though he hears, he does not understand. It is a "word deafness." Both these conditions are doubtless due to some disease or defect of the central organ, where certain sounds are incorrectly interpreted or not at all. So with color blindness; the defect may be due to an inability of the molecules to vibrate properly, to some defect in the conducting fibers to rightly convey the stimulus, or to some defect in the brain to interpret preperly the stimulus.

To summarize briefly:

Light is the effect of undulations of the luminiferous ether.

Each color of the spectrum is caused by a definite number of undulations or vibrations per second. It is the normal stimulus to the eye.

The percipient parts of the eye are the retina and the essential elements for vision are in the layer of rods and cones and the outer nuclear layer. These, like all other bodies, contain molecules and are capable of the same molecular motion or vibration.

When they vibrate in unison with certain colors, the sensation of that color is conveyed to the brain where it is properly interpreted.

Visual perceptions are the result of different wave lengths or of diffused colors affecting the granules and the rods and cones and producing more or less rapid vibrations therein.

It is color, rather than form or outline, that enables us to distinguish objects.

And finally, it is color alone that gives us distinct visual impressions.

Royal Slumbers.—It is alleged that the recent operation for the removal of adenoid vegetation of the nasopharynx to which King Alfonso was subjected was instigated primarily by the fact that he snored so loudly as to make sleep difficult in his vicinity. The operation is said to have been effective in rendering the royal bed chamber more quiet.

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OPHTHALMO-REACTION IN TYPHOID FEVER.

AT a meeting of the Paris Academy of Medicine in July, 1907, Chantemesse, as we noted some months ago, reported that a few drops of typhoid toxins dropped onto the conjunctiva of the lower lid caused redness and secretion, a reaction which he believed to be a positive sign of typhoid fever. In a recent article in the *Wiener klinische Wochenschrift* (November 7, 1907), Kraus, Lusenberger, and Russ publish the results which they have obtained by conjunctival instillation of a few drops of typhoid toxins, the latter having been prepared according to the method of Chantemesse. In healthy individuals they observed a slight redness (no secretion) in four out of eleven persons, in from six to twelve hours. In twenty-two typhoid patients with a positive Widal 1:50, they noted a reaction (redness and secretion) in all within six hours after instillation, the symptoms having lasted over twenty-four hours.

This corroborates the work of Chantemesse insofar that the typhoid extract is capable of producing inflammatory appearances in typhoid patients and none in healthy individuals, but it does not prove that the reaction is a positive sign of typhoid fever. Chantemesse claims that his extract caused a reaction in typhoid patients only. Kraus, Lusenberger, and Russ, on the other hand, found that when the reaction was absent in healthy persons and present in those with thyphoid fever the same extract caused redness and secretion in people suffering from other diseases, the intensity and duration of the reaction varying in no way from that in typhoid fever. In twenty-one patients suffering from various diseases a reaction was observed in about one-half, including sufferers from pneumonia, multiple sclerosis, and tuberculosis. In diluted solution the extract gave negative results in both the typhoid patients and those suffering from other diseases. Such findings certainly throw some doubt on the diagnostic value of a positive conjunctival reaction in persons suffering from typhoid fever. These investigators also found that a paratyphoid extract, diluted or concentrated, caused no reaction in healthy individuals, while seven out of thirteen typhoid patients reacted to it from six to eighteen hours. An extract of colon bacillus caused no change in the conjunctiva of healthy persons, but of eleven typhoid patients a reaction occurred in all. So, too, diluted tuberculin, which in healthy individuals caused no reaction, brought about redness and secretion in eleven out of twelve typhoid patients in eighteen hours; this finding thus also argues against the claim of Calmette and others that a conjunctival reaction brought about by tuberculin is a positive sign of tuberculosis, as none of these patients ever showed any signs of this disease.

We thus see that while healthy individuals did not react (or very rarely, and then only slightly) to any of the bacterial toxins used, typhoid patients and those suffering from other diseases reacted to the paratyphoid, colon, tubercle, and typhoid extracts; in other words the conjunctiva of typhoid patients did not react in a specific way to typhoid toxins. Kraus, Lusenberger, and Russ assert that the ophthalmo-reaction is of no use in the diagnosis of typhoid fever. While this is true as far as a positive reaction is concerned, their findings surely show that the absence of the reaction speaks against typhoid fever, and that the conjunctival test is therefore of some value.

KOCH'S ALLEGED DISCOVERIES IN SLEEPING SICKNESS.

RECENT newspaper reports have conveyed the impression that Prof. Koch claims to have discovered that crocodiles are fertile, if not the chief, agencies for disseminating that dreadful African scourge, sleeping sickness. Dr. Koch stated that *Glossina palpalis*, the carrier of the germs of the disease, not only breeds on the banks of the lakes, but likewise along the streams in the interior, right up to the source, and he is said to have ascertained that there is a distinct connection between crocodiles and sleeping sickness. The blood of the crocodiles forms the main nourishment of the glossina which sucks the blood between the plates of the animal's hide. Prof. Koch also asserted that the principal outcome of his investigations was that there is a possibility now of making a certain diagnosis of the disease and of adopting measures to combat it. The eminent German scientist has had undoubtedly ample and favorable opportunities of studying the disease and its means of propagation, for he has been isolated for eighteen months on a desolate island, belonging to the Sesse group in the middle of Lake Victoria Nyanza, where the affection is remarkably prevalent. Despite these facts, presuming that the accounts of the newspaper interviews are authentic, it seems that Koch has hardly given the credit which is due to several other men who have made investigations previously into the problem of sleeping sickness.

For instance, Mr. Sheffield Neave, who was attached to the Gordon Memorial, Khartoum, in the capacity of traveling pathologist and naturalist, in a report published in 1906, and the Acting Commissioner for the British Central Africa Protectorate in his report, made remarks concerning the habits of *Glossina palpalis* very similar to those of Koch. Moreover, Dr. Daniell, the medical officer in charge of the London School of Tropical Medicine, a man who has made careful researches into the whole subject of fly-borne diseases, has referred to Koch's alleged discoveries in a very guarded manner. Speaking to a representative of the Lon-

don *Standard*, he pointed out that, whereas, crocodiles are common all along the banks of the Nile, sleeping sickness is confined to the upper reaches; the animals are plentiful on the Zambesi, on Lake Nyasa, and on the river Shire, localities which up to the present have been free from the malady.

Of course, these circumstances do not absolve the crocodile, but they render it very improbable that he should play a leading rôle in the spread of the infection. Dr. Daniell drew attention to the fact that the possibility of certainty in diagnosis is not owing to Koch's investigations, but rather to those of Dutton and Castellane, and lastly that the so-called remedy, said to have been discovered by the German professor, the subcutaneous injection of arsenic, goes back in principle of practice to the French Jesuits, more than one hundred years ago. In its modern application the discovery originated with the experimental work of the Liverpool School of Tropical Medicine, while it was first put to practical use in 1905 at the London Tropical School of Medicine.

Undoubtedly, sleeping sickness is a veritable pestilence in some parts of Africa. It has been stated authoritatively that unless means can be devised to rid Uganda of this plague it will be impossible as a place of residence, and consequently of no value to white or black man. The Congo district, again, is devastated in parts by the ravages of the disease, and many other localities are in a similar plight. It matters little to the world, even to the African world, who may have discovered the mode of dissemination of sleeping sickness or the most efficient measures to be adopted to extirpate it, or even to check its spread; it concerns us, indeed, not at all, except from a humanitarian and scientific standpoint. Still, "fair play is a jewel," and if the facts narrated by Koch have already been published by other men, there is every reason that to them should be accorded the honor. It may be, and probably is the case, that Koch has confirmed and amplified the discoveries of previous investigators, and for this he deserves his meed of praise. This is, however, not the first time that he has announced as his own the results obtained by the labors of other observers—his theatric announcement of the nonidentity of human and bovine tuberculosis, based upon the work of Theobald Smith and others, which he proclaimed his own, is still remembered. He is a brilliant, patient, and accurate investigator, and in these respects is surpassed by no man, but he does not add to the luster of his great name by appropriating, or rather ignoring, the results of the researches of former investigators.

The Ventilation and Drainage of the "Mauretania."

So much is said in the papers nowadays about each new Atlantic liner, that the public comes to feel a sense of ownership in the vessels, and many persons whose sea voyages never have been or never will be farther than Coney Island become enthusiastic over speed records and are loud in their praises of the new craft. The old traveler who has crossed and recrossed the ocean and in whose mind linger keen recollections of foul or smelly air in bad weather ask if they "have learned how to ventilate her." The *Mauretania* presents some distinct advances in this direction which are described by the Liverpool correspondent of the *Lancet*. He notes that passengers have a propensity to open something in order to get fresh air. "They are so accustomed to open a door or window at home that when they reach a cabin their habit must be gratified or they will insist that they are not getting proper ventilation." The new vessel shows the usual cowls on the uppermost deck, but these ventilate the engine room, and have nothing to do with the cabins and saloons. The new system seems to be independent of the opening and closing of various ventilators within the passengers' reach, and its triumph seems to lie in the fact that he may open what he likes without disarranging the ventilators. All the passenger cabins and saloons and the crew quarters are supplied with compressed air. In other words, the air in every habitable portion of the ship is under greater pressure than the outside atmosphere, except in the lavatories. Thus, if a cabin door opens, the air rushes out of and not into the cabin. In case of the lavatories the process is reversed. The system is known as the thermo-tank system. No less than 65 of these machines, says the *Lancet* correspondent, are placed in different parts of the vessel. They consist of a strong metallic case containing in one part an electric fan of such power that it can pump down into the ship 4,000 cubic feet of air per minute. This means a grand total of 260,000 cubic feet of fresh sea air from the upper deck per minute. With that supply the entire atmosphere within the habitable part of the ship can be changed every four minutes. Within each of these apparatuses are a number of coils that can be filled with steam, and thus the air is warmed before it is pumped into the ship. The ventilation in no wise depends on the weather or the wind, but wholly and solely on the rapidity in the revolutions of the fans. The shafts that communicate with the lavatories do not serve as inlets, but as outlets; the current is, therefore, to the lavatory and out by the shafts and these abut into the outer funnel. Thus, the air from the lavatories is discharged into the open at the top of the funnels with the smoke. The lavatories are flushed from a large tank of seawater on the upper deck. Even in the highest closets, there is a water-head of 55 feet. The flushing is therefore done with great force and thoroughness. For the steerage passengers, many of whom have never seen a modern toilet, all the apparatus is arranged to work automatically, and the whole compartment containing their toilets and bathtubs is tiled and can be washed out with a hose.

The Ophthalmo-Reaction for Tuberculosis.

Shortly after Pirquet last spring showed that in young children cutaneous inoculation with tuberculin was of diagnostic value, Wolf-Eisner, Vallée, and Calmette elaborated a method of applying the same principle by dropping a solution of tuberculin into the conjunctival sac. This procedure possesses a very decided advantage over the former, for practically all adults react to the cutaneous inoculation—owing, Pirquet says, to the fact that most persons have at some time been infected with tubercle bacilli—whereas the ocular reaction is very often absent. The degree of reliance that is to be placed on the result of this test is still undecided, but appears to be not inconsiderable. Different observers, however, do not altogether agree in their conclusions. Thus Cohn states in the *Berliner klinische Wochenschrift*, of November 25, 1907,

that the positive outcome of the ophthalmo-reaction in all probability indicates the existence of tuberculosis, but a negative result does not exclude the disease; while Franke (*Deutsche medizinische Wochenschrift*, November 28, 1907) reports experiences that appear to show that more dependence is to be placed on the negative outcome. For example, in testing twenty-four patients suffering from various ocular disorders a positive reaction was obtained in four persons who gave no other evidence of tuberculosis in the lungs or elsewhere. Cohn found that fifty per cent. of the patients with advanced phthisis do not react, an observation in accordance with what has been noted concerning the ordinary tuberculin test by subcutaneous injection, and also that typhoid fever patients not infrequently give the reaction, especially during convalescence. According to Calmette the reagent is best prepared by precipitating the albuminous bodies in tuberculin by means of seventy-five per cent. alcohol and using a one per cent. watery solution of the dried precipitate. The test is made on one eye, the other serving as a control, and if the result is positive a local inflammatory reaction of more or less severity is caused. This subsides promptly and is not accompanied by constitutional disturbance or followed by any after-effects, though the eye acquires an increased local susceptibility, so that even if the first test was negative a second one made at a later date may prove positive. Most of those who have reported on the method speak well of it and recommend a more extended trial on large numbers of cases so that its value may be definitely ascertained.

The Administration of Chloroform.

One of the difficulties to be contended with in the administration of chloroform as an anesthetic has always been the fact that it so readily undergoes decomposition if exposed to the air and light. This change in composition is attended by the formation of hydrochloric acid, and two ingenious French surgeons have suggested that in order to receive prompt warning of this alteration a small disk of elder pith dyed in a saturated alcoholic solution of Congo red be kept in the bottle of anesthetic. As soon as the chloroform becomes acid the indicator turns blue. The device would seem a good one, except that to profit by it it is necessary to keep the chloroform in a bottle made of clear glass instead of the customary brown. In the *Münchener medizinische Wochenschrift*, November 26, 1907, another suggestion in regard to the use of this anesthetic is made by Haun. He has found that simply warming the bottle from which the agent is being dropped by setting it in water kept at about 100° F. greatly facilitates the induction of narcosis and diminishes the amount of the drug required. The patients also recover consciousness more quickly and suffer less from the ordinary after-effects. This he explains on the assumption that cold chloroform vapor is to a large extent deposited in the nasal and upper air passages without ever reaching the alveoli or being absorbed from these. Instead it is very gradually taken up, often even after the operation is completed, and serves to produce many of the disagreeable sequelæ so frequently observed. The warm vapor, on the other hand, can penetrate readily to the deeper parts of the lung and practically all of it reaches the blood promptly and effectively. This suggestion is hardly new, but is not generally followed, although so simply carried out.

Highland Folk Medicine.

In the *British Medical Journal* of November 2, 1907, are some interesting comments on an article recently published in the *Scotsman* to the effect that "wise women" and "folk doctors" are fast becoming extinct in the Highlands. The diffusion of knowledge is gradually crowding them out. We are told that one of the first things the "doctor" looks for is any peculiar mark upon the body. Thus "the position of moles is supposed to show the patient's temperament; teeth set wide apart indicate that the owner may be expected to make a safe recovery from his illness, while, on the other hand, close-set teeth show the patient to be miserly and melancholic, and more difficult to cure." A special mode of diagnosis is called for in cases of cardiac disease. "The patient is made to kneel on the floor near the fire; a sieve, on which is a large bowl filled with water, is placed on his head. Into this bowl molten lead is poured through iron, as through the finger-hole of a scissor blade, and it is thought that one of the pieces of lead is sure to assume the rough shape of a heart. If this supposed shape has in it a scallop or hole, heart disease is certain, and the lead has to be melted and poured into the water, over and over again, until a neatly-shaped piece bearing some resemblance to a heart is produced, with no hole and no scallop; then the patient is considered cured." All these ideas seem curious to us of the present day, but inquiry among some of the rural inhabitants of our own country will often bring out the same curious results as to belief in disease peculiarities and remedies therefor.

News of the Week.

To Amend Illinois Medical Law.—The Illinois State Board of Health has prepared a bill providing that the board in its discretion may admit to examination any candidate who has completed four annual sessions or terms in a medical college in good standing, and who has passed the examination of said college. Those who pass can obtain temporary licenses good for eighteen months. On completing this period, a regular license may be issued if the applicant presents a diploma from the medical college in which he completed the session of the fourth year and if he otherwise complies with the requirements of the State Board.

Annual Conference of the Committee on Medical Legislation and the National Legislative Council of the American Medical Association.—This conference was held at the Auditorium Hotel, Chicago, December 10, 11, and 12. The Chairman of the Committee on Medical Legislation of the American Medical Association, Dr. Charles A. L. Reed of Cincinnati, presided. Twenty-three States were represented. The Committee on Naval Medical Reorganization made its report, and the following bills were endorsed by the conference and recommended to Congress for passage: (a) A bill reorganizing and increasing the efficiency of the hospital corps of the United States Navy and regulating its pay. (b) A bill authorizing the appointment of dental surgeons in the United State Navy. (c) A bill for the establishment and organization of a corps of trained women nurses in the United States Navy. (d) A bill to equalize and fix the pay of medical officers of the army, navy, marine corps, and revenue cutter service, and for other purposes. Bills providing pensions for the widows of Drs. James Carroll and Jesse W. Lazear were presented to the conference, endorsed, and recom-

mended to Congress for passage. Dr. Wm. H. Sanders, State Health Officer of Alabama, delivered an address on Federal and State Regulation of Public Health. He outlined the system of public health regulation in Alabama, saying that each County Medical Society was likewise a County Board of Health, and that there was also a State Board of Health. Dr. Arthur Dean Bevan, Chairman of the Council on Medical Education of the A. M. A., delivered an address on Medical Education. Dr. Bevan's address was followed by one by Dr. H. C. Sharpe, Chairman of the Committee on Medical Legislation of the State of Indiana. These gentlemen urged a better preliminary education than the average medical student now had. Proposed uniform laws on food and drugs were discussed, and the conference decided to urge federal and State governments to propagate education on sanitation for the prevention of tuberculosis, typhoid fever, and other contagious diseases, and an immediate cleansing of all inland waters from pollution. The Chairman, Dr. Reed, was authorized to organize a council of forty-six members, one from each State, to consider existing laws on labor, taxations, corporations, banking partnerships, insurance, railroads, transportation, commerce, sanitation, quarantine, foods, drugs, traffic, marriage and divorce, reciprocity, and comity, for the purpose of securing uniform legislation on each.

Federation of Hebrew Charities.—Representatives of the following charitable organizations last week met in the Mt. Sinai Hospital and formed "The Council of Jewish Communal Institutions:" The Mount Sinai Hospital, the Hebrew Orphan Asylum, the Montefiore Home, the Educational Alliance, the Hebrew Technical Institute, the Hebrew Sheltering Guardian Society, the Lebanon Hospital, the Hebrew Technical School for Girls, the United Hebrew Charities, and the Beth Israel Hospital. The new council is to consider purely local problems affecting Jewish eleemosynary institutions and aid in their solution; it is to coordinate the work now done independently by the various organizations included in its membership; to work out an economical system of buying by cooperation, and to discourage the multiplication of rival organizations, while at the same time encouraging the foundation of enterprises entering upon new branches of relief work. While Jewish in name, the new council is not primarily sectarian. It is willing to assist any charitable organization whatever, give it advice, lend it cooperation, and help it raise funds. These officers were elected: *President,* Justice Samuel Greenbaum; *Vice-President,* George Blumenthal; *Secretary,* Edgar J. Nathan; *Treasurer,* Louis Stern.

A Post Office Quarantined.—The post office at Augusta, Me., had to be closed for about eighteen hours on December 12 and the delivery of mail matter discontinued owing to the breakage of a culture tube, presumably inoculated with diphtheritic material, which was being mailed to the State laboratory. The Board of Health ordered a disinfection of all the mail matter.

A New School for the Blind.—The new building erected by the New York Association for the Blind at 118 East Fifty-ninth street as a school of instruction for sightless adults was opened on December 16.

Tuberculosis Exhibition.—The traveling tuberculosis exhibit which has been established by the State Charities Aid Association was held this week at Rome, N. Y. During the preceding fortnight it was in Utica, where a committee on the prevention of tuberculosis has been established and a free dispensary started.

Influenza at Smith College.—An epidemic of grip is spreading among the students at Smith College at Northampton, Mass., and over one hundred patients have been ill enough to require to be sent to the college infirmary while many others have been unable to attend recitations.

Opium in the French Navy.—The French naval authorities are attempting, apparently without great success, to restrict the use of opium by the officers and men which is said to be very widespread, and is alleged as the underlying cause of some of the disasters that have recently occurred on the vessels. It was discovered that in Marseilles users of the drug were obtaining it from a number of dealers in Oriental curiosities, and on searching the shops of the latter several thousand dollars' worth of opium was found and confiscated.

Disease on Immigrant Ship.—Two hundred of the eight hundred steerage passengers arriving last week on the Russian steamer *Kherson* from Libau were quarantined on account of smallpox, scarlet fever, measles, and diphtheria, cases of all of which occurred on the vessel during the voyage.

Alcohol and Marksmanship.—The Bavarian War Ministry has just issued a preliminary report on tests made to determine the effect of the use of alcoholic beverages on marksmanship. Squads of men are alternately kept abstinent for a week and during the next week allowed definite amounts of alcohol. Already over 10,000 shots have been made under these conditions with the result that the drinking men made better scores while firing singly than did those belonging to the squad which had been kept abstinent. In field and volley firing by companies, however, the sections which had been entirely abstemious attained slightly better results than their stimulated comrades. These results are somewhat at variance with those obtained some time ago in the Swiss Army, which we believe demonstrated that the nonalcoholic soldiers were more reliable shots than the drinkers.

Cuban Quarantine Raised.—The United States Marine Hospital Service has decided that the quarantine against the Island of Cuba is no longer necessary and has ordered it to be discontinued.

Women Nurses for the Navy.—On the recommendation of Secretary of the Navy Metcalf and Surgeon-General Rixey, a bill is to be introduced in Congress providing for the establishment of a corps of women nurses for the navy. They will be stationed at the various hospitals at naval stations and are intended to form the nucleus of a female nurse corps for service on hospital and ambulance ships in time of war.

Carnegie Research Fund Increased.—At the dinner of the Board of Trustees of the Carnegie Institution held in Washington on December 10, the announcement was made that Mr. Carnegie was about to increase the $10,000,000 endowment fund by a further gift of $2,000,000.

Vermont State Tuberculosis Hospital.—The Vermont State tuberculosis hospital built at Pittsford with the $100,000 gift of Senator Redfield Proctor was opened on December 10. Accommodations are provided for thirty-five patients.

Waterbury Physicians Decline Lodge Practice.—At a meeting of the Waterbury (Conn.) Medical

Association held on December 9, it was unanimously voted not to make any contracts with fraternal organizations to attend their members for less than the regular rates.

Typhoid Fever in Trenton.—Owing to the prevalence of typhoid fever in Trenton, N. J., where fifty-five cases of the disease have been reported this month, an entire change in the water supply is being planned. Either a complete filtration plant will be installed or a new acqueduct will be built to bring water from Sorrell Mountain.

Benefit Entertainment for Chicago Hospital.—An entertainment was recently given, which netted $1,000, for the hospital fund of the North American Union. This is a fraternal insurance order with about twelve thousand members in Cook County, Ill. It is the plan of the society to give every member free medical attendance, and when necessary to send the patient to a sanatorium maintained by the order.

Treatment of the Criminal and Other Social Parasites.—A symposium on this subject was held at a joint meeting of the Physicians' Club of Chicago and the Chicago Law Club December 13. In the course of the evening these two theories were advanced: Elimination of criminal children by sterilization. Treatment of criminals over thirty years old as habitual, and either sending them to penal institutions for life or putting them away in some other manner, possibly by the cemetery route. Dr. Wm. T. Belfield is said to have advocated the sterilization idea. He took up the biological aspect of the criminal, and after tracing the development of the individual to the point where he became a danger to society, made a plea for race suicide. For the mature criminal he advocated permanent segregation either by the penal colony or the cemetery. The indeterminate sentence with the parole was a radical error for the criminal over thirty. Dr. John N. Hurty, Secretary of the Indiana State Board of Health, spoke of the Indiana movement, which consists in educating the prisoners in the Indiana Reformatory to allow themselves to be sterilized. More than 300 of them have submitted to this operation so far. The criminals are told who they are and why they are, and after an examination is made of the mental status of the criminal to determine what his chances of improvement are, the operation is performed.

For a Central Ambulance System.—At a meeting of the Municipal Hospital Commission last week a conference was held with a delegation of hospital physicians and superintendents for the purpose of discussing modifications in the present ambulance system. The plan, tentatively submitted by the commission, provides for a central ambulance station, corresponding with fire headquarters, to which all ambulance calls should come and through which they could be assigned to the various hospitals. Such a station, it was thought, would do away with a certain amount of confusion in the ambulance service. It was also suggested that emergency stations be established in the more congested parts of the city for the purpose of dealing with accident cases.

The Hygienic and Moral Education Society.—A society with this name has been formed in London for the purpose of educating the young in regard to sexual matters and to arouse public interest in regard to the medical examination of those contemplating marriage. There are to be lectures, school instruction, and the dissemination of suitable printed matter.

International Tuberculosis Congress.—The following additional members of the committee of arrangements for this congress have been appointed: John Barrett, the director of the Bureau of American Republics; Dr. William A. White of Washington, superintendent of the Government Hospital for the Insane; Dr. C. H. Mayo of Minnesota, and Dr. Henry M. Bracken, secretary of the State Board of Health of Minnesota.

Penobscot County (Me.) Medical Association.—Officers as follows were elected at the meeting of this organization held in Bangor on November 27: *President*, Dr. Harry Butler; *Vice-Presidents*, Dr. S. E. Phelps of North Sullivan and Dr. W. P. McNally; *Secretary*, Dr. B. L. Bryant of Bangor; *Treasurer*, Dr. H. H. Crane of Bangor.

Chattahoochee Valley Medical and Surgical Association.—The next annual meeting of this organization is to be held in Columbus, Ga., January 14, 1908. The association, which is entering on the second year of its existence, has for its object the bringing together of the members of the medical profession of Alabama, Georgia, and Florida. At this meeting the association will be the guest of the Muscogee County (Ga.) Medical Society. The president of the association is Dr. J. A. Goggans of Alexander City, Ala., and the secretary is Dr. W. J. Love of Opelika, Ala.

Middle Tennessee Medical Association.—At its recent meeting held in Nashville this organization elected the following officers: *President*, Dr. E. H. Jones of Murphysboro; *Vice-President*, Dr. W. Litterer; *Secretary and Treasurer*, Dr. R. M. Jones.

Chicago Suburban Health League.—This league was recently organized as a permanent society to look after the health of Chicago and surrounding territory. The territory extends north to Kenosha, Wis.; west to Aurora and Elgin; and south to Whiting, Ind., and Chicago Heights. The following are the officers: *President*, Dr. Wm. R. Parkes, Evanston; *Vice-President*, Dr. Albert F. Stork, Oak Park; *Secretary-Treasurer*, Dr. Heman Spalding, Chicago; *Executive Committee*, Health Commissioner Evans, Chicago; S. G. MacCracken, Winnetka; Aaron G. Lauer, Whiting, Ind.; Clarence W. Geyer, Aurora, and Albert F. Stork, Oak Park.

Centenarians.—Meyer Shanholz, a seventy-year-old resident of New Brunswick, N. J., has been notified that his father, aged one hundred and seventeen years, has died in Warsaw. He had sixteen children, of whom one is living in Warsaw at the age of eighty-five years. Mrs. Margaret Carpenter of Brooklyn died on December 11 at the age of one hundred and two years. She had been blind for twenty-seven years owing to cataract, but up to two years ago was able to walk with a cane.

Death of Professor Moritz Schmidt.—Professor Moritz Schmidt of Frankfort-on-the-Main, one of Germany's foremost laryngologists, died on December 9. He was well known throughout Europe, and several years ago removed a polypus from the throat of the German Emperor. For this service he received the title of Excellency.

Société Universelle d'Etudes Psychiques.—The following were elected as officers of this association at its meeting held in Paris on November 16: *President*, Dr. P. Joire; *Vice-President*, Dr. Le Morrant des Chesnais, Dr. E. Allain, and Dr. Demonchez; *General Secretary*, M. de Vesme, Editor of the *Annales des Sciences Psychiques; Assistant Secretary*, M. Dhuigue; *Treasurer*, M. P. Donchez.

The Late Dr. George F. Shrady.—At a meeting held December 10, 1907, the Medical Board of the Willard Parker and Riverside Hospitals, having learned with profound regret of the death on November 29, 1907, of Dr. George F. Shrady, Consulting Physician to the hospitals of the Department of Health, it was unanimously

Resolved, That this board mourns the death of Dr. Shrady, an eminent member of the medical profession of this country. It recalls with pride his magnificent record as a physician, his pioneer work in medical journalism as editor of the MEDICAL RECORD, his civic patriotism which placed him always in the foremost ranks of those who sought the welfare of the community, his wisdom as a counselor in former years to the health authorities of this city, as well as those of the State and country.

Resolved, That the members of this medical board individually regret the loss to themselves of a charming, genial, loyal, broadminded, and cultured colleague whose mental and social attributes endeared him to those whose privilege it was to be closely associated with him.

Resolved, That the medical board remembers with especial satisfaction the unselfish heroism which prompted him when in the height of his surgical reputation to respond to the call for the performance of major surgical work upon persons suffering in the hospitals of the Health Department from contagious diseases.

Resolved, That the medical board extends to the widow and family of Dr. Shrady its esteem and deep sympathy in this affliction, and the assurance that it shares with them the sense of loss suffered in the death of one of whose character, work, and life they are so justly proud.

Resolved, That these resolutions be spread in full upon the minutes of this board and that they be transmitted to the family of Dr. Shrady, and appropriate publicity be given them in the medical journals of the city.

For the medical board, John W. Brannan, M.D., William H. Park, M.D., Louis Fischer, M.D., S. A. Knopf, M.D., Henry W. Berg, M.D.

Obituary Notes.—Dr. EVELYN J. WATSON died at Chester, Pa., on December 8. She was graduated from the Woman's Medical College of Pennsylvania in the class of 1902.

Dr. HENRY D. RENNER, one of the oldest practitioners in the city of Philadelphia, died on December 9 at the age of seventy-four years. He was graduated from the medical department of the University of Pennsylvania in the class of 1854.

Dr. A. M. CARPENTER of St. Louis died on December 3 of an intestinal disorder after an illness of several weeks. Dr. Carpenter was born in Lincoln Co., Ky., in 1834 and was educated at Centre College near Danville. He was for a time connected with the Keokuk Medical College, and came to St. Louis twenty-four years ago. He was one of the founders of the Marion Sims-Beaumont Medical College, and at the time of his death was vice-president of Barnes Medical College.

Dr. FREDERICK ROBERTS of Nashville, Tenn., son of Dr. Deering J. Roberts of that city, died of tuberculosis on December 9 at the age of twenty-two years. He was graduated last spring from the medical department of the University of Tennessee.

Dr. E. E. WINN died at Port Lavaca, Tex., of carcinoma on December 3 at the age of seventy-seven years. He was a native of Georgia and had served as surgeon in the Confederate army.

Dr. OTTO QUITMEYER of Parkers Prairie, Minn., died of pneumonia on December 6 at the age of thirty-one years. He was graduated from the medical department of Hamline University in 1902.

Dr. O. H. DOGGE of San Francisco died suddenly of heart disease on November 30 at the age of sixty years. He was born in Germany, but had practised in Butte, Mont., from 1889 to 1900, when he removed to San Francisco.

Dr. LUTHER S. ARNOLD of Londonderry, Vt., died on December 1 at the age of seventy-three years. He had practised in Londonderry since 1865 and in 1889 represented the town in the State legislature. Two years ago he gave up active work.

Dr. W. J. O'NEIL of New London, Conn., died of tuberculosis in Elmira, N. Y., on November 21 at the age of forty years. He had practised in New London for about fourteen years, but last summer was obliged to give up active work owing to his illness.

Obituary.

WILLIAM H. S. WOOD.

NEW YORK.

MR. WILLIAM H. S. WOOD, senior member of the firm of William Wood and Company, died at his home in this city on December 11, 1907. Mr. Wood was born in New York in 1840, the son of William Wood and the grandson of Samuel Wood, the founder of the publishing house. He was graduated from Haverford College in 1863, and two years later was taken into partnership by his father, the firm name of William Wood and Company being then adopted. His father had paid particular attention to the publication of medical works and the son advocated further specialization in this direction. In 1865 he conceived the idea of the publication of a journal to be conducted in the best interests of the medical profession of the country, and the following year he founded the MEDICAL RECORD, requesting Dr. Shrady to become its editor. A few years later he purchased the *American Journal of Obstetrics,* edited until 1891 by the late Dr. Paul F. Mundé, and since that time by Dr. Brooks H. Wells. For several years the house also published the *American Druggist.* Mr. Wood remained the active head of the house to the time of his death, but for the last four years had devoted his chief energies to the conduct of the Bowery Savings Bank, of which he had been a trustee since 1872, and to the presidency of which he was elected in 1903. Under his guiding hand the influence and prestige of the bank continued to increase until, in July of this year, its deposits reached the sum of over $100,000,000.

Mr. Wood was an active member of many public societies. He was a director of the Young Men's Christian Association for seven years, and a manager of the American Bible Society for twelve years. He was a life member of the New York Historical Society, the American Pomological Society, and the New York Horticultural Society; fellow of the American Geographical Society; benefactor of the New York Academy of Medicine; member of the St. Nicholas Society, of the New York Society for the Suppression of Vice, the Chamber of Commerce, the New York Academy of Sciences, the New York Zoological Society, the Clinton Hall Association, and the Orthodox Society of Friends; incorporator of the New York Botanical Society; and member of the Union League, Grolier, Seawanhaka Yacht, and Indian Harbor Yacht Clubs. His special hobby

was horticulture, and he wrote several volumes on pomology and other horticultural subjects.

In 1865 Mr. Wood married Miss Emma Congdon of Providence, R. I., who died in 1896. In January, 1907, he married Mrs. Cornelia Elliot of Baltimore. He is survived by the widow, three sons, and a daughter.

Mr. Wood was a man of strong personality and indomitable determination, uncompromising in the essential duties of life, and never swerving from the course which he had set for himself when convinced it was right. His many friends were bound to him by cords of steel; antagonists he met as force always must; but indifference toward him none could feel. His heart was tender toward those in moral distress or physical want, and many whom he had secretly helped by brotherly counsel or by material assistance remain to bless his memory.

Correspondence.

REMOVAL OF BILE FOR EXAMINATION.

To the Editor of the Medical Record:

Sir:—I beg to make the following preliminary report of two new methods of removing bile from the body for examination.

In the first the intrahepatic method, a fine needle attached to an organometer is forced through the abdominal wall into the parenchyma of the liver and a twenty-eight inch vacuum applied until the required amount of material to be examined has been drawn into the instrument. The bile acids, etc., are then separated by a process to be described in a future communication.

The second method consists in forcing a very fine, specially devised needle through the abdominal wall into the fundus of the gall-bladder, and a fifteen-inch vacuum applied until a sufficient quantity of bile for examination has been removed. The needle is then disconnected, but not withdrawn, and a quantity of sterile saturated boracic acid solution equal to one-half the amount of bile withdrawn is injected at a temperature of 115° F. and under not more than 30 mm. pressure.

With one exception, all of the experiments have been performed on dogs, cats, rabbits, and guinea-pigs. It is comparatively easy to locate the lobes of the liver in these animals, and one seldom fails to find a desirable point in a lobe for the needle, but the locating of the fundus of the gall-bladder is quite difficult unless one follows a set of anatomical landmarks. A triangle with its apex represented by the junction of the ensiform appendix and the ninth costal cartilage, its base by a horizontal line drawn from the tip of the ensiform appendix to the external border of the ninth costal cartilage, its left side by the right border of the ensiform appendix, and its right side by the internal border of the ninth costal cartilage has been of inestimable value in my attempt to perfect this method. The apex of the triangle is the point of election. With the animal rolled slightly to the right the needle should be held in a vertical position and forced directly downward through the abdominal wall and diaphragm through the apex of the triangle. It is then very slowly withdrawn about one-quarter of an inch and a rest taken for one-half minute. If the puncture has been successful the bile will flow into the organometer during this time; if unsuccessful, the needle is withdrawn another inch and another half minute is allowed for the bile to make its way to the surface. If after this wait there is still an absence of bile in the receptacle, the needle is gently withdrawn from the body and the same procedure is repeated midway between the apex and the base line on the left or sternal side of the triangle. At this point in the triangle the needle should be held so that the point will be directly a little to the left. Should this second attempt prove ineffectual a third and last puncture is made at a point on the base line one-half inch to the left of the sternal side of the triangle. The point of the instrument is directed downward and backward. If the result of this last attempt is negative one may be reasonably sure that the gall-bladder is either empty or the bile is too heavy to flow through the needle.

My records show four hundred and thirty-three failures in three thousand attempts. The failures on guinea-pigs amounted to 96 per cent., on rabbits 85 per cent., on cats 52 per cent., and on dogs 12½ per cent. Dogs represented 91 per cent. of the material used in the work, and of this 91 per cent. 52 per cent. was done on dead animals. After removing the bile from 225 dogs, and immediately injecting it into the peritoneal cavity without a single fatality or even a significant rise of temperature, I removed 2 c.c. of my own bile through the following described triangle which I had previously worked out on the human cadaver. A line is first dropped from the ensiform appendix (*a*) to the umbilicus (*b*), another horizontally from the right costal arch on a level with the lower border of the ninth rib (*c*), to the xiphoid-umbilical line (*d*); a cross at *e* is made on the line (*c d*) 11/16 of the distance externally from the point *d*. A line is drawn from point *c* to point *f* on the internal border of the right costal arch opposite the lower border of the seventh rib. Eleven-sixteenths of the distance from point *c* to point *f* is then measured off (*g*), and a line is dropped from *g* to *e*, another line is drawn from *f* to a point *h*, 5/16 of the distance from point *d* to point *c*, and after measuring off 8/16 of the distance from *h* to *f* (*i*) a horizontal line is drawn across *g e*. The center of the gall-bladder lies directly under the point where these lines cross at *j*. My temperature, appetite, pulse, etc., remained, as in the animals, perfectly normal after the experiment. After the needle had passed through the skin I suffered only the slightest pain.

I made cultures from the bile of 127 live animals and got growth in 21 per cent. The fact that bile from a much larger number, two hundred and twenty-five, was injected into the peritoneal cavity without deleterious results, suggests a powerful inhibitory action of bile over bacteria, when the former is acting on microorganisms in its normal environment. Small doses of bile bacteria were not pathogenic for white mice, but large doses killed in from eighteen to thirty-six hours. There was a small leakage of bile after puncture in 7 per cent. of one hundred and ten cases, the remaining 93 per cent. withstood 100 mm. air pressure without leakage.

Three c.c. of a 3½ per cent. morphine solution was always given to dogs one hour before experiment; the smaller animals were given ether. The technique on the animal is sufficiently perfected to be of practical value in laboratory work, but under no circumstances should an attempt be made to do this work on the human subject until the technique is absolutely perfect. Drawings, photographs, and technical detail will appear in a complete communication. I hope eventually to be able to treat diseases of the human gall-bladder and bile-ducts locally by going directly to the seat of the disease. It is possible to force drugs directly into the intestinal tract by way of the gall-bladder, thus avoiding the necessity of having the material intended for the intestines pass through the acid medium of the stomach. To have the drugs reach the intestines in pure form it is necessary first to flush the gall-bladder with a physiological salt solution at 100 mm. pressure.

I wish to thank Dr. H. K. Miller, proprietor of the New York Canine Infirmary for the vast amount of material placed at my disposal during these investigations.

W. Byron Coakley, M.D.

72 Riverside Drive, New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

TUBERCULOSIS, AVIAN AND HUMAN—EFFECT OF HIGH ALTITUDES ON BODY AND MIND—TRAVELER'S OPINIONS ON MEDICINE, ETC.—FIRES IN HOSPITALS—A STUDENTS' ESCAPADE—OBITUARY.

London, November 29, 1907.

The relationship between human and avian tuberculosis is the subject of an important contribution to the Pathological Section of the Royal Society of Medicine by Drs. Shattock, Seligman, Dudgeon, and Panton. Their researches were carried out in the laboratories of St. Thomas' Hospital and are naturally exciting a good deal of interest, as birds form an extensive part of human food. A typical case of tuberculosis in birds is one in which it is found in the spleen and liver, the lungs not being involved and the intestine may or may not be ulcerated. Such (as the usual fatal form in birds) furnished the avian material of the experimenters; that of human tuberculosis was from pulmonary cases and contained numerous bacilli. Pigeons were the birds employed. It would appear from feeding experiments that the avian bacillus is markedly pathogenic for birds, but not, or very slightly, for the guinea-pig or the monkey—a decided contrast with the human bacillus. Further, the human bacillus was not converted into the avian by "passage" through birds, and therefore as far as these experiments go the two organisms are not identical. But this inference is not quite on all fours, I think, with the experi-

ments on "passage" of the Royal Commission, in which a series of animals were employed.

The conclusions submitted to the Section by the authors of the contribution under notice are: 1. That the human bacillus is pathogenic to the pigeon in a very limited degree only. It sets up no disease of the intestine or abdominal viscera by feeding on sputum. By injection into muscles or subcutaneous tissues from infected organs of guinea-pigs it sets up a local and glandular disease only, and such local disease retrogresses instead of progressing. 2. Avian bacillus is pathogenic to the guinea-pig in a slight degree. 3. Human bacillus is not convertible into avian. Salt suspensions of infected spleen of birds in every instance produced not merely a local lesion in the guinea-pig, but a general tuberculosis. The human bacillus, after a sojourn of as long as eight weeks in the spleen, produced the glandular and visceral disease in guinea-pigs as though it had been transferred directly from human sputum. It did not produce merely a local or local with glandular disease, such as it should have done had it acquired the characters of the true avian bacillus.

The authors do not attach much importance to the opsonic test, which shows that either bacillus will extract the opsonin from tuberculous serum, for some of their experiments prove that the opsonin may be extracted from serum by saturating it with a thick emulsion of melanin, showing that the removal is not indicative of specificity but is largely mechanical.

The effects of high altitudes were illustrated in an interesting paper read at the Geographical Society on Monday by Dr. Workman, who has spent five seasons in Himalayan exploration. He, with Mrs. Workman, stayed one night alone at a camp 21,300 feet above sea level. They could not sleep as on previous occasions in similar circumstances. The absolute silence that reigned during the night proved almost as nerve-wearing as excessive noise. He spoke of a feeling of having completely lost touch with the material world. The imagination, he said, uncontrolled by the suggestions of ordinary sound, will run riot among fancies and possibilities—neither pleasing nor reassuring. At this altitude, the highest at which mountaineers have passed a night, there were nine Europeans in the camp and only one suffered from mountain sickness. At the previous camp (20,632 feet), though this man complained of some headache and weakness, he started forward with a light load of instruments, but he could not keep up with the rest. Before reaching 21,000 feet, though naturally strong and healthy, he collapsed. He had loss of sensation in his hands and where his woolen mittens were drawn off the fingers were stiff and white and on the point of becoming frost-bitten. Vigorous friction restored the circulation and he was sent back to the next camp. None of the other members of the party were incapacitated, but everyone felt the effect on the respiration, some more than others. As usual, there was dyspnea and panting on slight exertion. When resting in the erect position it was not very noticeable, but on movement it was marked. At night on lying down it became urgent and was accompanied by a feeling of oppression, rendering deep inspirations necessary, and these wearied the respiratory muscles to a degree amounting to pain. This constant gasping for breath interfered with sleep, no matter how tired one might be. If after long wakefulness one dozed a moment, one immediately started up with frantic efforts to get oxygen enough to stay the stifling sensation. In the highest camp for five nights no one got more than a few snatches of sleep, and four, of whom the doctor was one, practically none at all. Those nights will not be easily forgotten, lying sleepless in the snow, in the cold, in the silence, and darkness, struggling for breath and counting the hours with a feeling that the strain could not last until daylight. The strongest could not hold out long against the insomnia and lowering of vital energy due to the scarcity of oxygen. All felt loss of strength, and after six days of work and five sleepless nights longed to descend to a lower level. The effect on the mind must also be mentioned. Irresolution and disinclination to effort made the simplest action seem formidable. Photography, easy enough lower down, became a bugbear and the ascent of a peak an impossible proposal. It was necessary, indeed, to force oneself to carry out what was proposed by exerting the will power to the very uttermost.

Another intrepid traveler, Mr. H. Savage Landor, has published the story of his last feat in a couple of bulky volumes entitled "Across Widest Africa." The march took him twelve months and he traveled without white companions. Though he passed through fever-infected districts, he rejected the precautions usually adopted and speaks of them with contempt. His specific for fever is castor oil, which, with abstemious habits and abstinence from alcohol, served him so well that he was never delayed long by fever and he was able to push ahead in long marches better than his native followers. He has no confidence in quinine, and as to mosquitos he goes so far as to declare that instead of bringing they "rather took away fever." In this, as in his other travels, Mr. Landor's endurance shows that he has an enviable constitution and is endowed with remarkable resistance to bodily disease. But he does not seem immune from that mental weakness which is often met with in great travelers and displayed in an attitude of superciliousness sometimes amounting to disdain or contempt for the opinions and experience of the untraveled world.

The symptoms in his case are not confined to medical matters, for, having been hospitably entertained by Belgian officials and having listened to their views as to the government of the Congo, he pooh-poohs the story of atrocities he did not witness, apparently unconscious that the experience of a passing traveler can only weigh as the "small dust of the balance" against the evidence of numbers of men and women who have lived for years in the devastated regions.

The danger of fire in hospitals has lately received rather unpleasant illustrations. The Prince of Wales, as president of the King's Hospital Fund, last February asked Sir E. Shaw and Captain Wells to draw up recommendations as to the best methods of securing protection from fire in the London hospitals. These gentlemen have now submitted a report embodying the result of their deliberations. Valuable suggestions are made as to sites and architectural considerations which could be influenced by the fund in the future. The existing buildings have been erected without any system and as to fire appointments without any forethought, and in some of the smaller hospitals, not built for the purpose, no suggestions seem possible except cleanliness, prevention of dust, unfailing watchfulness for the first sign of danger, and immediate notice to all concerned inside and outside the premises. Hospital committees should make regulations as to the duties of the officials when an alarm is given and each should instantly take his appointed place. Fire drill should not be neglected. Simple appliances should be at hand, but their use should not delay the summoning of the fire brigade, when officials could give attention to allaying panic and removing patients to a safe place.

A few medical students planned a silly trip to Battersea to deface the memorial to a dog erected by the anti-vivisectionists. They regarded the inscription on it as a slander on their college. Five were arrested and fined £5 each, though no damage was done. The magistrate told them the erection was legitimate. Perhaps he meant legal or not illegal. Further, he threatened imprisonment in case of a repetition. His severity rather contrasts with the trifling fine inflicted on many a man for violence to another man or even woman. In a day or two thirteen students started from their college on a little march to protest against the heavy fines. As they walked along the pavement a couple of police warned them and as they continued their parade reinforcements were obtained and a posse of constables led by two mounted officers dispersed the students. Think of it! mounted men against thirteen juvenile students! The yellow press got hysterical over the matter and the virtue of the antis. But the sensational paragraphing failed to stir the public. The funny thing about it is that the same papers chronicled a march of hundreds of workingmen whose procession was "escorted by the police." People are saying these men were voters and the Government dared not risk offending them and so losing their votes!

Dr. Montague Murray died on Monday, aged 52. He was a University College student and graduated at the London University, taking the M.D. in 1884, when he also became member of the College of Physicians, of which he was elected Fellow in 1893. He was long connected with Charing Cross Hospital, where he filled numerous offices, including those of Medical Registrar, Assistant Physician, Lecturer on Pathology, Dean of the School, and eventually Senior Physician and Lecturer on Medicine. On the last subject he had been examiner at the University and at the Conjoint Board. He edited the third edition of Quain's Dictionary (1902) and the eighth and ninth editions of Green's Pathology. He contributed to the journals and societies various articles.

Dr. Rob John Paton, surgeon to the Newport and Monmouthshire Hospital, died on the 16th at the age of 45 from septic poisoning following a slight prick of his finger during an operation. He was M.D. (Ed.) and a licentiate of the two Edinburgh Royal Colleges, as well as of the Glasgow faculty. His untimely death is deeply lamented throughout the district, where he had worked for some sixteen years and attained a great reputation as a skillful surgeon.

OUR BERLIN LETTER.

(From Our Special Correspondent.)

CEREBRAL EXPLORATION—JACKSONIAN EPILEPSY—TUMORS OF THE SPINAL CORD—MILK SUPPLIES—SURGICAL TREATMENT OF EMPHYSEMA—SPINAL ANESTHESIA—INOPERABLE CARCINOMA OF THE UTERUS—NURSING BOTTLES—AUTOTOXIC ECZEMA—TYPHOID BACILLI CARRIERS.

BERLIN, October 15, 1907.

DURING the months in which the medical societies are taking a well-earned rest a large number of congresses hold their sessions. The Association of German Men of Science and Physicians has recently absorbed four special societies on laryngology, psychiatry, pediatrics, and pathology, and a few of the subjects that were discussed will be referred to briefly.

At the first annual meeting of the Association of German Neurologists, held in Dresden, Neisser of Stettin spoke on cerebral exploration by means of an electrical drill. This was to be used without anesthesia in cases of hematoma, abscess, tumor, and exudate into the ventricles. As the procedure was attended by but little danger, it might be repeated as often as necessary for diagnostic purposes. Krause of Berlin reported good results in the operative treatment of Jacksonian epilepsy. The operation scars themselves, as opposed to those of inflammatory nature, never give rise to epileptic manifestations. In most of the cases of Jacksonian epilepsy the forearm center is involved; the next in frequency is the one for the face, and finally those for the lower extremities. The surgical treatment of tumors of the spinal cord was discussed by Bruns of Hanover. He said that the differential diagnosis was very difficult only in cases of localized serous meningitis. It was impossible to determine the level of the lowest segments involved in the new growth. If antisyphilitic treatment was ineffectual exploratory puncture should be resorted to. Cassierer of Berlin read a paper on tumors of the cauda equina. In twenty-four cases of this sort that had come to operation two cures had been obtained. The operative prognosis was less favorable than in dealing with the spinal cord, as the growths were usually very large and malignant. Exact localization was usually impossible.

In the general session of the Association of Men of Science and Physicians an important contribution was read by Hempel on the subject of milk supplies. He stated that nineteen milliards of liters of milk, having a value of $400,000,000, were produced annually in Germany. Examination of the milk of healthy cows had shown such great fluctuations in its composition that by the use of set formulas for general employment different results would be obtained, and mixtures so calculated might be unsuitable for infant feeding. Boiling milk sterilized it, but also destroyed its bactericidal ferments. For the transportation of milk the American refrigerator cars were very desirable and should be introduced into Germany. On standing, milk soon separated into layers of different composition, so that the receptacles should be provided with devices for insuring thorough mixing before the removal of each portion.

In the surgical section Burker of Rostock recommended the complete excision of the area involved in all cases of thrombosis in varicose veins after a preliminary ligation of the occluded venous trunk. Trendelenburg of Leipsic described a syringe for removing clots from the heart, which had been successfully used on sheep. Hoennicke of Dresden described experiments on animals in which he had in forty-six cases produced monstrosities by the administration of thyroid extract, ammonium sulphate, ether, and alcohol before and during pregnancy. Paessler and Stieda demonstrated some interesting cases illustrating the surgical treatment of emphysema. In the case of a woman of fifty-one years portions of the second and third ribs 2 to 3 cm. in length were removed, with the result that the mobility of the upper portion of the thorax was greatly increased and the aeration of the lung was much improved.

In the section on obstetrics and gynecology Krönig of Freiburg spoke on a series of one thousand spinal anesthesias. He had found that this method could be employed successfully in laparotomies only when combined with scopolamine narcosis, but in this form it was likely to prove a serious competitor of inhalation anesthesia. In regard to the question of whether the scopolamine-morphine procedure should be included in the methods employed in private practice, Steffen of Dresden said that he was inclined to take the negative view on account of the uncertainty of the method, its possible complications, and the protracted presence of the physician which it made necessary. Gellhorn recommended acetone as a local application in cases of inoperable carcinoma of the uterus. Under anesthesia the growth was thoroughly curetted and cleaned and then one to two tablespoonfuls of acetone were poured into the cavity. The patient was kept with the pelvis elevated for fifteen minutes to half an hour, and after the fifth day the remedy was reapplied through a speculum at intervals of three or four days. The effect was to check the hemorrhage and suppuration, the walls of the diseased cavity became smooth and dry, and the general condition improved. Brüning of Rostock read a paper on the history of nursing bottles. In the days of the Greeks and Romans vessels of various sorts were in use from which the contents could be poured out drop by drop. Since the thirteenth century bottles provided with some equivalent for a nipple had come into use. In the fifteenth, sixteenth, and seventeenth centuries nursing bottles were of wood, and in the seventeenth, eighteenth, and nineteenth centuries metal bottles were in use. Glass nursing bottles were first mentioned in 1769.

An unusual type of disseminated dermatosis was described by Leiner of Vienna as occurring in infants during the first or second months. The lesion consisted of erythematous patches on the trunk or seborrheal lesions on the head, which soon spread over the entire body. At the height of the disease the head was covered with crusts and scales and the skin of the rest of the body was red and scaly. In one-third of the cases death occurred with fatty degeneration of the heart and liver and intestinal catarrh. The condition appeared to be a form of autotoxic eczema.

In the section for internal medicine, Chiari of Strassburg discussed the relation of typhoid and paratyphoid fevers to the gall passages. In typhoid fever the bacilli were nearly always to be found in the biliary passages and multiplied in that situation. They might remain in the gall-bladder for a long time, even fourteen years, and might induce choleliathiasis. In eight cases of typhoid examined in one year Chiari had found typhoid bacilli in the gall passages of seven of the patients. The bacilli reached the gall-bladder through the blood. Förster of Strassburg pointed out that the bacilli might appear in the blood during the period of incubation, but in the excretions only after first and second weeks. The antibodies also appeared in the blood sooner than the bacilli in the feces. Among the bacilli carriers three groups might be distinguished—those in whom the organisms persisted for weeks, months, or years. An interesting fact was that, just as in the case of gallstone disease, 80 per cent. of the bacilli carriers were women. Cholecystectomy was indicated in bacilli carriers who suffered from gallstones. For others the administration of bile and biliary acids was advisable for the purpose of cleansing the gall-bladder, and bactericidal substances might be added to these agents.

OUR LETTER FROM THE PHILIPPINES.

(From Our Special Correspondent.)

PHILIPPINES MEDICAL SCHOOL—FILIPINA TRAINED NURSES—PURE MILK FOR INFANTS—BAGUIO, THE SUMMER CAPITAL—ANTHRAX IN HONG KONG—PERIODICITY OF THE PLAGUE—PERSONAL.

MANILA, P. I., November 8, 1907.

THE cause of medical education and that of public health, sanitation, and hygiene have received considerable impetus since the arrival of the Secretary of War, William H. Taft, in the Philippine Islands. He has taken a deep interest in the work which has been accomplished here since his last visit and has made it a point to stimulate by his presence the efforts of those engaged in this work. He visited the Philippines Medical School and after inspecting the institution and learning more of the details of the nature of the work which is being accomplished, he expressed his hearty approval and future support.

He also visited the Girls' Dormitory of the Philippine Normal School, where sixteen Filipina women are undergoing a preliminary course of instruction in the art of nursing. He was much gratified that this work has been undertaken, because it is the first time that efforts in this direction have met with any success whatsoever, as the women of the better class among the Filipinos do not take kindly to this form of work, because, in Spanish times, it was considered more or less degrading for a woman to engage in any form of manual labor. In addition, it is distinctly contrary to the customs of the country that a woman should, at any time, be alone in a place like the male ward of a hospital. Much patience and perseverance have been and will be required to overcome these preconceived notions and to introduce American customs in the islands with regard to nursing.

Mr. Taft also visited the "Gota de Leche," which is a

charitable institution modeled after those of France, which has for its object the distribution of wholesome milk to the infants of the city of Manila, with a view to reducing the infant mortality which plays such an important rôle in the mortality statistics of the islands. This movement is receiving the active support of the Filipinos, and bids fair to be as successful as a similar movement which did so much for Japan.

He also visited the summer capital at Baguio, which is the health resort of the Philippines, and expressed himself as being pleased with the practical results which have been obtained in the way of restoring the health of those who went there during the past years. He will recommend to Congress that the present army post at Baguio be enlarged to a brigade post and that the tour of duty in the Philippines be increased at least another year, with the understanding that the troops in the Philippines shall be given at least six months' stay in Baguio, thus giving them all the advantages of a visit to a temperate climate.

Mr. Taft also visited the site of the new reservoir, and the dam, situated about twenty miles from Manila, from which the new water supply for the city is to be piped from an uninhabited watershed, this project alone involving an expenditure of more than two million dollars to carry it into effect.

Last week there arrived in Manila a shipment of cattle from Hong Kong, among which were found some that were afflicted with anthrax. The entire cargo of cattle were refused admittance to the islands, and the importation of cattle from Hong Kong has been temporarily suspended. Dr. Musgrave has been sent by the Philippine Government to Hong Kong to make a thorough investigation as to whether these shipments could be resumed with safety.

Owing to the disappearance of plague, in and about Amoy and vicinity, the quarantine of seven days which has been imposed upon vessels from that port during the past six months has been removed, and from now on vessels from Amoy will only be required to undergo disinfection at one of the quarantine stations of the Philippines before being granted pratique to the islands. The seasonal prevalence of plague, which is indicated by the above order, is most remarkable for its regularity, as is shown by the time of imposition and lifting of the quarantine against that port during the past seven years. The number of plague cases gradually increases about the month of March, reaches its fastigium during April or May, and then gradually declines until October, when the disease disappears completely.

Assistant Surgeon Joseph H. Ford, United States Army, who has been experimenting with antimalarial serum, having completed his tour of duty in the Philippines, has been ordered to return to the United States upon the transport which sails from here about November 15 next.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 5, 1907.

Nocturnal Paralysis.—After a reference to a previously reported personal case and to recent literature on the subject, I. H. Coriat reports four additional cases from the neurological clinic of the Boston City Hospital. Case I. is entitled psychasthenia with peculiar crises and nocturnal palsy; Case II., neurasthenia with rather protracted attacks of nocturnal palsy; Case III., hysteria with narcoleptic attacks and nocturnal palsy; Case IV., neurasthenia with nocturnal palsy. The author states that on clinical evidence at least nocturnal palsy seems to possess the following characteristics: (1) It appears only in the hypnagogic state and runs parallel with it. (2) When it occurs in normal individuals it is a transitory and rare phenomenon. (3) Sometimes it follows a strong emotional shock and assumes the characteristics of a recurrent mental state, as in the case published in my first paper. (4) The symptom-complex may occur in hysteria, neurasthenia, or psychasthenia. In neurasthenia it appears to be merely symptomatic of the underlying neurosis with its concomitant sense of exhaustion. In hysteria and psychasthenia it is an equivalent disorder in the sense of replacing the narcoleptic attacks in the former disease or the peculiar crises of anxiety in the latter. (5) This nocturnal palsy has a varying duration, from a few seconds in normal individuals to several minutes, or even a quarter of an hour in pathological cases. (6) The entire symptom-complex is a mental dissociation reacting most strongly on the motor mechanism, and as a purely functional disorder it is distinctly amenable to psychotherapeutic treatment.

New York Medical Journal, December 7, 1907.

Diseases of the Liver Amenable to Surgical Treatment.—Under this heading C. A. McWilliams mentions cirrhosis, abscess, malignant disease, and prolapse. He refers to Kocher's statement that it should be the rule in all liver diseases accompanied by persistent jaundice, in which the latter is clearly not due to an inoperable condition such as advanced liver and pancreatic cancer, to perform an exploratory laparotomy. Reference is made to various authorities in this department of surgery, and the author presents statistics from the records of the Presbyterian (N. Y.) Hospital. Of four cases of operation for ascites, all have done well. The statistical list includes 16 cases of abscess, but the ultimate results are not given. Six patients had more than one abscess, and of these four died. Ten patients had single abscesses, and of these three died. The list of malignant cases comprises twenty-five. In seven of these erroneous diagnoses were made before operation (cancer of the colon, biliary calculi, gastric cancer (2), abscess of the liver (3). He refers to Keen's collection of seventy-six cases of resection of hepatic tumors, sixty-three of which recovered. When the tumor is exposed resection should be undertaken only when the tumor is primary and solitary, when its margins are clearly defined, when it is quite certain that the whole of the neoplasm can be removed, and in malignant cases, that such a margin can also be cut away, so as to make it probable that recurrence will be prevented or long postponed.

Infections Within the Thorax.—J. H. Musser finds, in going over the histories of 12,892 cases of pneumonia, that 2.1 per cent. had empyema. He does not believe that the latter disease is ever idiopathic. The pneumonia is almost always attended by a serous pleurisy, and this frequently becomes purulent. The exciting organisms are in their order of frequency, the pneumococcus, streptococcus, and the tubercle bacillus. Typhoid and scarlet fever are frequently followed by empyema, which also supervenes in disease of the ribs, subpectoral tissues, esophagus, and subdiaphragmatic lesions. In making a diagnosis we must look out for the evidences of pus (chill, fever, sweating, etc.), occurring coincidently with the crisis of the original pneumonia. A leucocytosis after the crisis associated with the general features of an infection is of great significance. Steady, persisting pain in certain localities is always suspicious, as is also localized tenderness. Of suggestive physical signs, special mention is made of localized friction sounds, which are very good guides as to the position of the abscess when it is between the lobes or under the diaphragm. When between the lobes the frictions are along the septa. Musser has found them in the anterior axillary line, either on the left side or right, when the abscess may be two or three inches above or between the septa, and practically almost always near to the root of the lung. Concerning percussion, he says that first the note is overresonant. After three or four days the quality of the resonance changes to impaired and then dullness, depending upon the rapidity with which the abscess increases in size. It is surprising how long the abscess may remain localized and of moderately small area. By this time the voice sounds are not usually different from those we find in the occurrence of small effusion. The *x*-ray is of some value in the recognition of the presence of an abscess. When small abscesses are present one is only able to see that a well defined shadow is present. We cannot, of course, make a diagnosis of abscess within the pleura, and can only state that there is a consolidation or effusion by the difference in the density. If the physician is reasonably certain of his diagnosis he should lose no time in calling on the surgeon to make an exploratory puncture.

Some Things Not Generally Known About Syphilis.—The points emphasized by J. A. Hawkins are the following: (1) that all diseases due to nontraumatic arteritis, as paresis, tabes, true angina pectoris, aneurysm, etc., are due to syphilis. (2) That they are parasyphilitic or quaternary manifestations and are seldom amenable to treatment as usually exhibited. (3) That the iodides are of little value in the class of cases just mentioned, and if any benefit is expected, it must be obtained through the use of mercury, preferably administered in the form of hypodermatic injections of biniodide of mercury. (4) That no other disease is more often maltreated than syphilis. (5) That secondary syphilis, if energetically and intelligently treated, is positively curable. (6) That mercury, and not iodide, is the drug to use in the early stage, and is often the drug for the later stages. But to get the effect, it must be given in increasing doses until the point of tolerance, and then continued in tonic doses intermit-

tently, at least two years. In the early stage, deep intramuscular injections are most effective, the salicylate of mercury being preferred. (7) That two years of active intermittent treatment, after disappearance of the secondary syphilides, will assure a cure, as proved by a number of women and their offspring in his own practice. (8) That syphilis is far more prevalent than the majority of physicians suppose, and is frequently overlooked by the family physician through his lack of familiarity with its various phases, with consequent disastrous results to the patient or his progeny.

Animal Therapy in Tuberculosis.—G. B. Sweeny refers to certain observations made by him on the theory that the immunity conferred upon cattle by the inoculations of Behring (method described) was dependent on the lymphocyte. He therefore conceived the idea of utilizing the lymph collected from the thoracic duct of the immunized animal in the treatment of tuberculous patients. The results of such injections are herewith summarized: (1) Following injection into the healthy organism no febrile reaction is observed to follow the administration of the lymph, and no special influence is exerted, excepting that which follows the administration of a simple cell tonic. (2) Following injection into the tuberculous patient, at first there is a period of intoxication, characterized by a lowering of the antibacterial power of the blood cell. This negative phase is more or less marked and prolonged, according to the dose of lymph injected. If the dose is large, the negative phase may be revealed by a rise of temperature and a reaction of the organism. If the dose is small, the negative phase may be accompanied by no clinical signs whatever. After the negative phase there comes a positive phase, which is characterized by an increase of the antibacterial power of the blood. This phase represents an increase of resistance against intoxication. The curve, which represents the variation in the opsonic influence on the blood, often rises suddenly and descends at first quite rapidly and later more slowly. The patient experiences a feeling of well being and of physical vigor at the time when the positive phase reaches its apogee. These "negative and positive phases" of opsonic influence may be aptly called the ebb and flow of the tide of immunity. When immunity seems to have been acquired, the "negative phase" entirely disappears, and the results following injection are identical with those observed in (1). (3) A decided tendency to approach and maintain a normal temperature is noted, whether this has been conspicuously above or below normal. (4) Night sweats, which had previously accompanied fever, are absent or materially modified. (5) Marked stimulation of the secretions, as manifested by facilitating expectoration, where this is scanty and tenacious. Consequent amelioration of cough. The alvine and urinary discharges display a like stimulation. (6) Where hemorrhages have occurred from lungs, previous to administration of lymph or where cavities are present, cicatrization is encouraged by a process of lymphocytosis (?) directed toward the seat of the lesion. Concomitant with this condition is an increase in weight and bodily vigor.

Journal of the American Medical Association, December 14, 1907.

Experimental Lymphatic Spirillosis.—W. C. White and F. Proescher include under this head the following diseases: Acute lymphatic leukemia, chronic lymphatic leukemia, pseudoleukemia or Hodgkin's disease, chronic benign lymphomatosis and lymphosarcomatosis (chloroma myeloma.) In all these diseases they have found spirochetes in enormous numbers in sections from the glands. Portions from the glands were injected subcutaneously into a guinea-pig, and it was then examined for tuberculosis which was not found. The animal, however, developed an ulcer at the site of the operation and enlarged glands in the groin. In the fluid aspirated from these, the same form of spirochete was found as that in the original glands. The same infection was transferred from this guinea-pig to three other healthy ones, a hard indurated edged ulcer appeared on the eighth day, with enlarged glands in the groin. Microscopically the sections of the glands stained with hematoxylin and eosin gave the picture of hyperplasia of the lymph gland with patches of sarcomatosis.

Anorectal Malformations.—S. W. Kelley reports three cases of imperforate anus. In one there was a depression bridged by a tail-like process from the coccygeal region to the scrotal raphe. The rectum was reached by a quarter-inch dissection and permanent good result obtained. The other cases were of more serious malformations, and both patients succumbed. In commenting on these cases, Kelley thinks that they show the necessity of early discovery of the condition and prompt operation. They also illustrate the impossibility, before operation, of ascertaining the degree of development of the rectum or the position of the enteron. In the first of the two, the pouch was situated on the right side in the cecum, in the other on the left. He thinks that if a patient with imperforate anus or malformed rectum, without a previous sinus, were to come before him now in a fit condition for operation, he would persist in the perineal, coccygeal, or even sacral route, separate and drag down the pouch if possible and stitch it to the skin margin. Of course, this would have to be done in time, while the patient was fit for such an operation.

Urinary Infection in Children.—I. A. Abt describes the bladder and kidney infections in children which are almost always of bacterial origin. He states that the infection is most frequently an ascending one, though congenital malformations predispose to it. During the past few years 22 cases of cystopyelitis have come under his observation, mostly in infants under eighteen months and nearly all in private practice and in families in comfortable circumstances. The trouble usually began suddenly with restlessness and fever, anorexia, and sometimes persistent vomiting. Local pain seems to be sometimes present. In several of these cases casts were found in considerable quantities. The urine is usually cloudy and of low specific gravity. If the colon bacillus or that of tuberculosis is the cause the urine is usually acid; staphylococci and streptococci generally occur with alkaline urine. The blood shows a marked leucocytosis. Twenty of his patients recovered. In one of the fatal cases there was a malformation of the kidney. The other child died of a protracted and neglected cystopyelitis. The prognosis, if early recognized and properly treated, is favorable. The diagnosis can only be made by an examination of the urine, and it cannot be too strongly emphasized that infants with a persistent irregular fever for a succession of days should have the benefit of both a chemical and microscopical urinary examination. Pus in an acid urine with epithelial cells and occasional casts and colon bacilli is proof positive of a cystitis or pyelitis or both. As a prophylactic all who have the care of very young children should be instructed as to the importance of thorough cleanliness of the buttocks and genitalia. The treatment depends on the cause; if it is a stone or foreign body, surgery is indicated, but if an infection, the free administration of fluids, especially water, is advised. Medicinally hexamethylenamin (urotropin) is the most valuable remedy. To infants one to two years of age it may be given in one-grain doses four times a day and increased, if it is well borne. Salol may be given either alone or in combination with urotropin to children of this age. In one rebellious case he found one-drop doses of guaiacol of advantage. During fever the nourishment should be largely liquid and nonirritating. Irrigations are not usually necessary, except in the severe forms of streptococcic or staphylococcic infection. In other respects, the treatment is expectant and symptomatic.

Surgical Relations of the Temporal Bone.—G. E. Shambaugh describes and illustrates some of the more important structural variations that may complicate the mastoid operations. The first of these is the occasional encroachment of the sigmoid sinus on the posterior wall of the meatus so that the usual space is lacking for the opening into the antrum. In such case the first stroke of the chisel in opening the shell of the mastoid could easily open into the sinus. Hence the necessity of caution when the sinus is close to the surface of the bone, as we have no means of ascertaining the exact location of the sinus beforehand. The most important structure to be considered, especially when performing the complete tympano-mastoid exenteration, is the facial nerve. If the bony shell between it and the tympanic cavity is lacking, as sometimes happens, it may easily be injured in curetting. Its relation to the posterior wall of the meatus is such that any attempt to remove completely the posterior wall toward the floor of the tympanum would certainly result in a severance of the facial nerve. Another point of surgical interest is that from the point just back of the oval window where the nerve curves downward, its course lies further and further away from the posterior wall of the meatus, thus allowing a considerable wedge of bone to separate the nerve from the meatus as the floor of the latter is approached. The bony covering of the lateral or horizontal semicircular canal forms a smooth, ivory-like, rounded prominence in the floor of the an-

trum tympanicum, just where this cavity opens with the tympanum, and a false stroke with the chisel after the antrum has been entered could result in opening this semicircular canal. In curetting and cleaning out the tympanic cavity one must bear in mind the relations of the carotid artery, and the fact that at the tympanic orifice of the tuba auditiva it is separated from the tube by only a thin shell of bone which can easily be penetrated by the curette. Frequently it forms a very thin-walled prominence in the tube. The bulb of the jugular also, while usually separated by at least a quarter of an inch from the tympanum, may sometimes be separated from it by only a thin bony wall, and even this may sometimes be wanting, leaving the bulb of the jugular unprotected and liable to injury.

Cystocele Operation.—D. T. Gilliam describes a simplified operation for cystocele. An oval denudation is done, as in the old method, and a flap is dissected from the vaginal wall on either side of the denuded area; these flaps are then drawn over and sutured to it and to each other from below upward. The technique is described in detail and illustrated. He claims that this operation effaces the cystocele and strengthens the site with the additional layers of fascia. It is adapted especially to cases uncomplicated by prolapse of the uterus. For extensive cystocele with uterine prolapse he can conceive of nothing better than the operations of Goffe and Watkins.

Essential Insufficiency of the Heart in Childhood.—A. W. Fairbanks calls attention to a condition he has frequently observed in the routine examination of children, but which appears to be neglected in medical literature. He regards it as a muscular deficiency of the heart comparable to muscular deficiency elsewhere in the body and due to irregular development. The symptoms are inconspicuous, the more prominent are pain in the chest and shortness of breath on moderate exertion, cyanosis under similar conditions, and sometimes persisting after the exertion for a short time, seen especially in the lips, face and fingers, and cold hands and feet. A more remote effect and less constant but more striking is the backward physical development of these children, most noticeable between the eleventh and thirteenth years. Some of these children show a discrepancy of several years between their actual and apparent ages. They are notably deficient in the usual activities of childhood. In its ultimate results muscular insufficiency of the cardiac muscle is much more serious than the same condition elsewhere in the body, tending to an actual organic deficiency in time. Fairbanks does not, however, consider such defect absolutely essential for the production of all the secondary symptoms of deficient heart, or of the remote results of such deficiency, when long persistent, on the growing body. These cases are generally overlooked by the family physician, who finds no organic disease, and the symptoms observed are credited to some error of hygiene or diet or to something the child is expected to outgrow. He does not venture to say just what etiological factor is directly to blame for this insufficient cardiac development, but believes that every infection or toxemia affects the cardiac muscular and nervous structure to a certain degree, and advises giving more attention to the slight ailments and greater care during the convalescence from the ordinary infections in this stage of life. The treatment advocated is the same as that for cardiac incompetency from demonstrable organic disease—rest, absolute at first, combined with massage and warm carbonated saline baths and, in the case of older children, resisted movements, and, at a later period, graduated physical exercises under control of a physician or nurse.

The Lancet, November 30, 1907.

A Very Successful Method of Treating Acute and Chronic Suppurative Otitis Media and Other Forms of Otorrhea.—The method described by A. F. Blagdon Richards consists in the use of the following combination for ear drops after the usual cleansing: boric acid 1 dram, rectified spirits 2 to 3 drams, and glycerin to make 1 ounce. He uses boric acid one dram to the pint for cleansing purposes. He employs the same combination in acute as well as chronic cases, and says that he cannot recall a single case in which the acute has merged into the chronic condition in which he has had the opportunity of treating the case from the outset. A series of illustrative cases is appended.

The Value of Blood Pressure Determination in the Diagnosis of Aneurysm of the Aorta.—O. K. Williamson presents the following conclusions: (1) The arterial blood pressure in most cases of aneurysm of the thoracic aorta or innominate is either normal or slightly above normal. It is, as a rule, however, much higher in cases of mere dilatation of the aorta, and this fact is of some value in the differential diagnosis of these two conditions. (2) A distinct difference (at least five millimeters) between the arterial blood pressures in the two arms is the rule in the majority, and in about the same proportion of cases, on the one hand, of both aneurysm of the arch or ascending portion of the aorta and aneurysm of the innominate and, on the other, of dilatation of the aorta; and a marked difference (at least ten millimeters) is equally common in both. Such differences are therefore of no value in the differential diagnosis between these conditions. A great difference (at least twenty millimeters) seems to be likewise about equally common in these two classes of cases, but a difference of upwards of thirty millimeters speaks strongly in favor of aneurysm as against mere dilatation of the aorta. (3) While distinct (at least five millimeters) or marked (at least ten millimeters) differences are the rule in a far larger proportion of cases of aneurysm of the arch or ascending portion of the aorta or innominate than in cases, on the other hand, of arteriosclerosis or mediastinal tumor, yet such differences are sufficiently frequent in the latter conditions to lead to the conclusion that their presence in a particular case affords but little help in the differential diagnosis between these conditions on the one hand and aneurysm of the arch or ascending portion of the aorta or innominate on the other. Differences of pressure between the two sides greater than twenty millimeters afford, however, strong evidence in favor of aneurysm of the arch or ascending portion of the aorta as against the two other conditions. (4) A distinct difference between the pressures on the two sides is the exception in cases where none of the above pathological conditions are present. (5) Digital examination of the pulses in cases of aortic aneurysm is a far less sensitive method than instrumental, frequently gives results directly at variance with those obtained by the latter means, and hence is of much less value in diagnosis. Elaborate tables are appended, detailing the clinical observations on which the above conclusions are based.

On Change of Type in Leukemia and Its Significance.—S. G. Scott refers to five cases of this nature reported by various authorities during the last few years. He offers the following summary as to the cytology of the disease: (1) The large lymphocyte is present in the blood in all leukemia. The large mononuclears and lymphocytes are frequently increased in myeloid leukemia. Myelocytes are usually present in lymphadenoid leukemia. (2) Between the extreme types ordinary myeloid and ordinary small-celled lymphadenoid (chronic lymphatic) on the one hand, and the undifferentiated, usually acute, large lymphocytic leukemia on the other hand, all gradations have been found. (3) Both myeloid and lymphadenoid leukemia may become large lymphocytic. (4) Simultaneous myeloid and lymphadenoid leukemia is not known. He adds one personal case, that of a boy fourteen years old, who had complained one month before admission to hospital of fatigue and drowsiness. Spleen was enlarged and he had some fever. The heart was a little dilated, and a faint systolic bruit was heard over the pulmonary area. The lungs were normal. The liver dullness was slightly increased downwards, and the spleen reached below the umbilicus and to the right of the middle line. The urine was free from albumin and sugar. The blood examination showed the features of myeloid leukemia, and the rather high proportion of large lymphocytes justified a diagnosis of atypical myeloid leukemia. Arsenic treatment was adopted and continued until vomiting set in. Later *x*-ray treatment was begun, five minutes' exposure of the spleen and each knee-joint daily being prescribed. As the patient was getting worse rapidly and the *x*-rays caused some discomfort, the treatment was discontinued. Later the glands in the neck, axilla, and groins were noticed to be slightly enlarged. Later some pale retinal hemorrhages with marked neuroretinitis and pallor of the optic disk were noticed. There was also some diplopia. He again became drowsy. Three days later there were several attacks of severe paroxysmal precordial pain. During the stay in hospital there was fever for most of the time. In the first fortnight after admission the weight increased by fourteen pounds and after that remained roughly constant. Death occurred after an entire illness of about ten weeks.

British Medical Journal, November 30, 1907.

Rigor Mortis in a Stillborn Child.—D. W. Whitfield reports attending a woman, thin, active, but poorly nourished, aged twenty-two years, in her third confinement, one month before the expected time. She had felt the child moving vigorously about eight hours before its

birth. She had an easy and straightforward time, and was in labor about four hours. The child, a female, when born was dead and in a state of well-marked rigor mortis, the legs and arms were flexed and quite rigid, the child seemed to be well nourished, and did not appear to be of more than eight months' development. Her first child was born alive. The second was born dead. Her husband is a weakly man, with synovitis, probably gonorrheal, of his knee-joint.

Hysterectomy and Appendicectomy in a Patient Aged 74; Recovery.—The patient of J. D. Malcolm was a healthy, well-nourished woman, and the operation was done at a time of election. The condition determining the operation was the existence of a well-marked flatulent enlargement of the abdomen and a tumor continuous with the uterus, and apparently within the right broad ligament. It was rounded in shape, not tender, large enough nearly to fill the pelvis, and firmly fixed, but he thought that the fixity was in part due to its size and position. It seemed to be a soft, solid, or a thick-walled cystic growth. There was no history of any serious illness, and the other organs were healthy, with the exception that there was a trace of albumin in the urine, the specific gravity of which was 1,014 to 1,016, and its quantity was normal. Menstruation was regular and free, but not excessive at any time, and its cessation, at the age of fifty-three, was not accompanied by noticeable symptoms. Operation was without incident. Sutures were removed on the eighth day, but during the following night part of the incision gave way, and when the patient was being put under an anesthetic with a view to inserting fresh sutures the whole wound broke down. The exposed coils of intestine showed no sign of inflammation or tendency to form adhesions, and the wound, after being reunited, healed throughout without suppuration, all the sutures being left in position fourteen days, and some sixteen days. Except for a slight bronchitis and a painless swelling of one leg of about three days' duration, there was little further trouble, and the patient recovered her strength in a very satisfactory way. It was noted, however, that as she moved about and took nourishment more freely, the amount of albumin in the urine increased, but not to any great extent. The patient left the hospital five weeks after the first operation, and some months later was to all appearances well.

The Correlation of the Ovarian and Uterine Functions.—The experiments on rabbits of E. S. Carmichael and F. H. A. Marshall lead them to the following conclusions: (1) The removal of the ovaries in young animals (rodents) prevents the development of the uterus and Fallopian tubes. These remain in an infantile condition. The subsequent growth and general nutrition of the animals seem to be unaffected. (2) The removal of the ovaries in adult animals (rodents) leads to fibrous degeneration of the uterus and Fallopian tubes (most marked in the mucous membrane). The animals' subsequent health and nutrition remain good. These observations, for the most part, support the evidence obtained clinically in the human subject after surgical operation. (3) The removal of the uterus in a young animal has no influence in preventing the further development of the ovaries. These are capable of ovulating and forming corpora lutea after adult life has been reached. (4) The removal of the uterus in an adult animal does not give rise to any degenerative change in the ovaries if the vascular connections of the latter remain intact. These latter observations do not support the contentions of those surgeons who advocate subtotal hysterectomy, believing that the functional activity of the ovary is in some way dependent on the presence of the uterus.

Movable Kidney from a Surgical Standpoint.—W. Billington discusses the morbid anatomy of this condition and then speaks of treatment by belts and by operation. He describes his operative procedure (diagrams given) and passes on to the results of the operation. These he has found to be in the highest degree satisfactory. All but one of his seventy cases did well. The exception was a man who, on the fourth day after operation, went into sudden collapse and died without any apparent reason. Autopsy revealed nothing abnormal. Billington notes that there are several reasons why it has been found difficult to fix movable kidneys successfully and permanently. The renal parenchyma is soft, and sutures passed through it tear out easily, so that the capsule alone can be utilized for purposes of support. The muscles of the back are too yielding, and will not withstand the drag of a kidney fixed to them; further, by their own contraction, they tend to push the kidney away from them, and so strain the supporting stitches. The strain thrown upon the supporting sutures during the retching that is so common after operation is enormous, and is, the author believes, the cause of so many kidneys being found loose again as soon as the patient assumes the erect position. He is firmly convinced that no method by which the kidney is sutured to the muscles of the back will give satisfactory results. Another difficulty has been experienced in connection with buried sutures; these, such as catgut, which are absorbed in the tissues, are apt to soften and yield too soon, while the permanent suture materials, such as silk, frequently give rise to troublesome sinuses. To avoid these troubles, the kidney capsule itself has been cut into strips which have been made to serve as sutures, and some of the tendons of the back muscles have been utilized for the same purpose. The results, however, have not been altogether satisfactory.

Berliner klinische Wochenschrift, November 25, 1907.

The Forensic Application of the Method of Fixation of the Complement.—Bruck finds that by this method it is possible to identify albuminous bodies in much more diluted form than by the older precipitin test, but he considers that the latter should still be employed in forensic work for the purpose of distinguishing between albuminous bodies of human and those of animal origin. The fixation method should, however, be also employed as a control in every case, but its great sensitiveness makes it advisable to work with serums whose potency is not too high and requires a considerable degree of experience on the part of the worker to avoid error. By using a weaker serum it is possible by the fixation of the complement not only to make the diagnosis as to the nature of the animal from which a given albuminous fluid has emanated, but also to differentiate between different body fluids, such as blood, pus, semen, etc. The reactions for these are sufficiently characteristic to render the method practically useful for forensic purposes.

Münchener medizinische Wochenschrift, November 25, 1907.

The Transplantation of Epithelial New Growths.—Reinke succeeded in inducing epithelial new growths in the lens of the eye of the salamander by means of injections of 4 per cent. ether. The lens containing the colonies of proliferated cells was excised and reduced to fragments in physiological salt solution. This was then injected into the abdominal cavity of other animals. At the expiration of sixty days the parietal peritoneum contained nodules of the size of the head of a pin, which on microscopical examination were found to consist of the transplanted epithelial cells, together with new formed blood-vessels and connective tissue. The treatment with ether, and also possibly the transplantation, appeared to have altered the specific character of the lenticular cells, so that in addition to their increased proliferative capacity they had lost the ability to form lens fibers and prevent the penetration of blood-vessels and connective tissue. The structures so formed possessed resemblance to true carcinoma.

The Treatment of Gastrointestinal Disorders with Bolus.—Gorner discusses the application to internal treatment of bolus alba—powdered clay—originally suggested by Stumpf as a local application in granulating wounds and then as a remedy in cholera. Gorner has found that it is of value in the treatment of gastrointestinal disorders of bacterial origin, probably because of the inhibiting effect on the growth of microorganisms which the substance seems to possess. It is tasteless, and can be given to adults in doses of 50-100 g. in about a quarter liter of water. Infants may take 10-30 g. It is best administered with the stomach empty, and it is preferable to avoid the addition of any other substances such as sugar or milk. The method is particularly effective in the treatment of acute gastroenteritis, the vomiting and diarrhea promptly subsiding. The remedy did not prove particularly satisfactory in the treatment of typhoid fever, though the author suggests that it might be of value as a prophylactic, and he concurs with Stumpf in recommending it in the treatment of cholera.

Deutsche medizinische Wochenschrift, November 14, 21, and 28, 1907.

The German Sleeping Sickness Expedition.—Koch contributes a long final report embodying the results of the work of the expedition that has been studying sleeping sickness in Eastern Africa. The following measures are recommended for combating the disease: Permanent camps should be established under the charge of a medical director with several white assistants. These camps should be sufficiently numerous to accommodate all the patients in a district and should be, if possible, in spots that are not infested by the glossina. In addition to receiving patients that apply for treatment, active search for infected individuals is necessary and blood ex-

aminations of such persons are essential, as the absence of lymphatic enlargements does not preclude the existence of the disease. As an example, Koch cites the results of the examination of fifty-two young boatmen who were considered perfectly well and had just finished a journey during which they had rowed for over twelve hours almost without interruption. Eleven of these had enlarged lymphatic glands, seven had trypanosomes in the blood, forty-seven had the *Filaria perstans*, twenty-six had malaria organisms, and two the spirilla of relapsing fever. Patients in the camps should be treated for at least four months with atoxyl and must be kept under observation until their own blood is free from trypanosomes, and it may be assumed that the glossinas in their dwelling places are also free from infection. Quarantine regulations are necessary to prevent the transmission of infection from one district to another and it may be necessary to remove small communities to other regions free from the glossina. The attempt to reduce the numbers of the glossina should be made by clearing woodland and endeavoring to exterminate the crocodiles on whose blood the insects largely subsist. Details regarding the atoxyl treatment, the geographical distribution of the disease, etc., are given at length.

Lymphocytosis of the Cerebrospinal Fluid in Hereditary Syphilis.—Kretschmer says that it has already been shown that lymphocytosis of the cerebrospinal fluid occurs in the hereditary syphilis of infants, and that it is desirable to ascertain whether or not the same condition obtains in regard to the later manifestations of the hereditary disease. He reports four cases of patients from ten to nineteen years suffering from eye conditions and in one case from broken-down gumma of the palate, in two of which there was a very pronounced lymphocytosis of the cerebrospinal fluid. He therefore concludes that lymphocytosis is not an exclusive manifestation of hereditary syphilis in infants, although the question requires further investigation on large numbers of patients. The effect of treatment on the lymphocytosis should also be investigated.

Obesity Diets.—Sternberg says that in carrying out courses of treatment for obesity the patients often suffer severely from hunger, and that the feeling of satiety after eating is essential to the sense of well being and capacity for work. It is desirable to add to the dietary something which will contribute to the feeling of repletion after eating without itself being digestible or nourishing. Such a substance is to be found in the ligamentum nuchæ. It is possible to prepare this in such a way as to be appetizing and applicable to many different culinary uses. The ligament is boiled until it has become perfectly soft, which requires a long time, and it is then passed several times through a chopping machine until it has been reduced to very fine particles. The material may be used to make croquettes, forcemeat for soups, and as a substitute for flour in many different egg dishes. One of the recipes recommended by the author is as follows: The chopped ligament as above is stirred with whipped cream and put into a buttered ramekin; a raw egg is added and the whole is baked in a dish containing hot water. Before serving, cheese is sprinkled over the top. Several other methods of using the material are given by the author, who says that it may also be advantageously employed in preparing starch-free dishes for diabetics.

The Association of Tabes Dorsalis and Cardiovascular Disease.—Strümpell contributes a long article on this subject and summarizes his conclusions as follows: In patients exhibiting aortic insufficiency, sclerosis of the aorta, and aortic aneurysm, careful search not rarely reveals evidences of coincident tabetic disease, such as reflex pupillary rigidity, absence of tendon reflexes, lightning pains, etc. On the other hand, pronounced tabes dorsalis is comparatively often associated with insufficiency of the aortic valves and aortic sclerosis. This combination of the two diseases is due to the fact that they have a common origin, both are consequences of a previous syphilitic infection. The presence of tabetic symptoms, particularly of reflex pupillary rigidity, may in general be regarded as proof of a syphilitic taint and therefore has especial diagnostic significance.

Acute Leukemia and Streptococcus Sepsis.—Eppenstein's patient was a man of twenty-one who died after an illness of about eight weeks of what the blood examination showed to be acute lymphatic leukemia and streptococcus septicemia. The streptococci were obtained from the blood during life and after death were found in the spleen, lymph glands, and bone marrow. The leucocytes and the bone marrow in this case did not manifest any ability to digest gelatine or blood serum, and as the large lymphocytes comprised more than half of the total number of white cells the author considers that this fact affords evidence against the view that has been advanced to the effect that in acute leukemia the large lymphocytes serve as carriers of a proteolytic ferment. He considers that in cases such as this the bacterial infection is secondary, and is not, as some have suggested, the cause of the blood disease. It is more likely that, owing to the presence of the latter, the powers of resistance are weakened, and therefore infection results more readily.

Lime, Phosphorus, and Nitrogen in the Child's Brain.—Cohn describes a method of analysis to be used for determining these constituents quantitatively and discusses the results obtained from a series of thirteen analyses made on brains, of which the youngest came from a fetus of 25 cm. and the oldest from an individual of twenty years. He concludes that after the first year growth of the brain is accomplished through the accretion of nonnitrogenous substances rather than through increase in nitrogenous bodies. The total phosphorus in the child's brain shows a slight relative decrease during the period of growth, but the phosphorus of the extractives rises slightly during the first years. Lime decreases considerably in amount as the brain develops and grows, this being most pronounced during the last of the fetal period and the first six months of the first year. This depends on the increase in the development of the medullary substance. Two of the brains were from infants suffering from tetany and dying of glottic spasm; these showed a slight increase in water, a normal nitrogen content, a slight increase in phosphorus, particularly of phosphorus containing extractives, and normal amounts of calcium. While the theory that tetany in infants depends on anomalies of calcium metabolism cannot be absolutely contravened, it has as yet not received satisfactory demonstration.

French and Italian Journals.

Pathogenesis and Treatment of Arteriosclerosis.—Ch. Colombo believes that arteriosclerosis is not a result of hyperemia of the vessels, but rather of a toxemia which causes eventually degeneration of the vessel walls. The dilatation of the vessels which at first occurs is only a symptom of the poisoning. As long as the kidneys and other excretory organs are in good condition this poison is eliminated and does no harm, but when these structures fail poisoning occurs, which causes a degeneration of the vessel walls. Treatment should be in the direction of favoring elimination by the skin, intestines, and lungs. The diet should consist of milk and vegetables, and meat and liquors should be denied to the patient. Hot baths are of value to relieve cerebral symptoms.—*Lyons Médical*, September 15, 1907.

Passive Hyperemia in the Treatment of Sluggish Ulcers.—Walfredo Chiodi finds that passive hyperemia accomplished by the use of cupping glasses is of the greatest value in the treatment of sluggish ulcers and fistulæ. It produces engorgement of the granulations and a fresh supply of blood to the surface of the ulceration, which results in speedy healing. The granulations become capable of reaction against the bacteria and an energetic effort to remove them goes on. The circulation is stimulated. Curetting of the ulcer and fistulæ is avoided. The author applies the cups for three or four successive days for a half hour at a time. He records five cases treated by this method with success.—*Giornale Internazionale delle Scienze Mediche*, August 31, 1907.

A Frequent Lesion of the Liver in Cases of Eclampsia.—Michel de Kervily describes the lesion which he has observed most frequently in examination of the liver after death from eclampsia as a fatty degeneration of the stellate cells, the hepatic cells themselves not being involved. He made examination of seventeen cases of death during pregnancy or the puerperal state. Of these autopsies six were on cases of death from eclampsia. The special lesions described were not found in those who died from other causes. He concludes that this is a frequent and characteristic lesion of the liver in eclampsia. It may constitute the only recognizable lesion of the liver.—*Bulletin de la Société d'Obstetrique de Paris*, July, 1907.

Acute Dilatation of the Stomach.—R. Morichau-Beauchant says that acute dilatation of the stomach is not rare. It may be primary, but in general is secondary to other digestive troubles. The symptoms are abundant and persistent vomiting, of a brown color and fetid odor. The stomach is found to be so dilated as to occupy the greater part of the abdomen. Temperature is normal, and the abdomen soft and painless. Treatment consists of evacuation of the stomach contents. Some relief may be obtained by the ventral posture in bed. The pathology of the diseases shows an acute paralysis of the stomach.—*Gazette des Hôpitaux*, August 22, 1907.

Book Reviews.

Surgical Anatomy of the Temporal Bone. By Arthur H. Cheatle, F.R.C.P., Aural Surgeon to King's College Hospital, etc. London: J. and A. Churchill, 1907.

This volume is made up of the Hunterian Lectures delivered in 1906 at the Royal College of Surgeons, and accompanied by the exhibition of some five hundred operations. The titles and sub-titles of the various chapters are: The Temporal Bone at Birth, Surgical Anatomy of the Labyrinth, Superficial Changes in the Bone During Growth, Relations of Lateral Sinus to the Surface, Consistence of the Outer Antral Wall and Mastoid Process, Variations in the Antrum and Middle Ear, Surgical Importance of the Antrum, etc., etc. One hundred and twelve figures illustrate the text. The type is large and clear, and the make-up of the book unusually attractive. Cheatle devotes special attention to operations on the labyrinth. He finds a possible explanation of the Menière symptom-complex in increased tension from increase in the peri- or endolymph or from some obstruction in their circulation. These Hunterian Lectures were warmly welcomed at the time of their delivery and have already passed into the classic literature of otology.

Heart and Blood Pressure. A Practical Consideration of Theory and Treatment. By Louis Faugères Bishop, A.M., M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University, School of Medicine, New York City; Physician to the Lincoln Hospital; Late Chairman of the Section on Medicine of the New York Academy of Medicine; Member of the New York Pathological Society, the Neurological Society, Alumni Association of St. Luke's Hospital, etc. Second Edition. New York: E B. Treat & Company, 1907.

This most useful little book calls attention to a steadily increasing class of diseases due to modern life and intense nervous concentration. Some of the notes with regard to the therapy of high pressure diseases of the circulation, while not especially new, confirm more exactly the observation of other trained observers. To the busy practitioner who is called upon at times to diagnose a case, baffling because of lack of definite symptoms, we feel this treatise will undoubtedly prove of value.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, Philadelphia, assisted by H. R. M. Landis, M.D., Assistant Physician to the Out-Patient Medical Department of the Jefferson Medical College Hospital, September 1, 1907. Philadelphia and New York: Lea Brothers & Company, 1907.

The present number of *Progressive Medicine* contains contributions by W. Ewart on diseases of the thorax and its viscera, including the heart, lungs, and blood-vessels; by W. S. Gottheil on dermatology and syphilis; by E. P. Davis on obstetrics, and by W. G. Spiller on diseases of the nervous system. The general plan and the high order of merit of this publication are now so well known that any detailed mention of its contents is unnecessary. The present installment contains much that is new; but of even greater value are the critical comments of the editors of the various sections.

A Manual of Clinical Diagnosis, by Means of Microscopic and Chemical Methods. For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, B.A., M.D., Formerly of the President's Staff of the Johns Hopkins Hospital; Professor of Clinical Pathology at the Baltimore Medical College; Clinical Microscopist to the Union Protestant Infirmary. Sixth Edition, Thoroughly Revised. Illustrated with 177 Engravings and 24 Plates in Colors. Philadelphia and New York: Lea Brothers & Company, 1907.

Professor Simon's work on clinical diagnosis is so well known that it is hardly necessary to do more than call attention to the appearance of this new edition, the sixth within ten years. All the merits of its predecessors have been preserved, while the revision has been exceedingly thorough, and much new matter, notably an entire chapter on opsonins and opsonic technique, has been added. Changes and additions are also conspicuous in the chapters on the blood. Few criticisms occur to the reviewer; an occasional typographical error is still to be found, the ammonia method given as Folin's on page 417 does not represent that ingenious but mutatory analyst's latest technique, and the section describing the staining of spirochetes is hardly full enough to be of service to the beginner, but these are insignificant blemishes in an exceedingly valuable and trustworthy guide that continues to occupy a leading place in the literature of the subject.

The Physiology of Alimentation. By Dr. Martin H. Fischer, Professor of Pathology in the Oakland College of Medicine. First Edition, First Thousand. New York: John Wiley & Sons, 1907.

The author states that this volume is the first of a series of monographs which are to deal with the various phases of physiology. There is abundant room and need for such a series, and we recognize in the present work a very valuable addition to our text-books on the subject. The physiology of the digestive tract is here dealt with in an authoritative and also in an attractive style. The views expressed are up-to-date without being too speculative or theoretical, and the book will be welcomed by both students and practitioners.

Obstetrics. A Text-book for the Use of Students and Practitioners. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University; Obstetrician-in-Chief to the Johns Hopkins Hospital; Gynecologist to the Union Protestant Infirmary, Baltimore, Md. Second Enlarged and Revised Edition. With Sixteen Plates and Six Hundred and Sixty-six Illustrations in the Text. New York and London: D. Appleton & Company, 1908.

On its first appearance only a few years ago this was speedily recognized as one of the most scholarly, and what for lack of a better word we are accustomed to call scientific, works on obstetrics in the English language. It is characterized by unusual breadth of outlook in correlating the literature of the subject, and while founded throughout on practical experience of the most thorough and extensive sort represents the highest type of theoretical reasoning as applied to midwifery in all its aspects. Pathological histology receives a large share of attention both in the text and the figures, and the chapter on development, which has been rewritten for the present edition, is a model both in exposition and illustration. The author's well-known views on the subject of the toxemias of pregnancy cause one to turn with interest to the chapter on this subject, which also has been completely rewritten. Contrary to several recent writers, Williams is inclined to draw sharp distinctions between the members of the triad, pernicious vomiting, yellow atrophy of the liver, and eclampsia, and, in his discussion of the metabolic disturbances accompanying these conditions he supports this thesis with very appealing logic. The section on the nitrogen partition in the disorders of pregnancy is also one to be read with the greatest profit by every practitioner. Sections have been added on the following subjects: The metabolism of normal pregnancy, vaginal cesarean section, contractions of the pelvic outlet, and pubiotomy. The latter operation has been performed eight times in the author's clinic and he says of it that "we may look forward to pubiotomy practically displacing cesarean section in the so-called 'border-line' cases," and also expresses the opinion that possibly it may still further narrow the field for the induction of premature labor, resort to high forceps, version, or craniotomy in moderate degrees of contracted pelvis when the mother is in good condition. In every way the book is a satisfactory one and may earnestly be commended to the attention of students and practitioners.

Practical Diagnosis. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By Hobart Amory Hare, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College Hospital; One Time Clinical Professor of Diseases of Children in the University of Pennsylvania; Laureate of the Medical Society of London, of the Royal Academy of Medicine in Belgium; Author of a Text-book of Practical Therapeutics and a Text-book of the Practice of Medicine. Sixth Edition, Revised and Enlarged. Illustrated with 203 Engravings and 16 Plates. Philadelphia and New York: Lea Brothers & Co., 1907.

This book treats of the diagnosis of disease by means of the symptoms presented by the patient, and takes up laboratory methods only in those cases in which they are essential to arriving at correct results. The author emphasizes the necessity for cultivating the senses of touch, hearing, and sight; for, after all, these are the means by which we generally arrive at a correct diagnosis. As a rule the book is written for the general practitioner, and nothing is described that cannot be undertaken by him. The descriptions are generally adequate; as an exception may be mentioned the too meager account of the method of staining the gonococci and the diagnosis of gonorrhea. That the book has been found useful in the past is evidenced by the appearance of a sixth edition; and this is, perhaps, the very best recommendation that it can have

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, Held November 26, 1907.

DR. HOWARD C. TAYLOR IN THE CHAIR.

Ectopic Pregnancy Illustrating Almost Fatal Hemorrhage through the Ostium Abdominale without Perforation.—Dr. PHILANDER A. HARRIS of Paterson, N. J., related the history of a patient who had last menstruated on February 12, 1907. From March 17 to April 2 a small amount of blood appeared almost daily. On April 21 she felt somewhat ill and had pain in the hypogastric region, the pain being more severe than during menstruation, when she usually had very severe pains. On April 23 the pain become more severe in the hypogastrium and was accompanied by pain in the right shoulder, from which point the pain ran all the way down to the iliac region. This was the first pain that was referred to one side of the pelvis. On April 25 she became very ill; she vomited and experienced pain in the epigastric region. No pulsation was perceptible at either wrist. There was extreme pallor and thirst, but she did not exhibit the extreme restlessness often seen at this stage of the disease. She was removed to the hospital. Three pints of normal salt solution were infused into the veins of the arm and pulsation was perceptible within five minutes. The abdomen was opened and from one to two quarts of dark fluid blood was removed. Large clots were taken from the cul-de-sac of Douglas and the pelvis and a distended right tube measuring two inches in diameter and apparently still enveloping the fetal products was tied off and removed. The patient was sent to her room with a pulse of 130 and respirations of 40. When the abdomen was first opened blood was seen escaping from the ostium abdominale. The particular interest in this case attached to the fact that so large a quantity, two to three quarts, enough probably to have produced death had the patient not been saved by operation, had entirely escaped from the ostium abdominale and without discoverable rupture of the tubal wall or effort at tubal abortion. This pregnancy, as was evident from the specimen presented, had probably progressed for ten or eleven weeks. Although he had operated upon a large number of cases of tubal pregnancy, this was the only instance in his experience in which the patient had closely approached death from simple bleeding at the ostium abdominale except in cases of tubal abortion. The specimen showed the last inch of the fimbriated extremity of the tube, which showed no tendency to dilate or allow the fetal products to escape. The tube wall enveloping the fetus was perfectly intact, presenting no evidence of perforation at any point.

Advanced Broad-Ligament Pregnancy.—Dr. RALPH WALDO LOBENSTINE reported this case, of which the complete report appeared in the Lying-in Hospital *Bulletin*. He said that rupture of the ectopic gestation sac into the space between the layers of the broad ligament was unusual, and but few cases had been reported up to the present time. Cragin, who had reported several advanced cases of extrauterine pregnancy, had but one true broad ligament pregnancy at or near term. In that case the child was extracted alive. According to Williams, this condition occurred but once in fifty specimens of extrauterine pregnancy. It only occurred four times out of 276 cases collected from the articles of Mandl, Schmidt, Küstner and Fehling. De Snoo in Kouwer's clinic at Utrecht reported but two out of 51 cases of ectopic gestation. One of these was an advanced case with the child living. Whiteford reported a case with the child alive at the fifth month. In the typical case the peritoneal leaves were stripped back in such a manner as to give a sessile tumor. This stripping back of the peritoneal leaves might be very extensive as pregnancy advanced. In the less typical cases the growth of the ovum caused a more or less pedunculated tumor. In either case there might or might not be a typical amniotic sac present. The placenta might occupy any portion of the wall of the gestation sac. The extraperitoneal gestation sac might rupture into the peritoneal cavity at any time, thus becoming a case of "secondary abdominal pregnancy." As was pointed out by H. Rödiger and others, cases of abdominal pregnancy in which the posterior sheath of the broad ligament formed one wall of the gestation sac and peritoneal adhesions the rest of the sac wall were at times easily confused with cases of true broad ligament pregnancy. In the last 30 cases of ectopic gestation at the Lying-in Hospital this condition of broad ligament pregnancy was found three times, while the present case was the only one of advanced broad ligament pregnancy. The patient reported was aged 32, primipara, who entered the hospital April 16, 1907. She had been treated as a case of intrauterine pregnancy. There had been amenorrhea for eight and one-half months. The patient had had more than the usual amount of abdominal pain during the later months, and there had existed an irregularity of the expansion of the two sides of the abdomen. The fetal heart was said to have been heard to within two weeks of admission to the hospital. The woman had lost flesh steadily and during this two weeks her physician became aware that she was going down hill rapidly. There was vomiting, diarrhea, and rapid loss of flesh. On admission she was practically moribund. Stimulation and an intravenous infusion were given. A distinct fluid wave could be made out over the lower part of the abdomen. There was a flat percussion note over this same area. There was a brownish discharge from the uterus; the urine showed a trace of albumin, no acetone, no excess of indican, and no casts. Red cells were 1,600,000, hemoglobin 27 per cent. On the following day they decided to operate and made a median incision five inches long just above the pubis. After opening the peritoneum, separating the delicate adhesions, and walling off with abdominal pads, a large trocar was plunged into the cystic mass and ten quarts of bloody fluid removed. The opening in the wall was then enlarged and a child was extracted. The posterior layer of the left broad ligament had been stripped backwards and upwards, giving an immense cavity, the site of a true broad ligament pregnancy. Both leaves of the broad ligament were greatly thickened. The bleeding was not great, as the patient had bled herself out before admission to the hospital into the broad ligament. The child was dead. The placenta was found to lie in the bottom of the cavity, posterior to the uterus, but partially attached. It was rapidly removed and the cavity packed with plain sterile gauze. The patient was too sick to survive the operation more than a few hours. The packing was removed after death and the fact verified that there had been no more bleeding after operation and that the layers of the broad ligament formed the boundaries of the gestation sac. There was moderate peritonitis. The child weighed 2,100 grams and had been dead for about one week. The case was interesting from the large amount of blood in the sac, the hemorrhage being due to premature separation of the placenta. This accident caused the death of the fetus.

DR. BROOKS H. WELLS said that Dr. Harris' specimen was apparently unruptured, but he asked if it were not possible that one might have such a hemorrhage from an ectopic tube of that size. The parts were badly eroded and the blood could ooze through the peritoneal surfaces. When a certain period had been reached, usually when the tube was smaller than the one presented, it might sweat blood without there being any visible rupture. If sections could be made of Dr. Harris' specimen he had but

little doubt that they would find numerous places in the outer wall penetrated by capillaries, passing through and disappearing.

Dr. H. N. Vineberg corroborated what had been said about hemorrhage ocurring from the walls of a pregnant tube without leaving perceptible openings. The tendency at present was to wait until the patient rallied before operating. In three or four weeks the patients gained strength and it had been shown that they did not die during this waiting period. If one were not experienced or did not have the equipment, it was better to wait, as it required considerable experience to operate successfully. He had had over 80 cases and among them were 16 with profuse internal bleeding, the patients being pulseless. They recovered after the abdomen was opened and saline solution injected. He considered the second case very interesting and wished to emphasize the fact that they found a uterus the size of a three months pregnant uterus. Where one was suspicious of a full-term pregnancy outside the uterus this organ would be the size of a three months pregnant uterus and yet be empty. He had had one such case where the woman recovered.

Dr. J. Riddle Goffe corroborated the statement in regard to hemorrhage where the source could be found only by very careful examination. The walls of the tube eroded until it reached through to the peritoneal covering. He believed the only treatment in these cases was immediate operation. By waiting until reaction set in it had been found that hemorrhage had ceased. There was no doubt but that thousands of cases of ectopic gestation recovered spontaneously. Many believed that it was better to wait until reaction had set in and they could operate with greater safety, and he thought that in cases like that of Dr. Harris it was better to wait until after shock had disappeared.

Dr. James N. West said this subject was an important one. The tendency of the men who had discussed the paper seemed to indicate that these cases did not bleed to death, but recovered naturally after being placed under proper conditions. He thought this was a grave mistake, as many of these cases did bleed to death. The failure of a man who was an expert to move rapidly was a great error. In his opinion, the first thing to do with a patient who gave evidence of exsanguination and shock from a ruptured ectopic was to start intravenous infusion and administer digitalis and whiskey and normal saline per rectum. If the patient responded to these measures the operation could then be performed. He related the case of a woman who gave evidences of a ruptured ectopic at 9 P.M. At 1 A.M. he found the woman presenting the picture of one dying. He immediately opened the abdomen and found an interstitial pregnancy, with a large fetus and an abdomen distended with blood and the wound still bleeding. That woman was going to bleed to death, and she did before he could operate. In another case of the same nature in which he proceeded along similar lines he operated and the patient made a good recovery. There was certainly a number of cases that would die if not interfered with, but perhaps they were right in that the operation should not be undertaken by one who was not an expert.

Dr. William S. Stone said that every now and then patients would die if not operated upon. He cited the case of a woman whom he had curetted and then packed the uterus. At the operation he had noted a mass behind the uterus, but neither he nor Dr. Taylor thought it was an extrauterine pregnancy. The following evening the gauze was removed and the patient went to sleep. At 5 A.M. the nurse thought the patient was breathing differently from what she should and sent for him. He found her dead. The abdomen was filled with blood from a secondary rupture from an ectopic gestation which had ruptured before she had been operated upon and again that night.

Dr. Brooks H. Wells said he had seen a patient of Dr. Mundé die from internal hemorrhage, and autopsy revealed ectopic pregnancy. A year afterward he had exactly the same experience.

Dr. Philander A. Harris of Paterson said that he spoke of tubal pregnancies where the tube still enveloped the fetal products. Of course there was a rupture inside the tube. He thought two or three quarts of blood came from the rupture. The patient was taken to a nearby hospital in an ambulance and not subjected to such exertion as was intimated. He had had a large number of tubal pregnancies which showed blood being forced out when the specimen was in a solution of formalin, the formalin causing the tube to contract and blood oozed out, making it look like a tree. As to whether they should operate upon those cases which were in a tragic state he had tried both ways. During the past ten or eleven years, with a patient with no pulse and on the operating table intravenous infusion was given when the ether was commenced. He cautioned against giving too much saline solution because it would go out through the veins.

Uterovesical Fistulæ.—Dr. W. H. W. Knipe reported the case of a primipara, 21 years of age, having a simple flat pelvis, with an external conjugate of 18 cm. and a true conjugate of 9.50 to 10 cm., who after a prolonged labor and delivery by forceps began a few hours after delivery to void urine through the vagina. Upon digital examination the finger could be passed through the anterior uterine wall into the bladder, through which fistula the urine flowed continuously. The site of the tear was at the internal os of the uterus, extending toward the fundus for a distance of over two inches. The tear in the bladder corresponded in size and position to that in the uterus. Immediate operation was decided upon. Interrupted sutures united the torn edges of the bladder wound, avoiding the mucous membrane of the viscus; one continuous suture was used for the uterine wound, with the closure of the original incision in front of the cervix, leaving a small gauze strip drain to the bladder wound. Continuous drainage of the bladder was obtained by retaining a catheter for three days. The patient's bladder function had remained normal since the operation. In regard to the cause of the vesicouterine fistula, he said one was apt to attribute it to the forceps, but he knew that the physician who had applied the forceps was an expert, and it might have been caused by pressure of the fetal head against the symphysis, or it might have been due to pressure too long continued. The literature on this subject was rather scant. Lengebauer published a résumé of the cases reported up to 1889, and they were 165 in number. In 1901 Sarrabezolles published an account of 36 additional cases. His remarks were confined only to cases occurring as the result of labor. More than two-thirds of the reported cases occurred in multiparas, a contracted pelvis and prolonged labor being the usual accompaniments. The unskilful use of forceps was not nearly so frequently the cause of these injuries as was generally supposed. Version with retention of the after-coming head had been the cause in some cases. Most of these vesicouterine fistulæ were small in size, ranging from the diameter of a catheter to that of a finger, and fistulæ the size of the one reported were very rare. The lower half of the cervix was the favorite site of these fistulæ, either in front or laterally, though there were occasional cases reported where the fistula had been in the posterior lip of the cervix in combination with the general variety. In only one case out of the 165 was the fistula above the internal os. In unusual cases the anterior wall of the bladder, as well as the posterior, might slough away. The peritoneum was sometimes involved. While these fistulæ were of rare occurrence, it was probable that the accident occurred oftener than was reported because of the case with which the urinary discharge from the vagina could be overlooked and because of the great tendency of

these fistulæ to heal spontaneously, especially the smaller ones. Since a better knowledge of obstetric conditions had prevailed generally, and major operative work had taken the place of craniotomy, and since the indications for forceps interference were better understood, vesicouterine fistulæ had become less frequent than formerly. The diagnosis of this condition was generally easy, the patient complaining of passing urine by way of the vagina, though in some cases the urine might pass both ways. The urinary discharge might be continuous or intermittent, depending upon posture. The onset might be immediately after labor or several days later. In some cases the symptoms did not appear until nearly a month after labor. The introduction of the finger within the cervix revealed the opening through uterus and bladder, although if the fistula was small it might pass unnoticed. The passage of a sound in bladder and uterus would often make the diagnosis and the injection of colored fluids into bladder, the same being passed through the vagina, would confirm the diagnosis. The majority of small vesicouterine fistulæ would heal spontaneously; the larger ones required operation. Small fistulæ should be treated by simple cleanliness, vaginal douches, and continuous drainage of the bladder by a retained catheter. After complete involution of the uterus some local treatment was necessary if the fistula persisted. Caustics, such as nitrate of silver stick, applied to the fistula would often cause healing by granulation. If the fistula lay high up in the cervix a recourse had to be had to suture. In most cases it was better to have the fistula cured at one sitting by suture rather than to submit the patient to repeated treatments by caustics. Large fistulæ always required operation. In 1886 Follet devised the operation used in the case above reported. That was incision transversely in front of the cervix, separation of bladder and uterus by means of gauze and sponge, denudation of the edges of the wound in both bladder and uterus, separate suture of the bladder and uterus, and closure of the original incision in vaginal fornix. Ten-day chromic catgut suture was probably the best suture for this operation. The best results were obtained by operating before inflammatory complications had involved the adjoining tissues.

Dr. H. N. Vineberg said that an interesting point in the success of the operation was the mode of causation. He related the case of a patient whom he was called in to see three days after she had been delivered by forceps. From the history he feared there was a tear in the broad ligament and peritoneum. The patient was examined under an anesthetic, and in passing his fingers to the side of the uterus and cervix he entered a cavity containing foul-smelling fluid which proved to be decomposed urine. In the use of forceps the broad ligament and ureter had been slightly torn and there was a leakage of urine. The patient died from the peritonitis. This showed that injury could be done by the direct application of the forceps.

Eleven Cases of Cesarean Section.—Dr. John O. Polak reported these cases. Seven of these operations were done for contracted pelves, three of which might be classed as relative contractures. Two were made necessary by dystocia resulting from the ventrofixation of the uterus, and two for dystocia resulting from incarceration of a pelvic tumor in the pelvis in advance of the head. In all the cases the incision was made to the right of the median line, with the umbilicus as its central point. This brought the uterine incision in the upper thickened portion of the uterus. A longitudinal incision of the uterus was made in all the cases except in the two instances of ventrofixation when the uterine wound was made in the posterior face of the organ. In all instances the uterus was eventrated by an assistant as the child was withdrawn. This permitted the work to be done through a short abdominal incision. A tourniquet for the control of hemorrhage was only necessary in one case. In the last ten of these cases digital compression of the broad ligaments was made by an assistant. The two sides of the uterine incision were held parallel in suturing and everted by an assistant and long straight Keith needles armed with No. 2 two-day chromic catgut were passed at half-inch intervals at once through both sides, skipping the mucosa. These were tied from above downward and buried by a fold of peritoneum brought over with a continuous catgut suture. A gauze drain was twice used. In these instances it was necessary to tampon the uterus for hemorrhage before the sutures were tied. An end of the gauze drain was carried through the cervix to the vagina and withdrawn after twelve hours. The pelvis was always mopped dry and the omentum placed over the intestines and behind the uterus before the abdomen was closed. Chloroform-oxygen was given with an open Esmarch mask. The oxygen tube was run into it. The narcosis was begun as the final scrubbing of the abdomen was begun. This he thought diminished the degree of fatal asphyxia. Ergot was given just as the anesthetic was started and the dose was repeated when the suture of the uterus was begun. The smoothness of the convalescence in these cases was of special note.

Classical Cesarean Section.—Dr. W. Wyllis Bandler reported this case. The patient was 26 years old and in her first pregnancy. Eighty hours before he saw her the membranes had ruptured, and she had been in labor seventy-two hours, the pains at first being strong, but diminishing in intensity and then ceasing. Four attempts at extraction were made with forceps and, four hours after, he saw her. She was then in good condition, with pulse and temperature normal. The uterus, however, was firmly contracted and no fetal heart sounds could be heard. The cervix was dilated and the head at the brim, held by the contracted uterus but not molded. The vagina was swollen and edematous, as well as the perineum and vulva. Owing to the diagnosis of justominor pelvis, and the disproportion between the pelvis and fetus, the choice lay between cesarean section and craniotomy. The fetus was dead, and craniotomy should have been indicated, but owing to the condition of the vagina and vulva, the size of the pelvis, the absence of temperature, and the splendid condition of the woman, he advised cesarean section, which he performed. Recovery followed with no unusual manifestations.

Vaginal Cesarean Section.—Dr. W. Wyllis Bandler reported this case. The patient was 27 years old, married six years, two children with normal labors. She had had three abortions. During the first six and a half months of this pregnancy she was constantly nauseated, dizzy, and vomited. During the next four weeks these symptoms became more marked. Sixteen days before the operation there was a slight general jaundice. She vomited practically day and night and lost much in weight. Her temperature was 101.5° and pulse from 110 to 130. The urine contained albumin and casts. Dr. Bandler made the diagnosis of pyelitis and pernicious vomiting of pregnancy. Because of the jaundice, immediate removal of the fetus was advised and a vaginal cesarean section was done. The patient made an uneventful recovery. In this case the continued vomiting and the jaundice made hurry the essential factor.

Dr. J. Riddle Goffe reported a case of vaginal cesarean section in a patient who had advanced to the sixth month and with a dead fetus. The cervix was contracted and about one and a half inches in length, and without any dilatation.

The Clinical Conditions and Post-Mortem Findings in an Irregular Case.—Dr. Margaret Cleaves reported this case. (See page 1010.)

Dr. Healy discussed the case.

Delayed Labor.—Dr. Walter B. Jennings said that while the length of normal labor varied greatly it averaged

eight hours in multiparæ and in primiparæ it was usually double that time or longer. By delayed labor he meant one in which the frequency, strength, duration, and expulsive character of the uterine pains had been so changed as to prolong the second stage of labor so that either the life of the mother or the child was endangered. Delayed labor might be caused by a rigid os due to old inflammation, malignant disease or cicatrix, but in the sense in which he took the expression "delayed labor" the many forms of pelvic deformity were excluded. Multiple pregnancy which caused a loss of tonicity, uterine tumors, excess of liquor amnii were some of the local causes, as were also an overdistended bladder or rectum. Occasionally a soft sagging uterus, together with a pendulous abdomen, would interfere with the action of the uterus. Among the general causes were lowering of the general condition, rapid child bearing, anemia, wasting diseases, psychical and emotional disturbances, fatty changes and atrophy of the abdominal muscles, or separation of the recti. Uterine inertia sufficient to cause delayed labor was of comparative frequency. Acconci, who studied 2,000 cases, said it occurred in 6 per cent. There was no standard by which the character of labor pains could be measured, but clinically the efficacy of uterine contractions might be measured by their effect upon the progress of labor. Many cases of delayed labor were attributed to the undilated cervix, when, as a matter of fact, they were due to faulty uterine contractions. The majority of cases were due to faulty uterine contraction and not to resistance of the soft parts. Primiparæ over thirty-five were an exception to this statement. Delayed labor was of little importance if the membranes had not ruptured, but during the second stage the life of the child was endangered, and, if it was toward the termination of labor, there was danger of post-partum hemorrhage. Dr. Jennings, in a series of forty-five selected cases of primiparæ, twenty of which were instrumental, found that fourteen were in labor from twenty-four to forty-eight hours, and in one case labor was induced. Of the remaining cases, one was in labor eighteen hours, five fifteen hours, four thirteen hours, and eleven ten hours or less. Of the fourteen cases that were in labor twenty-four hours or longer, ten were instrumental. The value of manual dilatation of the cervix in cases of uterine inertia had been disputed. Pressure on the fundus of the uterus was of benefit in some cases. In the second stage, after full dilatation, and the head in the pelvis, forceps should be applied. He believed in the early application of forceps in the second stage of labor. Every woman had the right to demand every alleviation from suffering that medical aid could provide, such as anesthesia, asepsis, and rapid delivery. It was his rule to use forceps when no progress had been made for two hours. The idea that one should wait until there were signs of danger to mother or child was decidedly erroneous.

Dr. James N. West called attention to the fact that Emmett many years ago brought this matter before the profession. When the head was neither rotating nor descending, with intermittent pains, forceps should be applied. When the head became blocked in the pelvis we should not wait because of danger to the soft tissues.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Held October 15, 1907.

Dr. Glentworth R. Butler in the Chair.

The Dietetic Treatment of Nephritis.—Dr. Leon Louria of Brooklyn read this paper. He said that inasmuch as there were no drugs that could directly benefit an inflamed kidney it was necessary to direct the treatment mainly through dietetic and hygienic measures. In spite of the practice sanctioned by tradition of restricting victims of acute and chronic nephritis for long periods to an exclusive milk diet, there were no clinical experiments, and no laboratory proofs, that milk was the ideal food for nephritics and that other foodstuffs were to be restricted in or excluded from the diet of these patients. Only within recent years, under the influence of Von Noorden's teachings, had the diet lists been formulated with more liberality. An abundant clinical material and numerous investigations had enabled this observer to set aside old traditions and to throw a new light upon the rational treatment of nephritis. The fundamental principle of the dieting was to spare the diseased kidney tissues by preventing the excretion of irritating metabolic products. The amount of albumin excreted was, excepting possibly in the acute forms of nephritis, no criterion upon which to regulate the diet. Some metabolites were excreted by the kidneys with ease and others with difficulty, the latter at the same time acting as irritants to the diseased tissues, and if retained in large quantities, causing a general toxemia. The former class included uric acid, xanthine bases, aromatic substances, ammonia, amido acids, chlorides, and water, while the latter class comprised urea creatinin, pigments, hippuric acid, phosphates, inorganic sulphates, and water. Creatinin was easily avoided by excluding bouillon, beef-broths, meat extracts, and the like. The urinary pigments were reduced by the avoidance of the ingestion of hemoglobin. The amount of phosphoric acid was markedly increased by an exclusive milk diet. In this respect the exclusive milk diet was not as harmless as had been generally believed. The amount of hippuric acid was kept down by the omission of such foods as contained large amounts of benzoic acid, namely, green vegetables, kernel-bearing fruits, and cranberries. There was no warrant for the exclusion of pears, apples, raspberries, and grapes, which contained only traces of this acid, and which on account of the large content in sugar were of distinct nutritive value. Except as an occasional cardiac stimulant and digestive in acute cases, alcohol was to be entirely withdrawn from the diet. The exclusion of acetic and citric acids was not warranted. On account of the fact that they favor the production of all oxuric bases the following were forbidden: Thymus gland, liver, spleen, kidney, and concentrated meat broths. From the viewpoint of protective therapy, it was desirable to limit as far as possible the ingestion of proteids, whose end product, urea, passed the inflamed kidney with greatest difficulty. A healthy individual could, for a short time at least, and without prejudice to his body, tolerate a daily reduction of proteid to 60 grams, provided that the missing 50 grams were replaced by an amount of carbohydrates or fat yielding an equivalent number of calories. When the nephritic consumed from two to three liters of milk daily, as was often prescribed, he thus acquired from 110 to 120 grams of proteid, which yielded from 30 to 35 grams of urea which the diseased parenchyma of the kidney could not with ease discharge. This led to an undesired irritation of the kidney and to the injurious retention of urea in the blood. These facts furnished a convincing proof that milk, even in cases of acute kidney inflammation, when taken in large quantities, was by no means an ideal nutrient, but could rather become a dangerous one. Von Noorden's dietary for acute nephritis was three pints of milk, together with three-quarters of a pint of cream daily, which mixture contained 55 grams of proteid, 70 grams of milk sugar, and 170 grams of fat, which were equivalent to 2,100 calories, and contained only one-half as much proteid as three quarts of milk. In large and strong individuals it was necessary to amplify the dietary with gruel and puddings, sugar and fruit syrups. In acute nephritis there was considerable resistance to the passage of water, which gave rise to oliguria, hydremia, and edema. The ordering of large quantities of fluids was in evident conflict with the principles of protective therapy. The improvement of the patient was

more rapid when food was totally withheld for a day or two and the patient's thirst quenched only by small pieces of ice. In combating the edema and hydremia the most effective measure was artificial diaphoresis. Physiological chemists had failed to detect an increased cutaneous elimination of urea during diaphoresis, whose therapeutic value consisted merely in relieving the kidney from excreting all the water. Sweat cures, which were prescribed when diuresis had already set in, the powers of the kidneys had improved, and edema had diminished while albuminuria was still present, lacked a physiological basis and were unnecessarily annoying to the patient. Under these conditions it was more advisable to restrict the amount of liquid nourishment until a normal equilibrium had been established. In the chronic form of contracted kidney in which water was eliminated with ease, the prescription of greater quantities served to flush the tissues and to facilitate the elimination of various end products which were excreted by the kidney with difficulty. An excess of water, however, overtaxed the heart and occasioned stenocardiac attacks. It was not wise to wait until symptoms of heart dilatation appeared, and it was desirable to accustom the nephritic to restricted drinking while the heart was still strong. According to von Noorden, in these chronic cases three pints of fluid daily fully answered the requirements of the patient. If there was a retention of nitrogen, the patient was to be advised, for the time being, to drink more. For prophylaxis one day per week was to be set apart as a drinking day, or, instead, a flushing-out cure of several days' duration was to be instituted every two or three months. Alcoholic drinks were to be strictly forbidden. The fundamental principles of the dechloridization cure, first advocated by the French school, headed by Widal, were: First, in chronic nephritis there was a retention of chlorides which was frequently the only symptom of the disease. Second, as a result of this retention, water accumulated in the tissues in order to maintain the osmotic equilibrium between the latter and the blood. Third, it had been found that the reduction of the amount of salt in the diet was a potent means of combating edema. Fourth, it had been demonstrated that chloride retention aggravated in other respects the symptomatology of nephritis, particularly the arterial hypertension. The traditional good effects of the milk diet depended upon the poverty of this substance in salt. The régime formulated by Widal contained even less salt than milk. This régime included meat, bread baked without salt, potatoes, butter, rice, and pastries, provided that no salt was added in their preparation. Widal found that if the patient was allowed as much salt as was excreted in his urine, as indicated by the daily chart, then this quantity of salt produced no baneful results. The advantages of daily weighing all nephritic patients were that diminution of edema at once showed itself in decrease in weight, while an increase of weight was interpreted as the first symptom of beginning edema not yet visible. The speaker's experience with the salt-free diet had been limited to three cases under his care at the Jewish Hospital, and the results seemed to be in accord with those claimed by others, namely, the general improvement of the patient, the diminution of edema, and the loss of weight all seemed to be parallel to one another. No subject in dietetics had aroused such heated controversy as the question of meat in nephritis. It was von Noorden who first combated the orthodox belief that meat was harmful. Offer and Rosenquist had established the fact that the amount of extractives was not constant, and that they were at times present in greater amounts in white meat, poultry, or game than in beef. It was time to abandon the time-worn custom of prohibiting beef. This modern view was of eminent import to the nephritic who, suffering from a protracted disease and condemned for years to a monotonous diet of white meat, finally developed a complete abhorrence for all meats. The nephritic required a daily ration of 100 grams of albumin. Assuming that he took 750 c.c. of milk containing 26 grams of albumin, two eggs with 13 grains of albumin and 20 grams of proteids in other food, as bread, vegetables, etc., there still remained 50 grams of proteid that could be allowed in the form of meat, which amounted to about half or three-quarters of a pound of the latter. In conclusion, the speaker said that he had not attempted to indicate in more than brief outline the principles underlying the modern dietetics of nephritis, a subject pregnant not only with the utmost significance to the progress of clinical medicine, but also to the well-being and comfort of the innumerable victims of one of the most chronic and hopeless diseases of our modern civilization.

The Control of Social Disease.—Dr. NATHANIEL P. RATHBUN of Brooklyn read this paper. He said that venereal diseases had been known and recognized as far back as the history of medicine carried, but it was only within the last thirty or forty years that they had been studied in anything like a scientific manner by a few observers, and only within the last ten or fifteen years that gonorrheal urethritis in the male had received much attention from the general medical profession, and even at the present time there was an appalling apathy on the part of the profession in proportion to the importance of the subject and the far-reaching effect of the disease. It was within the memory of many when the average physician dismissed the gonorrhea patient, with a very cursory examination or no examination at all, and with no warning as to the serious consequences of his disease to himself and to others. There was no disease, not excepting even tuberculosis, which approached in importance gonorrheal urethritis, from an individual, social, or economic standpoint. It was probable that 80 per cent. of all men have or have had gonorrhea. It was, however, the combination of prevalence and malignancy that made it serious. It had been reported by a committee of the American Medical Association that 5 per cent. of all cases of chronic gonorrhea were absolutely incurable. This applied to cases undergoing the best possible treatment, but the percentage was probably larger among the very large majority receiving no or indifferent treatment. Even among the cured patients many were left permanently damaged, impotent, or sterile. Eighteen per cent. of all sterile marriages were due to gonorrhea in the male, and taking account of gonorrhea in the female, then 70 per cent. of all childless marriages in this country could be traced to the gonococcus of Neisser. It was estimated by Williams that 73 per cent. of all abortions were due to endometritis which was chiefly caused by gonorrhea when not caused by sepsis. It was conservatively estimated that two-thirds of all the abdominal operations performed upon women were necessitated by gonorrhea, usually acquired from the husband. Edgar said that 30 per cent. of all blindness in this country could be traced to gonorrhea. The speaker agreed with Janet in stating that gonorrhea was more important than syphilis in the proportion of 100 to 1, despite the opposite view taken by the laity and also by some of the profession. The question arose as to what could be done to mitigate these conditions and limit the spread of these diseases. Isolation and segregation of prostitutes was not capable of doing it, as seen in the failure of these measures in France and other countries. As Morrow had aptly said, "the male factor was the chief malefactor, and he was entirely neglected in this arraignment. Licensing and routine examination of prostitutes was absolutely useless, for even a careful and painstaking examination could not exclude venereal diseases, and the fees usually paid for this kind of work were not enough to command the best ability. Making gonorrhea and syphilis reportable diseases was capable of doing harm, because on account of the publicity men would not submit to

treatment. A physician's certificate as a preliminary to marriage was not practicable. Among the innumerable forces behind the great social evil, the predominating one was ignorance. The only remedy for this was education in its broadest sense. This fell naturally under three headings: education of the medical profession, education of the young American boy and girl, and man and woman, and education of the general public, particularly of those afflicted with some form of social disease. Under the first heading great progress had been made in recent years. It was not enough that every medical college had a special chair in this department. It was necessary that every medical student and medical man should be impressed with the responsibility of treating cases of this kind. It was necessary to explain to the patient the serious nature of his disease and its possible consequences, and the importance of a thorough and radical cure. As family advisors, it was the duty of physicians to tell fathers and mothers of growing sons and daughters some of the essential facts about these conditions, and to have the parents warn their adolescents against the temptations facing them and the evil consequences arising from a succumbing to these temptations. The speaker emphasized the importance of a compulsory course of hygiene in the first year of the high school course, in which sexual hygiene was to have a prominent place. In some of the German cities pamphlets of instruction along the lines of sexual hygiene were issued to all the employees of factories and other industrial institutions. A similar pamphlet might well be placed in the hands of all men in the Army and Navy, particularly the new recruits. Under the third heading, in the education of the great majority, the best work could be done. The average man with chronic gonorrhea disseminated his disease not through wilful viciousness, but because of ignorance. The speaker had been distributing to his patients at the Brooklyn Hospital a little pamphlet, couched in simple language, to impress and perhaps frighten the patient, with a few words of advice. That this had done some good was shown by the fact that patients who would ordinarily have discontinued treatment with the cessation of the discharge had continued under treatment until they were well. It was not thought that education would ever eradicate the plague.

The Value of Sphygmograms and Blood Pressure Estimations in Diagnosis.—Dr. Alfred Stengel of Philadelphia read this paper. He asked the indulgence of the audience for the introduction of elementary points in the physiology of the pulse. The mechanism of the latter included four elements: (1) The systolic expulsive power of the ventricles; (2) the resistance of the peripheral vessels; (3) the resiliency of the arterial walls, particularly that of the aorta; and (4) the degree of viscosity of the blood. Benjamin Rush described nineteen different kinds of pulse. Few clinicians could by means of the finger alone detect the different varieties. We all distinguished in our minds between high-tension and low-tension pulse. It would be a matter of considerable difference of opinion among various observers as to what they felt when they feel the pulse. The usual estimation of the tension of the pulse was that obtained by palpation, but in this the idea of the tension was that conveyed by the impact of the pulse at the apex of the pulse wave, and did not give any knowledge of the average tension of the pulse-wave in its entirety. Thus in aortic regurgitation the sphygmographic tracing shows an average low arterial tension, although the apex of the curve may reach the point of 100. Many years ago the English physician Mahomet had described the so-called sustained pressure of the pulse, and emphasized the importance of recognizing the arterial pressure between the pulses. In estimating the value of sphygmograms it was necessary to understand what led to high systolic pressure. This was due to two elements: (1) Ability of the left ventricle to contract, and (2) dilatability of the peripheral vessels. The speaker discussed the value of the instruments used for determining blood pressure. The educated finger of the physician could detect the sustained pressure of the pulse, but the speaker admitted that his finger had not reached in this respect the degree of accuracy that he could wish. There were considerable portions of the pulse wave which the finger was not capable of distinguishing. The first and simplest instrument for estimating blood pressure was that invented by von Bosch, but this only gave the highest pressure. This was likewise the case with the Riva Rocci apparatus. The Gaertner tonometer was accurate, but recorded only the highest pressure. In this country the instruments in use were the Erlanger, the Janeway, and the Staunton forms of apparatus. These were adapted easily for use in private practice. They gave both the systolic and the diastolic pressures; they indicated the expulsive power of the heart and the resistance in the peripheral vessels. By means of them could be easily detected the sustained pressure of arteriosclerosis and chronic nephritis. In any case of continued high pressure one had to suspect sclerotic vessels. The time element of the pulse is important. The value of the sphygmograph in the study of cardiac irregularity was emphasized by Engelman and Windelbaum in Germany and MacKenzie in England. Jacquet's sphygmochronograph showed the time relations between the beat of the heart and the excursions of the pulse. These instruments were of value in showing the various causes of irregularity of the heart. Irregular pulse occurred in myocarditis, in digitalis poisoning, and in neurasthenia. The time intervals were sometimes longer and sometimes shorter in a neurasthenic individual; they were an indication of a neuromuscular disorder. The study of the irregular pulse was much more significant in elderly people. Too frequently was irregular pulse attributed to the use of tea or coffee. The cause was rather to be found in a true myocarditis. The phenomenon of extrasystoles was due to some ventricular degeneration. The sphygmograph provided two valuable aids to clinical medicine. First, it provided a means of getting an accurate picture of what the pulse is performing. Second, it reflexly trained our fingers, by enabling us to compare the results of their palpation with the results obtained from the apparatus.

THE WILLIAMSBURG MEDICAL SOCIETY.

Stated Meeting, Held October 14, 1907.

Dr. Leon Louria in the Chair.

A Case of Streptococcus Septicemia.—Dr. S. R. Blatteis of Brooklyn read this paper. It detailed the history of a case occurring in a female child six years of age, whose family history had been negative, who at the age of three years had had chicken-pox, and whooping cough one year later. A few months subsequently the child took suddenly ill, on the second day presented signs of a limited area of pulmonary congestion, and on the third day the urine was smoky and contained one-third by volume of albumin, with red and white blood cells and granular, blood, and pus casts. Blood examination showed a leucocytosis of 33,000, with a polynuclear count of 85 per cent. and lymphocytes 10 per cent. On the fourth day a pericardial friction murmur and a faint aortic murmur were audible. The pericardial sac rapidly filled up with fluid. There was present at the same time a severe enterocolitis with marked tympanites. At the end of the first week a purulent discharge yielding the *Streptococcus pyogenes* occurred from the right ear. During the first week the temperature had been moving from 99.5 to 104.6, at the beginning of the second week it was 99.5 and 101, and at the end of the second week it varied between 98.5 and 99.5. The lesions in the lung never developed to more than a congestion. The urine, which had

varied between 240 c.c. and 480 c.c., increased at the end of the second week to 915 c.c., the 24-hour amount of urea increased from 3.3 gms. to 10.5 gms., and remained below normal for about two months. At the end of the second week the leucocytosis diminished to 9,600, while the red blood cells were 4,620,000. After the absorption of the pericardial effusion a faint systolic murmur was detected at the apex, and the tympanites disappeared. During the third week of convalescence the patient developed measles, which proved to be a severe attack and was complicated with suppuration in the left ear. A year later she had an attack of mucous colitis, following which, after three months, she had a severe attack of tonsillar diphtheria. At the present time the patient was well-developed and in sound health, the only abnormal manifestation being a faint mitral systolic murmur at the apex.

A Case of Rhinoscleroma Treated with the X-Ray.—Dr. Milton J. Ballin of Manhattan read this paper. The patient was a female, of Russian birth, who had had the disease for sixteen years. Medication of all kinds had been tried with no improvement. It was a peculiar circumstance of this case that the larynx was not affected. The nose was of an extraordinarily large size. The *x*-rays had a surprising effect. The rays were allowed to play upon the parts for three to four minutes, three times a week. At the end of five months of treatment the nose was reduced to almost its normal size, the redness disappeared, the tissues became softer and more pliable, and the outline of the nostrils again returned.

Acute Anterior Poliomyelitis, Its Diagnosis and Treatment.—Dr. Henry Dwight Chapin of New York read this paper. It was necessary to distinguish between the endemic and the epidemic forms of the disease. The endemic form, so far as the speaker had observed, was never fatal, but it was never absolutely recovered from. On the other hand, the epidemic form was occasionally fatal, though very rarely, and then only in the early stages of the disease. In this form, also, there was a great variation in the extent of the paralysis; it was sometimes very extensive and sometimes very slight. Besides, in this form there was a certain proportion of complete recoveries. The lesion tended to be more varied and extensive than in the endemic form. Associated with an epidemic form of poliomyelitis there was sometimes a polioencephalitis, sometimes a peripheral neuritis, and occasionally a meningitis. The prevailing idea among recent writers was that the spinal paralysis of children was an infectious disease, and the occasional epidemics confirmed this view. Church and Peterson stated that its infectious nature was indicated by the abrupt onset, the usual febrile movement, the gastric disturbance, the occasional occurrence of convulsions, and, most of all, by epidemic and endemic outbreaks. In some of the outbreaks a considerable variation from the type had been noticed, and some cases presented the symptoms of Landry's paralysis, the infectious nature of which was known. Gower's recent volume, in discussing this subject, state that it was necessary to remember the vascular activity that all functions entailed, and the readiness with which the vasomotor system of children was disturbed. The occurrence of the disease in more than one member of the same family indicated a congenital disposition of the system to react in a similar manner to certain external agencies, while a special feature in the latter probably explained the occasional epidemic character of the disease and furnished grounds for ascribing to it an infective character. Doubtless there was more than one possible cause for poliomyelitis, sometimes of an infective nature, sometimes due to refrigeration, and again to a possible traumatism. An interesting epidemic occurred during the summer of 1899 at Poughkeepsie, N. Y., most of the cases being attacked between the middle of July and the middle of August. The peculiarity of this epidemic appeared to be the existence of severe pain in the parts affected by the paralysis.

State Medical Licensing Boards.

STATE BOARD EXAMINATION QUESTIONS.

State Board of Health of Missouri.

St. Louis, September 10, 11, and 12, 1907.

ANATOMY.

1. Give landmarks for location of the fissure of Sylvius; (*b*) fissure of Rolando.
2. Give origin, ending, branches, and relation of the brachial artery.
3. Give gross and minute anatomy of the kidney.
4. Describe the diaphragm. Give lines of insertion.
5. Describe the kneejoint.
6. Mention all muscles that flex the leg on the thigh.
7. Describe the os innominatum.
8. Name lobes of brain and their subdivisions.
9. Give all structures divided in amputation of the arm at the middle third.
10. Give gross and minute anatomy of the urinary bladder.

PHYSIOLOGY.

1. What effect would section of the spinal accessory nerve have on the heart's action?
2. Describe in detail the alimentary canal and give function of each section.
3. To what is acidity of the urine due and what kind of food tends to lessen it?
4. Explain theory of color vision.
5. Give organs and tissues in which white blood corpuscles are formed.
6. Describe the liver and give its function.
7. Describe secretion of sweat; upon what does quantity secreted depend?
8. Give the function of the pancreas and name the ferments secreted by it.
9. Give a brief description of the lymphatic circulation.
10. Give the function of the skin.

CHEMISTRY.

1. Give chemical composition of sweet milk.
2. Give two tests (chemical) for sugar in the urine.
3. What is the effect (chemical) of tannic acid with ferruginous preparations?
4. What are the chemical properties of ethyl alcohol?
5. What is the chemical composition of "lime" or "hard" water?

THERAPEUTICS.

Give doses and indications for use of:

1. Arsenic.
2. Ipecac.
3. Tartar emetic.
4. Caffeine.
5. Heroin.
6. Magnesia sulph.
7. Lobelia.
8. Copaiba.
9. Hydrastis.
10. Ergot.

PATHOLOGY.

1. Discuss exudation and transudation.
2. Describe the changes that take place in Peyer's patches in typhoid fever.
3. Discuss hyperplasia.
4. Discuss pseudomembranous formation.
5. What is degeneration? Name the principal forms.

PRACTICE.

1. What is Bell's palsy? Give symptoms and treatment.
2. Give etiology, symptoms, and treatment of cerebral apoplexy.
3. How would you differentiate this condition (cerebral apoplexy) from opium poisoning?
4. What is Romberg's sign; Stellwag's sign; and with what diseases are they associated?
5. Give etiology, symptoms, and treatment of Addison's disease.
6. Give etiology, symptoms, and treatment of leukemia.
7. What is a hemophilia? Give a brief discussion.
8. What is a papilloma?
9. Give symptoms and treatment of sunstroke.
10. Give etiology, symptoms, and treatment of cholera infantum.

OBSTETRICS.

1. Give manner of applying forceps and mechanism of the delivery in R. O. A. position.

2. Give history of fecundated ovum from time it leaves ovary to its normal delivery at full term.
3. Describe tubal pregnancy, giving causes, symptoms, diagnosis, and treatment.
4. Describe varicose veins of pregnancy. Give dangers of same. Give treatment.
5. Differentiate puerperal sepsis from malarial infection. Give symptoms and treatment of puerperal sepsis.
6. Describe Credé's method in delivery of the placenta. Give dangers to be avoided in using the same.
7. Describe asphyxia of the newborn, giving causes, symptoms, and treatment.
8. Describe in full the obstetrical preparation of the patient.
9. What is meant by a dry birth? Give management of rigid os uteri in labor.
10. How would you prevent laceration of the perineum in normal delivery? Describe manner in which the same should be repaired.

GYNECOLOGY.

1. Describe inversion of the uterus, giving symptoms, diagnosis, and treatment.
2. Describe laceration of the cervix, giving causes, symptoms, and technique of repair.
3. Describe vesicovaginal fistula, giving causes, symptoms, prognosis, and treatment.
4. Describe uterine polypus, giving symptoms, diagnosis, and treatment.
5. Differentiate between pyosalpinx and a salpingitis. Give technique of treatment of pyosalpinx.

BACTERIOLOGY.

1. Describe a practical bedside method for demonstrating the plasmodium malariæ.
2. Enumerate the characteristics of the bacillus of diphtheria.
3. Describe in detail a method for demonstrating the existence of tubercle bacilli in the sputum.
4. Describe the steps which you would take to demonstrate by the microscope the existence of gonococci in the vaginal secretion.
5. What is meant by phagocytosis?

JURISPRUDENCE.

1. Give process and length of time, by and in which, a body is converted into adipocere.
2. Define paralytic dementia.
3. Give the post-mortem appearance of vaginal tract of third month of pregnancy.
4. Define illusions, delusions, hallucinations, and lucid intervals.
5. What is infanticide, in both a physiological and a medicolegal sense?

ANSWERS TO STATE BOARD EXAMINATION QUESTIONS.

STATE BOARD OF HEALTH OF MISSOURI.

St. Louis, September 10, 11, and 12, 1907.

ANATOMY.

1. To locate the *fissure of Sylvius*, draw a line from a point one and a quarter inches behind the external angular process of the frontal bone and the same distance above the zygoma, to a point three-quarters of an inch below the most prominent part of the parietal eminence. (a) The main fissure will correspond to the first three-fourths of an inch along this line; (b) the horizontal limb will correspond to the rest of this line; (c) the ascending limb will correspond to a line one inch long, going upward (parallel to the coronal suture) from the junction of (a) and (b).

(b) Draw a straight line over the top of the scalp from the inion to the glabella; bisect this line, and half an inch posterior to the midpoint draw a line downward and forward at an angle of 67.5° for a distance of three and one-half inches. This line will represent the location of the *fissure of Rolando*.

6. The muscles that flex the leg on the thigh are: Sartorius, Gracilis, Semitendinosus, Semimembranosus, Biceps, Gastrocnemius, Plantaris, Popliteus.

9. The structures divided in amputation of the arm at the middle third are: Skin, fascia, Biceps, Triceps, and Brachialis anticus muscles; brachial, superior profunda, and inferior profunda arteries; brachial, basilic, and cephalic veins; median, ulnar, internal cutaneous, musculospiral, and musculo-cutaneous nerves, and humerus.

PHYSIOLOGY.

1. Section of the spinal accessory nerve would have a tendency to quicken the heart's action.

3. The acidity of the urine is due to acid sodium phosphate; vegetable diet tends to lessen the acidity of the urine.

4. There are two theories of color vision, as follows:

(a) *The Young-Helmholtz theory*, which assumes that there are three fundamental sensory elements in the retina which correspond to and are stimulated primarily by the primary colors—red, green, and violet; also that each color-perceiving element is slightly stimulated by others of the spectral rays. When red rays fall upon the retina they stimulate the red-perceiving elements strongly and the green and violet very feebly. The resulting sensation is that of red. So also is it with green and violet rays. When the retina is stimulated by both red and green rays the two corresponding color-perceiving elements are strongly stimulated. The resulting color perception, however, is a combination of the two sensations and corresponds to some region of the spectrum between the red and green, according to the relative intensity of the two stimuli. When all three color-perceiving elements are stimulated at the same time this theory assumes that white light will be perceived. In a similar manner all the various color sensations are arrived at.

(b) *Hering's theory*, which is based on the assumption that there are chemical substances in the retina, photogenic substances, which are stimulated by the colors of the spectrum. It assumes three photogenic substances which are called the red-green, the yellow-blue, and the white-black substances. By this theory, when the red-green substance is stimulated by red or green light, respectively, the former produces destructive or catabolic changes, the latter constructive or anabolic changes, in the substance. When red light falls upon the retina it produces catabolism in the red-green substance, which in turn develops a nerve impulse that arouses the sensation of red. When green light, on the other hand, stimulates the retina, it produces anabolism of the red-green substance and the sensation of green. The same rule holds with the other two substances. It will be noticed that this theory is based on the complemental colors. (From Kirkes' *Physiology*.)

5. White blood corpuscles are formed in the spleen, lymph glands, and lymphoid tissue; also from other white cells by direct cell-division in the blood stream; the eosinophiles may be derived from the bone marrow.

6. The *functions of the liver* are: (1) The secretion of bile, (2) the formation of glycogen, (3) the formation of urea and uric acid, (4) the manufacture of heat, and (5) the conversion of poisonous and harmful into inert material.

8. The *functions of the pancreas* are: (a) The secretion of the pancreatic juice, which (1) changes proteids into protoses and peptones, and afterwards decomposes them into leucin and tyrosin; (2) converts starch into maltose; (3) emulsifies and saponifies fats; and (4) causes milk to curdle.

(b) The manufacture of an internal secretion.

The *ferments secreted by the pancreas* are: Trypsin, amylopsin, steapsin, and a milk-curdling ferment.

9. The lymphatic circulation is, strictly speaking, not a circulation at all; since the lymph flows only in one direction, namely, toward the heart. The lymph capillaries take up any excess of the blood plasma which is not required for the nutrition of the tissues. These capillaries consist of a single layer of epithelium, and empty themselves into vessels very like the veins. The lymph vessels are well provided with valves, which are so closely approximated as to give the vessels a beaded appearance. All the lymphatic vessels, except those of the right upper half of the body, empty into the thoracic duct, which terminates in the left subclavian vein, where the left internal jugular vein also enters. Those from the right upper half of the body discharge into the right lymphatic duct, which, in turn, empties into the right subclavian vein at its junction with the right internal jugular vein.

10. The *functions of the skin* are: Protection, sense of touch, excretion, regulation of body temperature, absorption, and respiration.

CHEMISTRY.

1. The composition of cow's milk is:

Water	87 per cent.
Solids	13 per cent.
Proteids	4 per cent.
Fats	4 per cent.
Sugar	4 per cent.
Salts	0.7 per cent.

2. The urine should first be tested for albumin. If this be present, it should be removed by heating the urine to near the boiling point, and filtering from the coagulum.

(1) *Fehling's test*: Place in a test-tube a few c.c. of the

liquid prepared as stated below, and boil; no reddish tinge should be observable, even after five minutes' repose. Add the liquid under examination gradually, and boil after each addition. In the presence of sugar a yellow or red precipitate is formed. In the presences of *traces* of glucose, only a small amount of precipitate is produced, which adheres to the glass, and is best seen when the blue liquid is poured out.

[The reagent must be kept in two solutions, which are to be mixed immediately before use. Solution I consists of 34.653 gms. of crystallized $CuSO_4$, dissolved in water to 500 c.c.; and Solution II of 130 gms. of Rochelle salt dissolved to 500 c.c. in NaHO solution of sp. gr. 1.12. When required for use equal volumes of the two solutions are mixed, and the mixture diluted with four volumes of water.]

(2) *Boettger's test*: Render the urine strongly alkaline by addition of Na_2CO_3. Divide about 6 c.c. of the alkaline liquid in two test-tubes. To one test-tube add a very minute quantity of powdered subnitrate of bismuth, to the other as much powdered litharge. Boil the contents of both tubes. The presence of glucose is indicated by a dark or black color of the bismuth powder, the litharge retaining its natural color. (From Witthans' *Essentials of Chemistry*.)

3. Black ink is produced when tannic acid is brought into contact with ferruginous preparations.

4. Ethyl alcohol yields on oxidation first an aldehyde, then acetic acid; if the oxidation be very energetic the alcohol burns and is converted into carbon dioxide and water. Alcohol is acted upon by chlorine and bromine, with the production of chloral and bromal. Iodine acts upon alcohol in the presence of an alkali, to produce iodoform. Acids act upon alcohol, with the production of ethers and esters.

5. *Lime* is calcium oxide, CaO.

Lime water is a solution of lime in water, CaH_2O_2.

Hard water is water containing an excess of calcareous salt; *temporary* hardness is due to the bicarbonates of calcium and magnesium; *permanent* hardness is due to the sulphates of these elements.

THERAPEUTICS.

The doses of:

1. Arsenic trioxide, gr. 1/30.
2. Ipecac: As an expectorant, gr. j; as an emetic, gr. xv.
3. Tartar emetic: As an expectorant, gr. 1/10; as an emetic, gr. 1/2.
4. Caffeine, gr. j.
5. Heroin, gr. 1/20 to gr. 1/5.
6. Magnesia sulph., ʒiv.
7. Lobelia, gr. vijss.
8. Copaiba, ɱxv.
9. Hydrastis, gr. xxx.
10. Ergot, gr. xxx.

PATHOLOGY.

2. In the first stage of typhoid fever Peyer's patches become swollen, hyperemic, and reddened; a few days later they appear as whitish or gray elevations, and the hyperemia has disappeared; the surface of the patch is smooth and its edge is sharply defined; after the first week necrosis may occur; the center of the patch becomes softer, more yellow, or sometimes even red from the absorption of blood pigment. The necrotic portion falls off, leaving an irregular ulcer with necrotic and undermined edges. These ulcers are elongated, with the long axis parallel with that of the intestine, and a smooth floor. The ulcers may heal or go on to perforation.

5. Degeneration is a local order of metabolism, in which the protoplasm of the cell is gradually changed into a new material. The principal forms are: Fatty, mucoid, colloid, cloudy, and amyloid.

PRACTICE.

1. Bell's palsy is paralysis of the facial nerve due to inflammation or other lesion of the facial nerve or its nucleus.

Symptoms: "When it is paralyzed, the muscles of the face being all powerless, the countenance acquires on the paralyzed side a characteristic, vacant look, from the absence of all expression; the angle of the mouth is lower, and the paralyzed half of the mouth looks longer than that on the other side; the eye has an unmeaning stare, owing to the paralysis of the Orbicularis palpebrarum. All these peculiarities increase the longer the paralysis lasts, and their appearance is exaggerated when at any time the muscles of the opposite side of the face are made active in any expression, or in any of their ordinary functions. In an attempt to blow or whistle, one side of the mouth and cheeks acts properly, but the other side is motionless, or flaps loosely at the impulse of the expired air; so, in trying to suck, one side only of the mouth acts; in feeding, the lips and cheek are powerless, and, on account of paralysis of the buccinator muscle, food lodges between the cheek and gums." (From Kirkes' *Physiology*.)

Treatment: If possible, remove the cause; potassium iodide, electricity, blistering, massage, local injections of a solution of strychnine have all been recommended.

3. In *cerebral apoplexy*: There are generally paralysis of the head and upper limbs; and in left-sided lesions there may be aphasia; the pulse is slow and full; the respirations are at first slow, regular, and stertorous, later on becoming of the Cheyne-Stokes type.

In *opium poisoning*: The pupils are contracted; there is no sign of paralysis; both respirations and pulse are slow and full.

4. *Romberg's sign* is the inability of a patient to stand with eyes closed and heels together without considerable swaying or even falling. It is found in locomotor ataxia.

Stellwag's sign is a complete, or almost complete, absence of winking as an involuntary act. It is found in exophthalmic goiter.

7. Hemophilia is a hereditary condition characterized by a tendency to bleed on the very slightest provocation. Males are more apt to be affected, but the predisposition is transmitted through the female line. The cause of the condition is unknown; the prognosis is bad.

8. A *papilloma* is a benign tumor composed of connective tissue and covered by one or more layers of epithelial cells.

OBSTETRICS.

5. The following table (from Dorland's *Obstetrics*) differentiates the two conditions; but a careful blood examination, by revealing the presence or absence of the *plasmodium malariæ*, will render the diagnosis certain.

PUERPERAL SEPSIS.	MALARIAL INFECTION.
The chills are irregular in their appearance and are associated with marked alterations in the temperature rate.	The chills occur at regular intervals, and are followed by the usual elevation of temperature and then a sweat.
The constitutional disturbance is profound.	The constitutional depression is moderate, and quite out of proportion to the severity of the paroxysm.
The pulse rate is exceedingly rapid and ominous.	The pulse rate is in proportion to the amount of febrile reaction.
There will be associated uterine subinvolution and tenderness, and probably alteration in the lochia.	There will not be noted any peculiar local pelvic manifestations.
The patient's condition steadily grows worse without appropriate treatment.	Within a few hours there will occur a marked amelioration of the symptoms.

9. A *dry birth* is a labor in which the membranes have ruptured prematurely and the liquor amnii has escaped before the cervix was dilated.

The management of a *rigid os uteri* consists in: The administration of chloral hydrate, gr. xv., three doses being given at intervals of about twenty or thirty minutes; hot vaginal douches directed against the anterior lip of the os; if these methods do not suffice, it may be necessary to give an anesthetic, forcibly dilate the cervix, and deliver by forceps; the cervical laceration, if any, must be repaired.

BACTERIOLOGY.

2. The *characteristics of the bacillus of diphtheria*: The bacilli are from 2 to 6 mikrons in length and from 0.2 to 1.0 mikron in breadth; are slightly curved, and often have clubbed and rounded ends; occur either singly, or in pairs, or in irregular groups, but do not form chains; they have no flagella, are non-motile, and aërobic; they are noted for their pleomorphism; they do not stain uniformly, but stain well by Gram's method and very beautifully with Loeffler's alkaline-methylene blue.

3. To demonstrate the existence of *tubercle bacilli* in the sputum: The sputum must be recent, free from particles of food or other foreign matter; select a cheesy-looking nodule and smear it on a slide, making the smear as thin as possible. Then cover it with some carbol-fuchsin, and let it steam over a small flame for about two minutes, care being taken that it does not boil. Wash it thoroughly in water and then decolorize by immersing it in a solution of any dilute mineral acid for about a min-

ute. Then make a contrast stain with solution of Loeffler's methylene blue for about a minute; wash it again and examine with oil immersion lens. The tubercle bacilli will appear as thin red rods, while all other bacteria will appear blue.

4. To demonstrate *gonococci* in the vaginal secretion: On a cover-glass make a smear with the discharge as thin as possible, and let it dry in the air; cover it with a freshly-made solution of anilin-oil-gentian-violet for one or two minutes; wash it in distilled water; leave it in Gram's solution for two minutes; wash it in 95 per cent. alcohol until decolorized; wash it in distilled water; counterstain with a dilute carbolfuchsin without heat, or with a saturated aqueous solution of Bismarck brown; wash in distilled water, dry with filter paper, mount, and examine with an oil-immersion lens. The gonococci will appear as *diplococci within the leucocytes*, which have been *decolorized by Gram's stain*, and have taken the counterstain.

5. Phagocytosis is the faculty of certain cells (notably the mononuclear and polynuclear leucocytes) to take up and destroy bacteria and other foreign matter.

MEDICAL JURISPRUDENCE.

1. *Adipocere formation* only occurs when an animal fat is in contact with nitrogenous material. It is a process of saponification, the result being an ammonium soap, except when the body has been immersed in water containing excess of calcium salts, in which case a calcium soap is formed. The process is hastened by immersion in water, or even by moisture; it commences where fat is most abundant and gradually proceeds through the greater part of the body. It usually takes about three years for a body buried in the earth to be converted into adipocere; but the age and development of the body, as well as the nature of the soil may modify the length of time required.

2. *Paralytic dementia* is a gradually progressive and chronic inflammation and degeneration of the cerebral cortex; it is characterized by failure of memory, changed disposition, delusions of grandeur, and may lead to epilepsy and paralysis.

BULLETIN OF APPROACHING EXAMINATIONS.†

STATE	NAME AND ADDRESS OF SECRETARY.	PLACE AND DATE OF NEXT EXAMINATION.	
Alabama*	W. H. Sanders, Montgomery	Montgomery	Jan. 7
Arizona*	Ancil Martin, Phoenix	Phoenix	Jan. 6
Arkansas*	F. T. Murphy, Brinkley	Little Rock	Jan. 14
California*	Chas. L. Tisdale, 1879 Sutter Street, San Francisco	San Francisco	April 7
Colorado	S. D. Van Meter, 1723 Tremont Street, Denver	Denver	Jan. 7
Connecticut*	Chas. A. Tuttle, New Haven	New Haven	March 10
Delaware	J. H. Wilson, Dover	Dover	June 16
Dist. of Col'bia	W. C. Woodward, Washington	Washington	Jan. 9
Florida*	J. D. Fernandez, Jacksonville	Ocala	April 13
Georgia	E. R. Anthony, Griffin	Atlanta	May —
Idaho	J. L. Conant, Jr., Genessee	Boise	April 7
Illinois	J. A. Egan, Springfield	Chicago	Jan. —
Indiana	W. T. Gott, 120 State House, Indianapolis	Indianapolis	May 26
Iowa	Louis A. Thomas, Des Moines	Des Moines	March —
Kansas	T. E. Raines, Concordia	Topeka	Feb. 11
Kentucky*	J. N. McCormack, Bowling Green	Louisville	April 28
Louisiana	F. A. LaRue, 211 Camp Street, New Orleans	New Orleans	May 21
Maine	Wm. J. Maybury, Saco	Portland	March 17
Maryland	J. McP. Scott, Hagerstown	Baltimore	June 9
Massachusetts*	E. B. Harvey, State House, Boston	Boston	March 10
Michigan	B. D. Harison, 205 Whitney Building, Detroit	Detroit	June 9
Minnesota	W. S. Fullerton, St. Paul	St. Paul	Jan. 7
Mississippi	J. F. Hunter, Jackson	Jackson	May 12
Missouri	J. A. B. Adcock, Warransburg	Kansas City / St. Louis	April
Montana*	Wm. C. Riddell, Helena	Helena	April 7
Nebraska	J. E. Sward, Oakland	Lincoln	
Nevada	S. L. Lee, Carson City	Carson City	Feb. 3
N. Hampshire*	Henry C. Morrison, State Library, Concord	Concord	Jan. 14
New Jersey	J. W. Bennett, Long Branch	Trenton	June 16
New Mexico	B. D. Black Las Vegas	Santa Fe	June 1
New York	C. F. Wheelock, Univ. of State of New York, Albany	New York / Albany / Syracuse / Buffalo / Winston, Salem	Feb. 4
N. Carolina*	G. T. Sikes, Grissom		May —
N. Dakota	H. M. Wheeler, Grand Forks	Grand Forks	Jan. 7
Ohio	Geo. H. Matson, Columbus	Columbus	June 9
Oklahoma*	J. W. Baker, Enid	Guthrie	Dec. —
Oregon	B. E. Miller, Portland	Portland	Jan. 8
Pennsylvania	N. C. Schaeffer, Harrisburg	Philadelphia / Pittsburg	
Rhode Island	G. T. Swartz, Providence	Providence	Jan. 2
S. Carolina	W. M. Lester, Columbia	Columbia	June 9
S. Dakota	H. E. McNutt Aberdeen	Mitchell	Jan. 8
Tennessee*	T. J. Happel, Trenton	Memphis / Nashville / Knoxville	May —
Texas	Galveston, Waco	Waco	June 16
Utah*	medi[illegible] R. Fo[illegible]	Salt Lake City	Jan. 6
Vermont	R. W. Fisk[illegible]	Montpelier	Jan. 14
Virginia	W. Scott N[illegible]	Lynchburg	
Washington*	R. S. Martin, Olympic	Spokane	Jan. 7
W. Virginia	C. W. Sharpley	Pleasant	Parkersburg	April 14
Wisconsin	H. A. Barbee, [illegible]	Milwaukee	Jan. 14
Wyoming	J. V. Stevens, Jc[illegible]	Laramie	Feb. 12
	S. B. Miller, Laran[illegible]	States	

* No Reciprocity recognized by
† Applicants should in every ca[illegible]
letails regarding the examination

te to the secretary for latest
particular State.

Medical Items.

Contagious Diseases—Weekly Statement.—Report of cases and deaths from contagious diseases reported to the Sanitary Bureau, Health Department, New York City, for the week ending December 14, 1907:

	Cases	Deaths
Tuberculosis Pulmonalis	360	188
Diphtheria	369	34
Measles	471	20
Scarlet Fever	397	21
Smallpox	4	1
Varicella	160	1
Typhoid Fever	62	21
Whooping Cough	12	2
Cerebrospinal Meningitis	13	10
Malarial Fever	..	..
Totals	1848	298

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service for the week ending December 13, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Los Angeles	Nov. 16–23	2	..
Sacramento	Oct. 1–31	6	..
San Francisco	Nov. 17–23	1	..
Indiana, Anderson	Nov. 1–30	10	..
Kansas, General	Oct. 1–31	65	..
Louisiana, New Orleans	Nov. 24–30	1	..
Massachusetts, Fall River	Dec. 1–7	1	..
Michigan, Eleven Counties	Oct. 1–31	31	..
Grand Rapids	Nov. 24–30	4	..
Saginaw	Nov. 24–30	2	..
Minnesota, Winona	Nov 24–30	1	..
Ohio, Cincinnati	Nov. 30–Dec. 6	1	..
Dayton	Nov. 24–30	2	..
Sandusky	Nov. 24–30	1	..
Oregon, Portland	Oct. 1–31	6	..
Tennessee, Nashville	Nov. 1–7	16	..
Virginia, Three Counties	Oct. 1–31	5	..
Washington, Tacoma	Nov. 24–30	2	..
Wisconsin, La Crosse	Nov. 24–30	4	..
SMALLPOX—FOREIGN.			
Africa, Portuguese East Africa—Lorenzo Marquez	Sept. 1–30	1	..
Canada, Hamilton	Nov.	1	..
China, Shanghai	Oct. 21–27	..	18 Among natives.
Ecuador, Guayquil	Oct. 27–Nov. 16	..	11
Egypt, Cairo	Oct. 27–Nov. 4	..	1
France, Paris	Nov. 10–16	6	..
Germany, General	Oct. 26–Nov. 9	2	..
India, Madras	Oct. 17–25	..	3
Italy, General	Nov. 7–21	21	..
Catania	Nov. 15–21	..	1
Japan, Kobe	Oct. 20–Nov. 2	9	3
Java, Batavia	Oct. 20–26	6	..
Mexico, Mexico City	Oct. 20–Nov. 2	..	2
Portugal, Lisbon	Nov. 10–16	1	..
Russia, Riga	Aug. / Nov. 10–16	2	1 ..
Spain, Barcelona	Nov. 11–20	..	3
Venezuela, La Guira	Nov. 10–16	..	Present
CHOLERA.			
India, Calcutta	Oct. 20–26	..	75
Madras	Oct. 17–25	..	4
Rangoon	Oct. 20–26	..	2
Japan, Kobe	Oct. 28–Nov. 2	19	7
Yokahama	Oct. 29–Nov. 11	2	2
Manchuria, Salny	Oct. 20–26	2	2
Russia, General	Oct. 30 Nov. 11	581	304
Kief	Nov. 6–11	33	8
Minsk	Nov. 11	1	..
Russia in Asia: Hassan-Kale	Nov. 4–10	5	5
Khorassan	Nov. 9	..	1 In the Erzeroum district.
YELLOW FEVER.			
Brazil, Manaos	Oct. 29–Nov. 16	..	4
Cuba, Matanzas Province—Cienfuegos	Dec. 4	1	..
Santa Clara Province—Remedios	Dec. 4	1	..
Santa Clara	Dec. 4–5	1	1
Nicaraugua, Managua	Nov. 3–9	..	Present.
West Indies, British—Trinidad	Nov. 9	1	1
Venezuela, Caracas	Oct. 23–Nov. 23	275	5 Estimated.
La Guira	Nov. 10–16	..	Present.
PLAGUE—UNITED STATES.			
California, San Francisco	Dec. 4–5	3	2
PLAGUE—FOREIGN.			
Africa, Tunis	Oct. 20–Nov. 9	7	2
Bona	Nov. 9–12	2	..
India, General	Oct. 20–26	12,470	8,785
Calcutta	Oct. 20–26	..	4
Madras	Oct. 19–25	..	1
Rangoon	Oct. 13–26	..	31
Japan, Nagasaki	Nov. 10	Present on island in vicinity.	10
Osaka	Oct. 20–26	30	19
Manchuria, Kaiping	Oct. 10–19	13	12
Peru, Callao	Oct. 24–Nov. 6	1	1
Perrenafe	Oct. 24–Nov. 6	2	4
Lima	Oct. 24–Nov. 6	6	4
Paita	Oct. 24–Nov. 6	7	6
San Pedro	Oct. 24–Nov. 6	11	6
Trujillo	Oct. 24–Nov. 6	6	5

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Original Articles.

SOME UNCLASSIFIED DANGERS IN ANESTHESIA.*

By JOSEPH D. BRYANT, M.D.,

NEW YORK

The sense of appreciation of the dangers arising from constantly threatening things in life is largely comparative and naturally, therefore, the responsibilities relating thereto are quite apt to be similarly adjusted in the minds and by the actions of those closely related to the outcome. That familiarity with dangers of varying degree is apt to lessen correspondingly the sense of danger and accountability belonging to each, is a matter the correctness of which cannot easily be gainsaid. The faithful sentinel who begins his vigil with eager senses and hesitating tread fails in duty when misleading assurance, begotten of familiarity with exacting environment, lessens the acuteness of the situation. Perhaps the idea is better expressed by the well-known Shakespearean thought, "Familiarity breeds contempt." And this not alone in connection with the common amenities of human intercourse, but as well for the punishments related to common human fallacies in the sterner affairs of life.

Formerly, the casual examination of a hospital report showing an unprecedented death-rate from tuberculosis, for instance, would not cause on the part of many familiar with its devastations hardly more than passing notice, such as a sigh of regret by means of which one might express the fact that the measure of human sympathy is not yet exhausted. For so many years had the human ear been familiar with the verdict in this affliction, that the utterances of the human tongue, in many instances, were but of languid regretful import when illustrations of this disease fatality came to hand. Since little rational heed had been given to a danger which was not understood, personal and public responsibility had not sufficient foothold, in this instance, for a firm abiding place, until after the announcements of Koch. And even then the appetite for contention against it awaited on delayed digestion and assimilation of facts of almost self-evident meaning.

Less than twenty years ago but two of twenty-five of the leading physicians of this city were willing unequivocally to vote in writing the affirmation that tuberculosis should be declared by the Health Department a communicable disease and, correspondingly, be reported. And at about this time notions of prevention of common character, now household measures, were targets for the ridicule of the thoughtless, vainglorious, and assumptive persons—medical and lay—who obstinately denied their understandings of the benefits of the aid of their own special senses, and of the profound scientific deductions of others, in this matter. To-day the multitude are striving to lessen the burden of the affliction and wonder why so much delay is taking place; in fact, a grievous need has blossomed into a glorious fad.

It may seem quite strange that the reader should thus open a consideration of some of the dangers and responsibilities of anesthesia with a prelude of this tenor, but it appears to be not unfitting, at least in the sense of emphasis, from the standpoint of the antecedent proposition—that familiarity breeds contempt, or in this instance, at least complaisance, in the presence of danger, especially when the presence is long continued, and also, that under these conditions the body politic likewise sustains a loss of feeling—sort of a pseudo-anesthesia—which hinders, if it does not directly oppose remedial action.

The brief consideration of anesthesia at this time is prompted by the desire to offer something amenable to general discussion with the hope of extracting much of practical importance from the experience and observation of those whose opportunities are measured by abundant and fruitful examples.

The notion that past experience in the use of anesthesia, with relatively crude means of procedure, was commonly attended with great discomfort and a fatality from which the modern means and methods supply comfort and security, is entitled to experienced expression, and from those who were not born yesterday, and whose observation and experience in the two eras of anesthesia it may not be amiss to know something about.

The dangers and the responsibilities of anesthesia should be regarded as correlative, and the realization of the presence of a danger should promptly suggest the means of relief. It is in instances of this kind that trained and experienced attention under any executive equipment, lightens the burden of responsibility and correspondingly contributes to operative satisfaction and lessens the weight of unfavorable outcome. The anticipation in anesthesia of an awkward complication or of a significant consequence bids, on the one hand, a complete preparation therefor, or perhaps on the other, warns against exposure to prospective danger. It naturally follows, therefore, that those who administer anesthetics should be, as far as practicable, fully conversant with the present and prospective demands of rational anesthesia in all instances. The physiology of anesthesia and the therapeutics of its ill effects should be well understood.

The comparatively recent though limited introduction of skilled anesthetists into the professional activities of this country has established a desideratum of most satisfactory and beneficent nature, to all immediately concerned in operative practice.

Of course, competent, responsible forethought and able, painstaking supervision in all operative

*Read at a stated meeting of the Practitioners' Society of New York, December 6, 1907.

work should ever be at hand, therefore the incoming of skilled anesthesia in all the term implies is a blessing which none more than those in command can comprehend. Those of us who have experienced the comforting assurances dependent on the participation and the expressions of a trusty anesthetist in operative practice, as compared with the infrequent feelings of this sort, of past experience, enjoy an association which makes appreciation and gratitude the proxies of anxiety and danger.

It may not be amiss at this time, and in this connection, to register an unpleasant fact which is being forced upon me by observation and experience, viz., that not all those who regard themselves as fitted by modern means to administer anesthetics quite meet the expectation with which they might be regarded, were they less inclined to be original in their methods of practice. To err is human, and much of which error is born of striving to be original, or quite superhuman.

The induction of new notions in anesthesia for the sake of originality is often more pernicious than beneficial, both to the patient and the cause in question. The use of novel mechanism, and the novel administration of a potent remedy to meet special indications which often cause only temporary discomfort, at the risk of the patient's life, are measures to be deplored. The collated experience of dispassionate reviewers, of such false attainments, pronounce against the practice in decided tone, sustained by an increased death-rate from heart failure—with anesthesia. Not so very many months ago, in a place not a thousand miles from here, a friend of mine had occasion to examine the records of an operator who had just then lost a case from heart failure with anesthesia, and found that the last was not the first in order from the same cause—at least with the same verdict. And the time of completion of the record seems altogether too short when compared to ordinary practice, to be regarded as an earnest of the employment of ameliorating measures in anesthesia, or of a judicious practice in the use of drugs.

On infrequent occasions I have been impressed with the notion that unripe anesthetists and even those of maturer growth too often are more inclined to repose trust in anesthesia in the mechanical action of the apparatus, or in therapeutic modifying measures than in the accumulated knowledge of sentient beings. After all is said and done, ordinary prudence and common knowledge decree that favorable outcome in anesthesia, as in other things, can be assured only through wise forethought and vigilant execution. And, too, in anesthesia as in other measures devoted to human relief, final safety is best attained by the use of the means upon which the well-grounded experience of the profession and that of the anesthetist is based. And this latter proposition is incomplete, indeed, unless supported by a familiar knowledge of the use of more than one form of apparatus, supplemented by a reasonable amount of experience in the employment of each under circumstances which test the physiological and otherwise resourceful wisdom of the anesthetist. I, myself, would prefer to receive anesthesia through the agency of the crudest means by skilled hands than from the wisest fashioned mechanism managed on lines of inexperience and theory. I am satisfied that greater security is gained by experience in the giving, than by the use of ingenious mechanism, and that in the presence of inexperience or careless method both are alike objectionable. If these premises be correct, then how important it is that education should be given in the extremes of methods of administration—the classic and the crude as well.

The common plan of to-day in hospitals and in medical institutions inculcates mechanical idealism in anesthesia, and, possibly, through the operation of certain expensive and more or less fickle mechanisms of not yet fully established utility. At the same time ought not instruction be given in the making and in the use of the common means of giving anesthesia, in order that emergencies can be met under all circumstances and in out-of-the-way places? The assimilation of knowledge and of its advantages is not entirely unlike the assimilation of the uncivilized and its disadvantages, *i.e.* "benevolent" or necessitous assimilation as the case may be.

Specialization in the giving of anesthetics is a beneficent proposition so far as the patients open to its influence are concerned, but these latter will make up a small proportion indeed of those who now and will, for a long time to come, be thus favored. Therefore, in hospitals and in medical institutions amplified means of administration should be taught, but not so much from an automatic mechanical standpoint as from an established physiological comprehension of the effects of anesthetics so that its significant phenomena may be promptly interpreted and fittingly estimated under every circumstance. But, in all instances, a knowledge of the use and a working knowledge of the means, and the physiological effects of anesthesia should be well in hand whenever and wherever human affliction requires abatement by this means.

The fact that one of the dangers in anesthesia rests on an inadequate knowledge of the means of administration prompted the saying at this time of much already stated. The stereotyped dangers of anesthesia are numerous and well emphasized, but not enough emphasis is laid, as it seems to me, on the need of inculcating greater versatility in the use of the different means of the giving, and of the differing effects of anesthetics on the human economy. One who controls the influence of potent forces in the other affairs of life, such as of steam, electricity, etc., commonly limits his knowledge to some special mechanism relating thereto and never indiscriminately operates different mechanisms without requisite preparation, for the obvious reason that he ought not to do so, supplemented by the strenuous fact that conservative requirement exacts a better service. If now the dangers relating to anesthesia have a good foundation, then indeed should discreet surveillance be forced through the edict of responsibility as judged by law, if in no other way. Nothing more startling and pathetic can happen in the cause of human endeavor than the sudden and unanticipated death of one who trustingly, or with dread, consigns himself to the care of human agents in matters of this kind. The effect of dire results is broad and far-reaching, never forgotten, rarely overlooked, and contributes often to unjust censure and abiding self-recrimination. And the inhibiting influence thus exercised on those whose duty to themselves and to dependents is obstinate and serious contributes not a little to the burden of unwelcome results.

Nothing has been said in this connection about the dose of anesthesia, or the need on the part of the givers to estimate the comparative effects of dosage. These often discussed and important features can now go without the saying, and, more-

over, to consider them at this time would be foreign to the purposes of this paper, and, besides, might transcend the patience of the listeners. However, briefly, as bearing on the importance of the dose, I will quote from the recent volume (1907) on "Anesthetics and Their Administration, by that master of anesthesia, Frederick W. Hewitt, M.V.O., M.A., M.D., Contab., of London. He says: "When an anesthetic gas or vapor is progressively given by the valvular system until a point is reached at which the phenomena of full anesthesia appear, it is, of course, possible to ascertain the quantity of the anesthetic which has been used. But this quantity does not indicate the dose absorbed; for not only is the greater part of it dissipated in the patient's expiration, but at the termination of the administration there is still a portion of it within the respiratory passages. Although statements have been made by various observers as to the doses of anesthetic which produce the different degrees of anesthesia, our knowledge is not sufficient to warrant any very definite pronouncement upon this point."

If this statement regarding valvular control in administration be apparent, then, indeed, how much more uncertain this feature of safety is in administration by the nonvalvular or cruder means of practice. In any circumstance no one unfamiliar with the effects of the drug on the human body in health and in disease should assume the rôle of an anesthetist. Hence, it follows that instruction related chiefly to the operation of the apparatus should not be regarded as a full meal, but rather as a relish promoting the digestion and assimilation of more substantial aliment. One who is versed in the various effects of anesthetics can be trusted with the use of any form of apparatus whose mechanism can be intelligently operated. I am, therefore, impressed with the notion that there are anesthetists who would insure against accidents in anesthesia by use of modern apparatus—perhaps their own—with a degree of confidence like that which prompts the use of lightning rods on human habitations irrespective of important modifying conditions.

It is not needful that the writer should go far to the lee of passing events to recall in his own experience an instance not entirely foreign to this line of thought. A truly worthy young man beset with anesthetic aspirations of commendable proportions, vouched for to the writer, by a personal friend already delightfully imbued with his anesthetic skill, was invited to anesthetize a patient whose fear of anesthesia was painfully apparent. The young man in question, on entering the operating room with the unconscious patient, was personally equipped in a manner strikingly significant of the many-sided tokens of the anesthetic branch of operative aid. A measured tread and confident mien characterized the worthy young man in question at this time. With the patient on the table and the anesthesia going on in charge as before, my gaze was directed for the instant to the appearance of the patient. She was dusky, with superficial and irregular breathing, pulseless at the wrist, and at the verge of destruction, a condition which was not appreciated by the anesthetist, and even when pointed out did not arouse a spirit of conception of danger in any degree commensurate with the situation. In reference to a query regarding the cause of the condition of the patient, an answer was hesitatingly vouchsafed which conveyed no intelligent appreciation of the cause. The tenor of the remarks relating to the idea of the cause and the concomitant circumstances as stated, did not impress me with a feeling which suggested that the anesthetist had a safe working knowledge of the art of anesthesia. With some difficulty the patient was resuscitated, the anesthetic continued, and the operation successfully terminated.

During an active association with the use of anesthetics, under crude and advanced means of giving, beginning as a hospital interne in 1869, I have witnessed but one death from their use, and this followed twenty-four hours after persistent and ineffectual efforts, under ether anesthesia, to reduce a dislocation at the hip joint; the ether on this occasion was given by myself while a junior. Suppression of urine was the active cause of death. I recall, however, four distinct instances in my personal experience, scattered through later years of surgical activity, in which patients were rescued from ether or chloroform poisoning, only after decided effort. One from chloroform in private practice, two from ether in Bellevue Hospital, and the fourth in Bellevue from ether plus morphine injected for quieting recovery purposes after operation. The amount of morphine injected could not be determined because of thoughtlessness exercised in the giving. The distress in the first three of the list was because the givers of the anesthetic paid greater attention to the technique of the operation than to that of the anesthesia.

As a matter of fact, in each of the first three instances I was made aware of the presence of impending danger by the change in the character of the blood incident to the operation.

I consider the foregoing illustrations as being indubitable evidence that familiarity with anesthetic dangers breeds a disregard for them which good fortune and resourceful nature may frequently, indeed, render innocuous, or if otherwise, heart failure is the verdict. And, moreover, that the introduction of potent drug ameliorating measures for the purposes of lessening or obviating anesthetic consequences of no vital significance is not justifiable except when specifically indicated. The rate of mortality in anesthesia thus supplemented appears to be much greater in some instances than before, and the anticipated advantages of supplemental therapeutic measures are not by any means constantly realized, leading in fact to their rejection as a common plan of practice on the part of those who suffer from disappointed expectancy.

A fertility of resource from the physiological and mechanical standpoints is very essential in order that the necessitous contingencies aroused by the administration and the need for anesthetics, under all circumstances, can be rationally fulfilled. As it seems to me, there are dangers, or objections if you will, in the use of anesthesia which yet are unclassified, at least to the extent which should place them in the long list of accredited dangers as commonly exploited in the use of anesthetics.

Women Doctors to Go.—Five years ago the problem of saving money induced the County Asylum authorities at Fulbourn, near Cambridge, England, to appoint a woman physician. Since then the female staff has been allowed to increase. Now appointments to it are to be terminated on the ground of "physical unsuitability," at least, such is the term used in the report of the committee, the main objection alleged being that women physicians cannot be asked to substitute in emergencies on the male side of the asylum.

ENVIRONMENT AND PERSONAL HYGIENE AS CAUSES OF CONSUMPTION.*

By RICHARD COLE NEWTON, M.D.,

MONTCLAIR, N. J.

"Without hygiene climate is as sounding brass or a tinkling cymbal."—*Solly.*

Of absorbing interest to all students of the history of tuberculosis in America is the consideration of its relations to the colored race. From an inconsiderable factor in their mortality rates the disease has now become so formidable amongst them that it seems to be settling the negro question in this country for all time. In the same way certain tribes of the North American Indians will be in a few score years, unless the ravages of tuberculosis be arrested, as nearly extinct as the buffalo. It is seldom that anything more graphic has appeared in health literature than an account of the spread of consumption amongst the Sioux Indians, by Dr. Robinson, Superintendent and ex-officio Secretary of the South Dakota State Board of Health. He says in part: "In the old wild life, the Sioux were a healthful people. They were probably not wholly free from tuberculosis in some form; if, however, the infection was present, it was not general. In 1863 began the reservation system among the Sioux of the Missouri. There are about 25,000 of them making fine progress in civilization, living in houses, wearing citizen's clothing: the children being educated: the families generally professing Christianity: the able-bodied engaged in some form of manual labor, by which they earn the means of subsistence."

For fifteen years subsequent to 1863, during which time the wild buffalo had been destroyed, and all of the Western Sioux had been brought under agency influence, the annual reports of the several agents were optimistic in relation to the health of their people, reiterating the statement that the Indians were now living under more healthful conditions, coming under civilizing influences, dwelling in better houses, and accepting the attendance of the agency physicians. The first mention of consumption in these reports was in 1878. In 1880 one agency reports that 5.26 per cent. of the deaths resulted from tuberculous troubles. In 1881, consumption is generally mentioned in the reports, and in 1884, it was said, "consumption has a firm hold upon them." Yearly since 1880, the agents' reports have more and more teemed with fearsome tales of the ravages of the scourge. In 1880 there were in four of the leading bands 293 births and 208 deaths. Last year in the same bands the deaths equaled the births. A noticeable feature of the present condition of these unfortunates is the large and increasing percentage of tubercular affections amongst the children. Dr. Robinson says fully 60 per cent. of the younger generation have some form of tubercular affection and that fully 50 per cent. of those over the age of puberty die of tuberculosis.

In a paper read before the Sociological Section of the National Association for the Study and Prevention of Tuberculosis, Dr. Walker of Pine Ridge, South Dakota, says, "There is no inherent peculiarity of the Indian which renders him more liable to infection with tuberculosis than is a white man under like circumstances." Their average strength, endurance, and vitality appear to be about the same as those of the white man, and yet there is a much larger percentage of them affected with tuberculosis. Dr. Walker thinks that tuberculosis had existed among them before they came into contact with the whites, but there were relatively few cases until after they had given up their nomadic life and settled down to life in houses. They were filthy when they lived in tepees, and filthy after they became house dwellers. It was demonstrated by statistics that the most cleanly among them were the most healthful, but it was never shown that the filth in which they lived of itself caused tuberculosis at any time. "In their primitive life, their principal food was flesh. In times of plenty, they would surfeit themselves on raw or poorly cooked meat; at other times they would go hungry. They had no regular meal times. When they began to live in houses the Government supplied them with an abundance of food, and in much greater variety than they had been accustomed to. They were also supplied with cooking stoves and utensils, so that their food was better cooked than when they lived in tepees.

During their savage life the clothing of these Indians was of skins fashioned in a primitive style, the same all the year round, except that in the winter they wore a robe. Their garments were never laundered or changed for reasons of cleanliness. They were often exposed to inclement weather with a scanty amount of clothing and slept sometimes in tepees, sometimes in the open air, with probably little covering. After they had settled down in houses, they were supplied with better clothing in sufficient quantities and with blankets and bedding. They built their houses small and low with tight dirt roof and a ground floor. They daubed every crack and crevice with mud or other material to prevent any ventilation. They imitated their pale-faced brother in their abhorrence of drafts. A heating and a cooking stove were provided for every house, and in cool weather these were both fired at once and the Indians would crowd into these superheated cabins and swelter there. They threw their slops about the door, as they did when living in tepees, but they did not move their cabins every few days as they had moved the tepees, so that the surroundings of the former soon became noisome with filth. They had begun the use of intoxicating liquor before they had adopted our civilization, in its entirety, so that nothing was wanting to induce the scourge and rectifier of outraged nature, tuberculosis, to settle among them. The lesson is but too plain, and he who runs may read it if he will.

The history above detailed is the history of our feeble attempts to civilize the Indian in many parts of the United States. Tuberculosis has been for years prevalent amongst the Indians in Western posts that have been especially salubrious for the whites, as for instance, Surgeons Chase and Barker of the United States Army reported from the Washington Territory, that of 219 cases of sickness occurring in the military post there in the four years 1870-1874, there was only one of phthisis among the white soldiers or their families. Not a case of the disease had originated there. "But two or more cases which were imported had improved rapidly under treatment. Phthisis, however, is very prevalent and very fatal among the Indians." This report was made nearly forty years ago. The Indian was filthy, idle, and intemperate then as he is now, and those in Washington Territory had given up the warpath and their nomadic life long before the Sioux began to adopt our civilization and acquire our diseases. Consequently phthisis had made its

*Read before the American Climatological Association at Washington, D. C., May, 1907

appearance among them before it had been heard of among the Sioux.

A study of the conditions among the negroes in this country shows that phthisis has increased among them in almost the same relentless ratio that it has devastated the Indian reservations. In slavery days, the negro was comparatively free from tuberculosis. He was not, however, immune, as is so often stated, but suffered from the disease only slightly less than the white man. In Charleston, South Carolina, for instance, from 1841 to 1848 the death-rate from tuberculosis of the white and colored people was identical and was 2.8 per 1,000. Since, however, civilization, alleged political freedom, and a chance for education have overtaken the sons of Ham, they have become more and more tuberculous, until in 1900, in Charleston, their mortality from this disease reached the astonishing figure of 7 per 1,000. In other parts of the South, the negro mortality is not so high, and it appears never to have reached a high figure in the rural districts.

As Dr. Jones sententiously remarked, in a paper before the Tuberculosis Congress last year, "No individual or society has yet studied the case of the negro sufficiently to say whether the racial element plays any part as a cause of this disease." The influence of environment is at present so tremendously in favor of tuberculosis among this people that it has been practically impossible to eliminate it sufficiently to discover the racial predisposition, if any exists. To quote Dr. Jones further: "Few of us realize the great difficulties under which this race struggles. A third of it is yet living in one-room cabins. The possible danger of such an existence is indicated by a fact which I discovered last year, in a so-called two-room cabin. Two-thirds of the space in one room was filled by a stove and a table; one-half of the other room was filled by a bed. In this house thirteen children had been born since the war, and twelve of the thirteen had died when they were children. * * * The unusual and heroic struggle for an education under adverse conditions is often a potent cause of consumption among colored students."

It is not only in his liability to consumption that the negro in the United States shows his non-adaptability to his present environment. His death rate is high in almost all diseases, and his general death rate is higher than that of the whites in about the same proportion as is his death rate in tuberculosis. During the War of the Rebellion it was observed that ten per cent. of the negroes who were reported sick from heat stroke died, while of the whites only four per cent. died. This is a good comparison as far as it goes, because the conditions of life were identical at the time for the blacks and the whites, and the former are well known to be less susceptible to heat stroke than the latter. That the colored race has less vitality than the white is unquestionably true, but to assert that negroes so frequently contract tuberculosis by reason of an especial or racial predisposition is to beg the question. Their birth rate has decreased in the last twenty years, a decrease two or three times as great as that of the whites. It is impossible not to observe many analogies between the present condition of the negroes and that of the Indians. Both races have within a comparatively few years entirely altered their manner of living and have evinced conspicuous non-adaptability to their present environment.

And so it is with the Irish race in America. I will not weary you with the figures. Suffice to say that the Irish-American is almost as liable to tuberculosis as the negro, and that the Irishman born in America is twice or three times as liable to die of the disease as the Irish emigrant. "Americanization," we are told on good authority, is beating down the alleged splendid immunity of the Jew to tuberculosis. What does it all mean? Americans themselves are gradually becoming less tuberculous, while the peoples who are trying to live like them and live with them, are becoming more so. The explanation is by no means easy. If so good an observer as Dr. Salmon confesses that the means of arresting the spread of tuberculosis among cattle are not as yet understood, does it seem unreasonable that the problem of handling the disease in the greatly more complicated life of man should be so intricate?

Talcott Williams has said that every case of consumption is a confessed failure of civilization. It is no more so than is a case of drunkenness, of syphilis, or of typhoid fever. Nor is it as much so, because we know the remedy to apply to each of the last named conditions, although for one reason or another its application seems impracticable. But in tuberculosis, we do not really know the remedy, or remedies. We are trying to discover them. It is idle to say that infection is the sole cause of consumption. We are all exposed, and practically all have the disease at some time in our lives, so the pathologists tell us, and yet nine-tenths of us escape without any tangible symptoms.

Why does the submerged tenth suffer? There is no question about the predisposing effect which many occupations have upon the contraction of this disease.

There is no need to remind you that stone cutters, knife grinders, and cigar makers are especially liable to consumption, and that a difference at first blush so slight, as changing the grinding from dry to wet, add years to the grinder's life. The latest statistics from Paris show that the upper tenements in that city have a smaller percentage of tuberculosis than the lower floors in the same buildings, although their inmates are poorer and more crowded together, the first named lodgings being more exposed to the light and air, and being further from the ground. So in New York City it has been demonstrated that there is more sickness from pulmonary and bronchitic disease on the north sides of the street than on the south, where the house gets more sunlight.

In Paris it has been found that fewer illegitimate children die from bronchitis and pneumonia in the first year or two of life than legitimate—the direct opposite from what we should expect. The very fact that they are less carefully tended, and presumably less luxuriously clothed and fed, seems to add distinctly to their power of resistance to pulmonary diseases. Pampered and overfed cattle, like the notorious herd of Jerseys of Queen Victoria, are especially prone to tuberculosis; pampered and overfed children are not so liable now as they were once, since the habit of battening down the windows and piling on the flannels for fear the child might take cold, is not so fashionable as it used to be. Overfeeding would appear to be inimical to the progress of tuberculous disease under some, but not under all conditions

The Actuarial Society of America published an elaborate report in 1903, according to which the $20,000 "risks" had turned out especially badly, only living out, I believe, about half of their "expectation." Here, again, luxury, it seems, is getting

in its perfect work. Heretofore, however, we have not been accustomed to consider it a cause of tuberculosis. Another interesting fact to be learned from the report is that the commercial traveler is an unexpectedly good risk, compared to men of the same age in other occupations. This can be explained only on the hypothesis that travel in itself is wholesome. Man was originally a nomad, hunting about for his food like other wild animals, and, as he developed further, he was a shepherd and led his flock about. The wandering propensity (*Wanderlust*) is still a part of the normal man's disposition, and, like other traits inherent in our nature, should be heeded.

Change of locality is of itself beneficial to the health in many instances. Perhaps the Irish in America illustrate this, the emigrants, as has been said, showing much better life histories, especially as regards consumption, than their children born in this country. No really satisfactory explanation of the great prevalence of phthisis among the Irish-American has been advanced. From considerable study of the problem, the writer believes that the diet of these people has not received sufficient attention as a predisposing factor in the development of tuberculosis. The Irish seem to be intensely carnivorous, eating largely of meat with some of the coarser vegetables, such as potatoes, turnips, and cabbage, none of which afford much energy to the system. They do not seem to eat a due proportion of good carbohydrate food; at all events, their bread all seems to come from the bakeshop, and this is about as nearly without nutriment as bread well can be.

The fine commercial instinct which pervades everything in America has led to the production of baker's loaves of immense size and little substance, conveying to the eye a sense of magnitude, but cheating the stomach by their aerial flimsiness. They are windbags puffed out, it is alleged, by the use of alum or some other chemical. This bread, if soaked in milk or tea, becomes as soft as pap, and can be washed down without chewing. A characteristic American style of eating, by the way.

It states in the life of Count Rumford that this excellent observer and truly scientific man was greatly impressed by the vigorous health of the Bavarian soldiers, who subsisted on food which they bought out of their pay of four cents a day or less, and which consisted largely of soup with such vegetables as beans. The Government, in addition, however, supplied each man with about two pounds of good, rye bread. Such a menu, in fact, affords almost the ideal diet.

The Count seemed to lose sight of the effect upon the nourishment of the body which will follow the consumption of good, substantial bread, requiring much mastication. He was disposed to think that in some way water prepared in soup developed some nutritive qualities. Whether this is so or not, enough is known of dietetics to establish the fact that the consumption of good, hard, bread crusts and drinking plenty of water, either hot or cool, should be the foundation of a normal workingman's diet. I firmly believe that if bread were sold by weight it would do more to arrest tuberculosis in the United States than the strict enforcement of the anti-spitting ordinances, important as I acknowledge these laws to be.

I have seen young Irish-American children come home from school, proceed at once to the cupboard, and abstract therefrom sweet cakes of variegated hues bought at the bakery, and designed to attract the eye and tickle the palate of this class of customers. After eating of these dainties, the future American citizen, with his decayed teeth, so rotten perhaps that he could not chew wholesome food, his neck, probably adorned with scrofulous nodes, and his posterior nares stuffed with adenoids, would, perhaps ignoring entirely the family dinner of corned beef and cabbage and liberal potations of tea, retire to smoke the manly cigarette, spend his evenings on the street corners, or, if a little older, in the saloon, or some more questionable resort, and finally retire to sleep in a small and nonventilated room with an assortment of bed-fellows, relatives, and otherwise, with, however, the never failing precaution that the windows were carefully battened down. The child or young man would probably be muffled in woolen garments, wear heavy woolen underclothes, and perhaps sleep beneath a feather bed, if not in one. In Ireland, poverty had kept the foolish parents from any such indulgence of their offspring, but in this free country, with the greater variety of food, higher wages, and more general education, the children are too much indulged to the injury of their health and their morals.

We are told that wearing the white man's clothes is a principal cause of consumption among the Indians, and that animals and plants will sicken and die when their cutaneous respiration is interfered with. I am anxious to learn more of the truth of this alleged cause of tuberculosis among savages. I can remember distinctly making a campaign during my army life with Indian scouts and some regular troops, in which the Indians coughed almost incessantly. The soldiers and officers had no colds. I was told that the Indians might have contracted theirs from taking sweat-baths, but as they were living under the same conditions as we were, wearing soldier's clothes, and eating soldier's rations, there seemed to be no reason for their greater susceptibility to colds. I was told by experienced officers that the red man is gradually becoming weaker and more prone to sickness. Personally I am disposed to agree with Dr. Page and others who believe that much sickness, and especially consumption, may be caused by covering the body with raiment. So far as can be learned, Indians, negroes, and the South Sea islanders never suffered from consumption to any appreciable extent until they began wearing our clothes. To be sure, they began at the same time to lead more idle and luxurious lives, and to change their diet from simple, coarse food to bakers' bread, impure milk, and more complex viands generally. They now drink more whiskey, use more tobacco, and herd closer together. And they have also begun the interminable struggle for an education, the students, as we have seen, being especially liable to consumption.

I think that enough has been said to show that tuberculosis is a disease following maladaptation to the environment, improper habits, and defiance of Nature's laws. Nothing will stop its ravages entirely except to force every man and woman to live by the physical conscience, and to devote a large share of thought and energy to preventing themselves and their neighbors from contracting the disease and from spreading it. It took, as we have seen, fifteen years of so-called civilizing influences to thoroughly infect the Sioux Indians of the upper Missouri. Bad as those influences are, they would not have taken the same hold on people like the poor Jews of eastern Europe, who have for generations been accustomed to foul, contracted dwell-

ings, modern woolen clothes, overcrowding, overwork, and wretchedness.

The tendency to consumption is born in everyone. Flexner and other good pathologists, as already stated, tell us that at least 90 per cent. of human beings have at some time been infected with the tubercular virus. And we observe constantly that any great change of environment or régime, not by any means invariably to a lower social condition, may result in the development of this disease; so may too much sexual intercourse, whether legitimate or not, an improper diet, the strain of too much study, the use of intoxicants, or the inhalation of smoke and dust. In short, anything that permanently weakens vitality and destroys or impairs the resistance of the body cells is an invitation to the development of consumption in man or animals. And, lastly, want of proper development of the lungs, the muscles, and the vital organs, is an important contributory cause too little thought of.

If dairy cattle were exercised more, and never confined in stables, so that their bodily activity would promote normal metabolism, they would in all probability not suffer from consumption. Just as horses are practically immune, and sheep and goats nearly so. Undoubtedly if negroes and Indians should go back to the life to which centuries of evolution had fitted them, the disease would practically disappear from among them in a generation or two.

They are now paying the penalty of a too sudden change from what was to them a hygienic mode of life to an unhygienic one, and those of them that escape the devastation of the plague will become comparatively immune, able to resist a higher degree of infection, and to remain free from phthisis under conditions which they cannot withstand now.

Infection plays a secondary part in the production of consumption, and so does heredity; the principal causes are a man's life habits and environment. As the Imperial Board of Health of Germany has said, "It is impossible to extirpate all tubercle bacilli, therefore it is indispensable to so strengthen and harden the body that the absorbed germs cannot take hold upon it."

THE BACTERIA AS INCITANTS OF MALIGNANT ENDOCARDITIS.*

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THE clinician at the bedside appreciates fully the practical results attained in the experimental study of diphtheria. But he needs also to know and to recognize that as a result of such study marked precision has been gained in the diagnosis and theoretical conception of bacteriemic disease, even if the methods of serum treatment are unsatisfactory, and that this knowledge has already exercised over modern therapy a judicious control which is of broad scope and of definite practical value. It is in this light chiefly that the study of the bacterial cell as an incitant of malignant endocarditis assumes practical interest.

Inflammatory processes of the endocardium involve, as a rule, the valves of the cardiac orifices. The lesions vary, but usually they are situated in the left heart. In order of frequency the mitral, aortic, tricuspid, and pulmonic valves are involved. The simple verrucose lesions consist of slight infiltration and thickening of the valve. Subsequent contraction of the connective tissue fibers shortens the valve and roughens the endocardium. In the vegetative processes the infiltration is more marked and the hyperplasia is characteristic; in the ulcerative, necrosis defines the type. Thrombi form in all types of lesion. These anatomical distinctions doubtless are necessary and convenient for purposes of description and classification, but at autopsy the lesions often show all degrees of infiltration, hyperplasia, and necrosis.

The etiology of endocardial inflammation has long been the subject of serious study and vague speculation. It is asserted that all acute endocarditis is of infectious origin, and that practically all of the infectious diseases may give rise to endocarditis. Such sweeping assertions, however, do not admit of positive demonstration. Experimentally, tissue reactions of the ulcerative type of lesion have not been induced without the presence of bacteria. Clinically, the signs of acute endocarditis in man are those of infection, and it is just as difficult to define the malignancy of an endocarditis as of a pneumonitis. Anatomically, the lesions accord with those of bacterial origin, but not infrequently at autopsy are found extensive vegetative and ulcerative lesions without bacteria, and exceptionally in the experiments on animals similar lesions have been noted after simple injury. Hence the accepted classification of simple acute, chronic, and malignant mycotic endocarditis is convenient and persists. Nevertheless, the trend of recent study suggests that acute endocarditis, incited under varying conditions by many different species of bacteria, is an infectious disease, symptomatically and anatomically of such wide variation as to render accurate classification difficult. For present purposes, the endocardial affections of active mycotic incitement alone are of interest.

The results of bacterial examination in cases of malignant endocarditis are too well known to the bacteriologist, of too little interest to the clinician, and often too scantily descriptive of the bacteria found, to be cited in detail. Many different species have been reported, among them the colon, Friedländer, typhoid, diphtheria, influenza organisms, the meningococcus, the tubercle bacillus, the *B. pyocyaneus*, unrecognized species; others little known but described as the *B. endocarditis griseus, Micrococcus rugatus, Micrococcus capsulatus* of Weichselbaum, *B. pyogenes fœtidus* (Fasset), *Diplococcus tenuis* (Klemperer), and an organism described recently by Pappenheimer and Satchwell. But usually in characteristic ulcerative lesions the pneumococcus, streptococcus, staphylococcus, or gonococcus is present.

Malignant endocarditis of varied bacteria incitement is similarly variable in its association with other diseases. Rheumatism and chorea, so often precedent to simple acute endocarditis, rarely gives rise to malignant endocarditis. Pneumonia and sepsis, especially the puerperal form, are the most prolific sources of the serious endocardial lesions. Of the exanthemata, scarlet fever, with its streptococcal infections, is most important. But practically all the more common infectious diseases of man may be complicated by endocardial affections. In some, the cardiac lesions may be due to the primary or specific incitants of the disease, as in urethritis;

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in many to the organisms of secondary infection, as in diphtheria. The secondary infections of true diphtheria and the primary infections of pseudo-diphtheria, as Prudden[1] was among the first to distinguish and to demonstrate, are incited by the same bacterial species, the pyogenic cocci. In tuberculosis the endocarditis may be due to the presence of the tubercle bacillus, but this has only exceptionally been demonstrated. In view of the frequent occurrence of tuberculosis and endocarditis, the association of these diseases may be of no etiological significance. Exceptionally, the story and signs of previous infection are lacking, and malignant endocarditis has thus occasionally been considered to be a primary disease.

But, whether the incitants are derived from the main blood stream or are carried in the endocardial blood supply, malignant endocarditis always develops as a secondary localization from bacteriemic or pyemic invasions arising in previous infectious disease. This secondary localization may occur early or more often the signs are obscure or masked and are recognized late. Infectious disease thus acts as a predisponant in the etiology of malignant endocarditis, affords entrance for the germs, and gives rise to the susceptibility of the patient essential to the development of bacteriemias or pyemias. These, however, are frequently noted without endocarditis in both animals and man. Evidently additional conditions of susceptibility or predisposition are necessary for the formation of the characteristic lesions. It has long been noted clinically that the healed or chronic lesions of previous endocarditis often predisposes to the malignant type, affords the essential local conditions. This, however, is capable of far more accurate demonstration by the experimental method.

The endocardium was long thought to be exquisitely sensitive to the slightest injury, but Rosenbach,[2] after passing instruments through the carotid artery and perforating the valves, found that rapid and complete recovery took place. Wyssokowitsch[3] also failed to obtain vegetative or ulcerative lesions in similar experiments, but when he inoculated animals injured in this way the characteristic lesions of ulcerative endocarditis developed. Prudden,[4] in this country, not only corroborated the results of these observers, but found that slight injury secured by nitrate of silver sufficed to determine this localization of the bacteria on the endocardium. Subsequent experimentation has confirmed these results and broadened their significance.

There is thus definite clinical and experimental evidence suggesting that the development of malignant endocarditis in the course of infectious disease is determined by previous lesion of the endocardium. This may be of recent development or long standing. Hence, the occurrence of infectious processes in an individual, with even the simplest of valvular lesions, is of practical interest to both surgeon and physician.

Attempts have been made to distinguish clinical groups of the disease and to classify them according to their etiological or anatomical development, but only two types are generally recognized, the typhoid and the pyemic. The endocarditis of pneumonia, usually of pneumococcal incitement, is said to run a rapidly fatal course, usually without infarction but with metastatic processes in the meninges, peritoneum, pleura, or other parts of the body. In some observations the lesions in the endocarditis of pneumonia were noted in the right heart more frequently than in the left; in others the predominance of lesions of the left ventricle obtains as in other forms of the disease. It is evident that conditions in pneumonia, more than in any other disease, favor the development of the processes in the right heart.* The endocarditis of sepsis is more variable. Usually rapidly fatal with pyemia and infarction, it is nevertheless often of prolonged, subacute type, with occasional recovery, especially in attenuated streptococcal infections, such as follow scarlet fever. The cardiac lesions are left, rarely right. The endocarditis of urethritis, practically of specific gonococcal incitement, is recognized as more uniformly of prolonged subacute type, and, though serious, recovery takes place more frequently than in the pneumococcus, streptococcus, or staphylococcus infections. The right heart is frequently involved. The chief proof of rules such as these is the long list of exceptions which individual cases present.

Variable and subtle in its development and course, malignant endocarditis is recognized with difficulty. Often the diagnosis is made late or at autopsy. The clinical signs nevertheless direct attention to bacterial examination of the blood and determine the significance of the results.

Owing to faulty technique, unreliable results are often obtained in the bacterial examination of the blood. Contaminations occur, and the organisms, especially in the protracted cases, are few in number, or may be so attenuated as to yield little or no growth on artificial media. Considerable quantities of blood are often required, say 5 to 25, or even 30 c.c. In the hands of the expert, broth is an extremely valuable medium for cultivation; but in the hands of the novice often assigned to this work contamination is more apt to occur and is less readily detected than in solid media. Solid media, however, may be enriched by the addition of sera, sugar, or other substances which facilitate growth. As a rule, the best results are secured when the blood is distributed in broth and in plates of solid media. In view of the changes in the number of bacteria in the blood and the technical difficulties of their isolation, failure to find bacteria in a case otherwise showing the signs of the disease should be controlled by repeated examinations. The accurate diagnosis of malignant endocarditis doubtless gives satisfaction and support to the physician at the bedside, but to the patient in bed its practical value is limited owing to the unusually grave prognosis it carries, and the unfortunate inadequacy of specific therapy.

The extremely unfavorable tenor of the prognosis of endocardial infection, as compared with that incited by the same species of bacteria in other parts of the body, is due to the anatomical situation of the lesion. In pneumonia, for example, the pneumococcus infection in the lung, if localized, usually is benign; if generalized, as a bacteriemia, it is serious; but if from the bacteriemia endocarditis develop, it is practically fatal. On the endocardial surface there is no rest, little chance for complete localization, and the ulcerative lesion may discharge directly into the circulating blood. Furthermore, fatal accident by infarction or thrombosis is a constant menace. Bacterial species comparatively benign in other parts of the body thus prove serious or fatal in endocardial lesions; nevertheless, cases do recover.

In the experiments on animals, it may be recalled,

*Among the many conditions which might be suggested in explanation of this the fact that the lymphatic drainage of the pneumonic lesion empties into the jugular vein near the right heart, the frequent occurrence of thrombosis, and the extra work suddenly thrown on the right heart in pneumonia may be seriously considered.

extensive lesions of the endocardium, free from infection, healed rapidly. That the heart of man is similarly recuperative is suggested by the scars of old injuries and the chronic valvular lesions found at autopsy. Once freed of its mycotic nature, the ulcerative lesion of malignant endocarditis tends to heal, and, in view of the difficulties in diagnosis, unrecognized cases doubtless recover. In fact, exceptional though it be, recovery is recorded from endocardial lesions incited by all the more common incitants of the disease, more frequently from the gonococcus than the pneumococcus, streptococcus, or staphylococcus infections. Grave as the anatomical situation of the lesion renders the prognosis in malignant endocarditis, it thus varies to some extent at least in the individual cases, and the mechanism of recovery differs in no essential from that of infection in general.

Infection, considered in terms of its units, the body cell and the bacterial cell, is a series of interdependent adaptations ever varying in balance. Upon the determination of these subtle relations depends all our theoretical conceptions of the disease, its course and prognosis, and all hope of future success in its treatment.

Fortunately, time does not permit discussion in full of the new lore of immunity. Suffice it to glean from this maze of fact and fancy such observations as are practical in their trend. Briefly, then, the body cells, in response to the presence of foreign material, are stimulated to the elaboration of substances which combine with this material to facilitate its assimilation or elimination: noxious substances, if soluble, are neutralized and thereby rendered innocuous; if insoluble, they are disposed of in devious ways; some are stored in harmless places; others undergo dissolution outside the cells, and still others, perhaps the greater number, are taken up by the body cells, the phagocytes, and there digested or cast off. In these reactions the body tissues acquire antitoxic, agglutinative, precipitative, bacteriolytic, chemotactic, and opsonic properties in varying degree active, and doubtless closely related one to the other in this complex mechanism of immunity by which the development of the bacterial cells is controlled or altered in the course of infectious disease.

In recent years attention has been focused on the study of these properties of the body tissues, and wisely and profitably so; but the mechanism of immunity is only part of the mechanism of infection; the susceptibilities and attenuation of the bacterial cell also demand attention if the practical significance of the results of this study of immunity is to be intelligently utilized. In their susceptibilities to the action of these various processes of immunity, as also in their virulence and capacity for adaptation, great variation has been noted in different bacterial species and in different strains of the same species.

The attenuation of bacteria growing in artificial media under various conditions has long been recognized. Frequently organisms recently isolated from disease processes are peculiar in their morphology, staining reactions, and growth, and even in their pathogenicity as tested on different animals. These peculiarities may disappear on cultivation. Among the streptococci and staphylococci, especially in the protracted infections of malignant endocarditis, has this been observed. Definite as is the existence of these slight physiological adaptations within the bacterial cell, they are extremely difficult to study, and our knowledge of them is as yet inchoate.

More marked is the variation found in the susceptibility of the bacterial cell to lysis; some species undergo rapid dissolution; others are insusceptible. The vibrios, cholera, some of the bacilli, typhoid, for example, are in varying degree susceptible. Streptococci and staphylococci are relatively insusceptible. The pneumococcus exhibits in salt solution a susceptibility similar in degree to the cholera vibrio, but in sera differs markedly. In the presence of fresh normal bile, one drop to one cubic centimeter of culture, the pneumococcus undergoes rapid dissolution, whereas the streptococcus remains intact. Similar variations are found in the rapidity with which the phagocytes take up and digest the cells of different bacterial species. As tested *in vitro*, typhoid bacilli are not only taken up immediately by the phagocytes, but they are also as quickly digested; in the test tube mixture all traces of the bacilli often disappear in a few minutes. Staphylococci are as quickly taken into the phagocytes, but there they remain, undergoing slow dissolution, or they grow, destroying the cell. The intracellular distribution of the gonococcus in urethral pus has long been considered characteristic of the organism. Virulent pneumococci and streptococci are comparatively insusceptible to phagocytosis, even after long exposures.

All this susceptibility of the bacterial cell to the mechanism of immunity is a new field of investigation opened up by the newer methods, but these observations suffice to indicate how important it is in our efforts to attain efficient serum therapy, to consider not only the immunity of the body cell, but the susceptibility of the bacterial cell with its capacity for adaptation also. Especially are these considerations important in a disease of so grave a prognosis and of so varied a bacterial incitement, as malignant endocarditis, in which the local lesion bears so unusual and dominant a relation to the bacteriemia.

The adaptation of one cell is thus limited by its susceptibility to the presence of the other. This balance is ever changing, with conditions favoring now one, now the other. These conditions of predisposition have been extensively studied. The effect of exposure to cold, hunger and thirst, fatigue, and many similarly injurious conditions have been the subjects of experimentation, and the results are too well known to warrant further consideration. The effect of fever, however, is so fundamental and broad in its practical significance, and the study of it has apparently yielded such contradictory results, that these may with profit be briefly considered.

Pasteur was among the first to demonstrate the attenuation, loss of virulence, brought about in anthrax by cultivation at elevated temperatures—42° C. Similar results have been obtained with other species of bacteria, notably the pneumococcus; at 41° C., for six days the virulence was lost in Fraenkel's experiments. Pasteur also showed that birds with normal temperatures of 41° C., and insusceptible to anthrax, became susceptible and died of the infection when, by baths or other means, this temperature was lowered. All of Pasteur's observations have been confirmed again and again, but in recent years the results have been attributed to subtle changes other than the lowered body temperature. This is due to seemingly contradictory results obtained in a long list of experiments, in which susceptible animals were rendered more susceptible by exposure to elevated temperatures. Little or no attention, however, was paid to the degree of eleva-

tion attaind by the body tissues during the exposure, nor was account taken of the effect of such temperatures and exposures on the bacteria inoculated.

In Walther's experiments the body temperatures of the animals were carefully determined. Rabbits kept at 41° C. were less susceptible to pneumococcus inoculation, infection usually failed to develop; temporary early incubation, or incubation late after the inoculation increased the susceptibility; the animals died quicker under these conditions. Conditions of experimentation are not exactly those of infectious disease, and to this is doubtless due slight discrepancies in results. But if only certain experiments are to be accepted as significant and the others excluded, there is a large source of error in making the selection; an error often easily avoided if the significance of the results be confined to the scope of the experiments. Thus it is clear that the exposure of animals to a hot atmosphere predisposes, favors, the development of the infection; but it is equally clear that if by that exposure the body temperature of the animal exceeds the thermal limits of growth of the incitant the course of the infection is inhibited.

The thermal limits of growth vary greatly among the different species of bacteria, and for the same species the records of different observers also vary. Tests such as these should be made with standardized thermometers, and the exposures made in water baths kept at constant temperatures. In my experience, the variation of different strains of the same species, under favorable nutrient conditions, is slight, less than the differences in the records of different observers for the same species. Only slight differences, a slightly lower thermal limit, could be detected in organisms recently isolated. These were attributed to the media used; in fact, the thermal limits of a sensitive organism, such as the pneumococcus, varied more in different media than under any other conditions. This suggested the possibility of a similar variation in the thermal limits of the bacteria growing in lesions and subject to the action of the mechanism of immunity. But more accurate determinations are required for so broad a conclusion. Certain it seems, however, that the temperature of fever in some infections at least may limit the development of the bacteria.

It is of practical interest to note that the species commonly found in malignant endocarditis are comparatively susceptible to elevated temperatures. In my experience the pneumococcus develops slowly and only under the most favorable conditions at 40.5° C. to 41° C. Streptococcus growth is inhibited at 41° C. to 41.5° C. The staphylococcus, however, grows well at these temperatures. The early records placed the thermal limits of gonococcus growth at 42° C., but recent observers have all failed to secure growth above 40° C. to 40.5° C., and clinically in the course of urethritis the local inflammatory reactions subside when the temperature of the patient is elevated. These thermal limits of growth may be considered especially significant in view of the fact that the temperature of the blood is 0.5° C. to over 1° C. higher than that of the mucous membranes. The fever in malignant endocarditis may thus be regarded as conservative in its effect on the course of the disease.

Attempts to utilize this knowledge of the conditions underlying infection in the treatment of bacteriemic disease have not given satisfactory results. The administration of serum from immunized animals with a view to supporting the immunity of the patient and of supplying the inadequacies thought to exist have all apparently failed to be of material value. Such methods are now little used or only in an experimental way. Recently the administration of vaccines, an effort to secure a maximum immunity by further stimulation of the body cells, has been revived. In bacteriemic diseases in which the adaptations of the bacterial and the body cells are very equally balanced, disturbance of this equilibrium is a serious menace, especially if the development of immunity be inhibited by the excess of bacterial poison. Wright, the chief advocate of these procedures, guards as he thinks against this by determinations at intervals of the degree of opsonic activity in the blood serum of the patient; but other observers, with few exceptions, have demonstrated in these methods errors which render the results of little or no practical significance. The indications for the use of vaccines, if such exist in the bacteriemic diseases, are thus indeterminate.

In malignant endocarditis such radical procedures, it is evident from the serious nature of the disease, would be more apt to do harm and less apt to do good than in the infections of simple bacteriemia. No reliable specific treatment is yet available, and attempts to formulate general rules or definite measures to be adopted in the treatment of all cases of malignant endocarditis are also open to serious criticism. In the present stage of our knowledge, each case is a problem by itself, and departure from the conservative upbuilding of the patient's natural resources is sanctioned only under the special conditions existing in the individual cases. Our knowledge of infection has thus exercised a judicious control over radical, dangerous procedures of the past in the treatment of malignant endocarditis as of other infectious diseases, and emphasized the importance of a rigid personal or physiological hygiene in the individual case.

SUMMARY AND CONCLUSION.

Malignant endocarditis thus develops on the injured or diseased endocardium as a secondary localization in the bacteriemia or pyemia of infectious disease. It may be incited by many different species of bacteria, but usually the pneumococcus, streptococcus, staphylococcus, or gonococcus is present. It may be associated with any of the infectious diseases of man, but chiefly with pneumonia or some form of sepsis. As a complication of previous disease malignant endocarditis is of so serious a nature and so often outlives or dominates the parent infection that separate consideration of it is justified. The exceptionally grave tenor of the prognosis is due to the anatomical situation of the lesion.

The experimental studies of Rosenbach[2] of Wyssokowitch[3] and of Prudden[4] have demonstrated the importance of previous injury of the endocardium in determining the secondary localization of the infection in the heart, a fact of definite practical significance to both surgeon and physician in the prophylaxis of the disease. This study has also shown that the lesions of the endocardium once freed of their mycotic nature tend to heal, and thus recovery, when it occurs, differs in no essential from that of infection in general, a fact as yet of little practical value owing to the inadequacy of present methods of specific treatment in bacteriemic disease.

Apart from accidents of infarction or thrombosis, the course, the prognosis, and the treatment of malignant endocarditis, as of infection in other parts of the body, depend primarily upon the bal-

ance between the two opposing factors of infection, the body cells and the bacterial cells. In this complex mechanism of infection the different processes of immunity in the body tissues, on the one hand, and on the other the development of the bacteria, their susceptibility, and virulence, vary in their relation one to the other with different bacterial species and under different conditions. Since the control of these subtle conditions is beyond the reach of modern therapy, the manifestations of the disease, even the elevation of temperature, are to be regarded in general as indicative of the effort of the body tissues to maintain a favorable balance. The limitations of rational treatment are thus apparent and departure from a rigid, conservative, personal, or physiological hygiene is sanctioned only under exceptional conditions arising in the individual cases.

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180 WEST FIFTY-NINTH STREET.

SKIAGRAPHY IN ORTHOPEDIC SURGERY.

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THE introduction of the Roentgen ray as a diagnostic aid in surgery has led to the establishment of a special branch of study—an art—which may

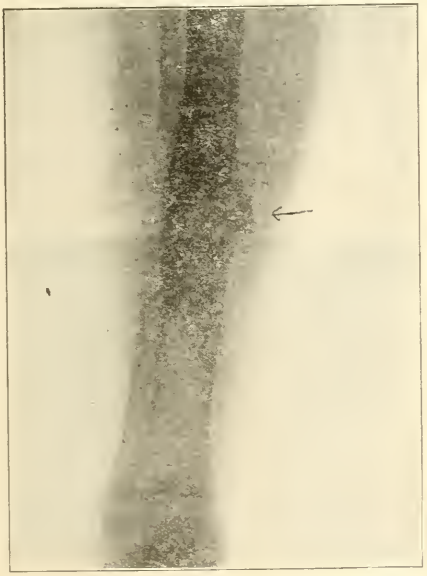

FIG. 1.—A bone furuncle or localized osteomyelitis of the tibia, showing a distinct sequestrum; the leg healed immediately after the removal of the sequestrum.

be termed skiagraphic anatomy and pathology. The intelligent interpretation of the skiagraph requires on the part of the observer an intimate knowledge of the radiographic art, as well as a close acquaintance with the normal and pathological skiagraphic appearances of bones and their various developmental stages (as to time of ossification and union of different bone centers, etc.); just as in the intelligent use of the microscope, a preliminary training in laboratory technique and a definite knowledge of microscopic histology and pathology are required. There are certain rudimentary con-

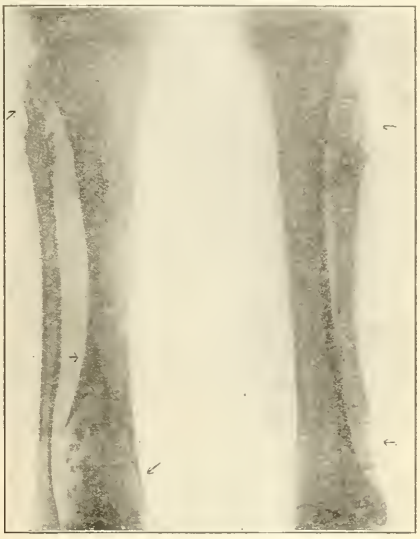

FIG. 2.—A case of congenital syphilis as manifested by the epiphyse a osteochondromata and irregularly thickened cortices of the bones.

ditions which must be complied with if our interpretations are to be of a sufficiently trustworthy character. (1) It is very desirable whenever possible to inspect the plate itself rather than a print; (2) care should be taken that the plate is held at a proper distance from the light and that the light is evenly diffused over it. Both the distance and intensity of light should vary with the depth of development of the plate.

Tuberculosis is the most common bone disease, and of all others the one with which the orthopedic surgeon is most concerned. It is thought by many of our best pathologists to be nearly always primary in the bone. This belief, however, is not, in a large percentage of cases, confirmed by the skiagraphic findings. Although it is not unusual to find a distinct bone focus, it is more common to discover first the thickened capsule with a blurring of the outlines of the bony elements of the joints, later the erosion of the articular surfaces, and finally a real destruction of bone. Another very strong evidence of bone tuberculosis, which is often earlier than any of the above more striking features, is bone atrophy, not only locally but in the neighboring bones. This change can often be detected in the *x*-ray plate, even before atrophy of the soft parts takes place. This bone atrophy presents itself not only as a rarefaction of the bone by a diminution of its salts, but as a lessening of the diameter of the shaft.

The epiphysis, however, is affected differently as to its diameter in the primary tuberculous bone cases, on account of the marked irritation the toxins produce, before actual destruction occurs. This causes an enlargement and a characteristic squaring of this part of the bone. This condition many times cannot be differentiated, without the aid of

the skiagraph, from the marked thickening of the capsule and neighboring soft parts of the purely synovial type of tuberculous joint disease. This differentiation, by the way, is of great importance because of the marked difference in treatment of

Fig. 3.—A case of multiple cysts of the neck of the femur with a spontaneous fracture.

these two varieties, the synovial type being very amenable to operative treatment.

As the process in the osseous type advances, destruction is the most characteristic feature shown in the negative. The bone breaks down, small sequestra are formed, subluxations occur, and detritus is thrown out with or without circumscribed abscess formation. Finally comes bony repair, and the most marked features of the advent of this change are the return of the normal sharp outline of the bony elements of the joint (Freiberg) with new bone formation and ankylosis, or else a practically new joint may form with more or less motion.

As I have mentioned above a very important *x*-ray evidence of joint tuberculosis is the marked thinning of the cortex of the neighboring bones, giving an appearance as if their outlines had been pencilled and a fine line drawn about them. Though this occurs to some extent in other conditions of marked atrophy—as, for example, in anterior poliomyelitis—it is quite diagnostic of tuberculosis.

Köhler describes three types of skiagraph, of as many varieties of this disease, all of which I have confirmed.

Type 1.—There is nothing to be seen in the negative but blurring of the outlines and diffuse atrophy of the highest grade.

Type 2.—Diffuse atrophy of more varying grade, blurring of outlines, and irregular mottling of cancellous bone tissue are to be found.

Type 3.—A still less amount of atrophy is seen. But at some particular point of the bone shadow a circumscribed spot is found with an irregular and indented border. As Freiberg has pointed out, the paramount importance in the study of these negatives is the bone atrophy above referred to. Tuberculosis in bone, as in other tissues, is healed by changes having their initial greatest activity in the periphery of the lesion. Therefore, beginning repair is indicated by a condensation which occurs in the surrounding osteoporotic bone, and a return of sharpness of outline. A reverse sequence of events may occur in the event of an exacerbation during convalescence.

In view of these findings, it will be appreciated that much can be discovered as to the progress of the disease by a repetition of exposures at intervals. Some have found these skiagraphic warnings very reliable and that they occur many times before the advent of disquieting clinical symptoms.

A frequent location for tuberculosis is the phalanges of the fingers, the so-called dactylitis, or spina ventosa. This condition is frequently confused with a similar syphilitic affection, and the skiagraph is of extreme importance in making a diagnosis. The following are the distinguishing features: In the tuberculous variety there is marked atrophy of neighboring bones, a cyst-like condition of the phalanx, usually associated with involvement of neighboring joints. In syphilis there is less atrophy and the articular surfaces are less often involved. There is a new deposit of bone beneath the periosteum and the old line of cortex can usually be seen. If loss of substance occurs the bone ulcer will present clear-cut edges and a punched-out appearance. The tuberculous variety is much the commoner.

In contrasting osteomyelitis with tuberculosis it should be said that while the latter most commonly affects the epiphyses and articular surfaces, the former rarely does so. Osteomyelitis often involves the shaft near the epiphyseal cartilage, but very rarely extends beyond this line because of the marked resistance cartilage bears to infection and the different blood supply of the epiphyses. An important feature is the absence of marked bone atrophy which is so constant an accompaniment of tuberculosis. Moreover, there are to be seen, especially in the more chronic cases, an actual cortical thickening and a ring of bone about the osteomyelitic cavity which is more resistant to the passage of the *x*-ray than the rest of the shaft. The sequestra found are often large and of considerable *x*-ray density.

In the consideration of the *x*-ray evidences of osteomyelitis it seems better to describe types rather than stages, for this is a disease resulting from so

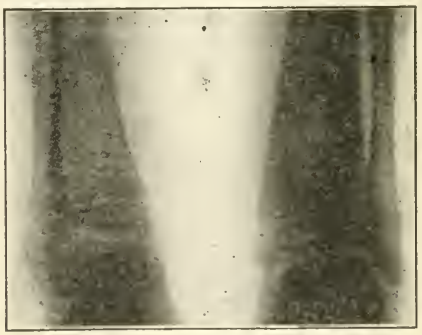

Fig. 4.—A case of bone cyst in the lower end of tibia. Dr H. L. Taylor operated and found this cavity filled with a clear serous fluid. Bone plugging material was used and the wound healed by first intention.

many etiological factors that it presents no typical stages. (1) The first type is that of a circumscribed acute osteomyelitis which it is frequently difficult to differentiate clinically from tubercle. The solution of this diagnosis constitutes one of the most satisfactory skiagraphic triumphs. The diagnosis is

certain and operative treatment is very effective. These lesions are produced by the pyogenic cocci and have been called bone furuncles or abscesses. They are often chronic in character and give little clinical evidence of their presence. Frequently they are located near joints, or even at the epiphyseal

Fig. 5.—Spindle-celled sarcoma, note the marked periosteal proliferation, with the characteristic radiating appearance of sarcoma.

cartilages, and are thus liable to be confused with joint disease. Their thickened walls stand out very distinctly in the radiograph. (2) The second type, a very acute process, is a far more serious condition. It is much more diffuse and extensive, often involving practically the whole shaft, and is immediately evident in the skiagraph. (3) The third type is a chronic process, very extensive generally. The sequestra lie in large bone cavities whose walls are very dense. If the process is of very long duration the periosteum will be much thickened. This type of case may quiet down without an abscess of overlying soft parts being formed.

The bone lesions which occur as a result of syphilitic infection are numerous and varied in their manifestations. Only a few of the most common *x*-ray appearances will be considered here. The hereditary forms are divided into the early and the late types, the former occurring in the early months of a child's life and resembling rickets clinically. It is characterized by a gelatinous deposit beneath the periosteum and at the epiphyseal line, with the resulting *x*-ray shadow. One of the late forms of hereditary syphilis, the juxtaepiphyseal lesion, deserves special mention. This type often manifests itself as a marked tumefaction in the region of the epiphysis. Pathologically these swellings are osteochondromata, which give a peculiar mottled-like *x*-ray appearance. Thickening of the cortex and the deposit of bone beneath the periosteum are the most characteristic evidences of both hereditary and congenital syphilis. In the acquired type the thickening of the cortex is often so marked on one side of a long bone, as the tibia, as to cause it to bend, thus giving rise to the so-called saber-shaped bone. This new-formed bone may be of ivory-like hardness, thus casting a very dense shadow. Frequently along the shaft of this thickened bone small areas of rarefaction appear with a dense shell of bone over them. These have been called, and appropriately, bone blisters by Codman. Typhoid periostitis may simulate these blisters, but there is never the cortical thickening.

Of all bone tumors sarcomata are by far the commonest and the distinguishing characteristics of many of these types can be discovered by the *x*-ray. The myelogenous or medullary giant-cell variety occurs at the rapidly growing ends of long bones and is very prone to develop cysts, while the spindle-celled periosteal type presents itself in the form of dense swellings—with a typical radiating appearance from the superficial part of bone. Generally the old cortical line can be seen beneath. This type most often involves the middle of the shaft and is the most malignant.

I need only state that the skiagraph is absolute in the differentiation of coxa vara, hip disease, and congenital dislocation.

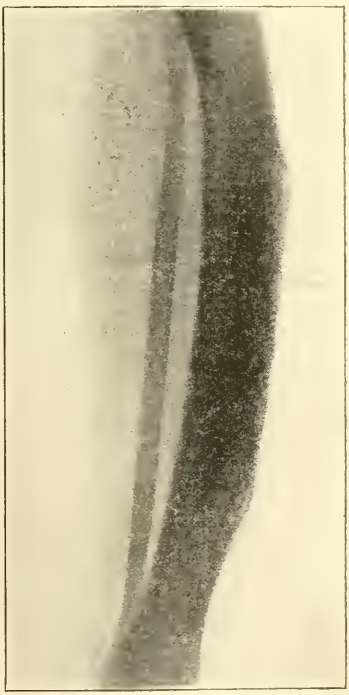

Fig. 6.—From a case of syphilis (acquired), side view of the leg bones; note the tremendously thickened cortex and the antero-posterior turning of the tibia; note also the rarefied areas on the anterior aspect of tibia; these have been called bone blisters by Codman.

Solitary bone cysts usually occur near the end of the diaphysis of long bones. The femur and tibia are the most frequent sites, and if the cysts are near joints they may simulate chronic joint disease. They usually produce pain, tenderness, lameness, and bone enlargement. There has been much dis-

cussion as to their etiology. Many good authorities claim that they originate from a rarefying ostitis or a localized osteomyelitis sometimes called bone furuncle, while other authorities believe that they arise from the softening of enchondromata and giant-celled sarcomata, or they may also be of parasitic origin.

A spontaneous fracture may occur through one or more of these cysts. *X*-ray evidence is absolute in these cases.

Very recently Boehm and others have done some excellent work in the study of the cause of certain cases of scoliosis. They have found many misshapen vertebræ and sacralized lumbar vertebræ which seemed to be etiological factors.

HOT SPRINGS, VIRGINIA.*

By GUY HINSDALE, A.M., M.D.,

HOT SPRINGS, VIRGINIA.

MEMBER OF THE AMERICAN CLIMATOLOGICAL AND AMERICAN NEUROLOGICAL ASSOCIATIONS, FELLOW OF THE AMERICAN ACADEMY OF MEDICINE AND COLLEGE OF PHYSICIANS OF PHILADELPHIA, CORRESPONDING FELLOW OF THE BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY, ETC.

An account of the Hot Springs of Virginia was published in 1804 by Rev. Dr. Ashbel Green in the *Philadelphia Medical and Surgical Journal*. Dr. Green says: "These springs are chiefly useful in the cure of rheumatism and gout and other local affections of the nervous system. They are also highly useful in a number of cutaneous eruptions, and are frequently beneficial to persons of a bilious temperament. The cures they have effected in gout and rheumatism are almost incredible." Dr. Green gives the history of two cases which were cured of rheumatism and gout in a few weeks, although the disease had existed in one case for fourteen years. He notes a fact commonly observed at the present day in treating cases at the Hot Springs, viz., that patients experience temporarily, while under treatment, an aggravation of their symptoms. In one of the cases it is stated: "He used the waters . . . and for nearly two weeks he complained that he rather grew worse than better. At length, however, his pains left him so suddenly that he could scarcely believe they were gone. The pains did not return and the patient went away well." This is a common experience of to-day, and it is also remarkable that Dr. Green's record of the "boiler spring" made 107 years ago correspond precisely with the present temperature, 106.5° F.

The present condition of Hot Springs is in strong contrast to that of one hundred years ago. Now the patient is transported in fifteen hours from New York in a through Pullman car directly to the springs. He is provided with quarters in one of the best appointed hotels in the United States. Whether he comes for the "cure" or whether he returns, as many do, for the accessory pleasures of a watering place, he finds much to enjoy. The mountains remain as they were, but the valley is changed. He can travel miles upon the links; he rides over well kept roads; he meets congenial spirits from the centers of fashion all over the world, and, if need be, he can converse with those at home at almost a moment's notice.

It is told of the celebrated Dr. Abernethy that he once insisted that one of his patients, an Englishman, who was a victim of gout brought on by high living, should go to Carlsbad. He described to him the boiling waters, the mud baths, and the rigorous course of self-denial. "Why, sir," exclaimed the sufferer, "it will be like a passage through purgatory." "True enough," replied the doctor, "but it will surely be your escape from hell." However that may have been in Abernethy's time the modern watering place does not impress one as the abode of invalidism or distress. At the Virginia Hot Springs there is an air of gaiety and cheerfulness; the sound of music and the dance dispels the old impress of asceticism, nevertheless, the quiet and seclusion which the invalid desires can be had without imposing any restrictions on those who seek diversion.

While gout and rheumatism are conspicuous among the various ailments treated, there are many nervous affections, especially the so-called functional diseases, that are quite as amenable to treatment. The measures instituted are chiefly corrective and restorative. The sheet anchor of treatment is the full, free, and abundant action of the skin, to which, in general practice, too little attention is paid. The great natural supply of hot water makes it possible to give the bather eight or nine hundred gallons for his bath. The temperature and duration of these baths must be determined by a physician who has knowledge of the physical condition of the patient, and who has frequent opportunities to observe him. In the height of the season there are a sufficient number of bathing attendants to give, if necessary, three hundred baths a day. None are given in the evening. Besides the tub bath, which may have a temperature not exceeding 104° F., there is provided in every bath-room a spout delivering water at 104°, and at a pressure of from 14 to 18 pounds. The effect of this is strongly stimulating, and, in may cases, is employed directly before the full bath. Following this the customary procedure is a hot pack in a hot sheet and flannel blankets, followed by cool sponging or a cold douche and an alcohol rub. The entire process occupies from half an hour to three-quarters, and is succeeded by rest in the recumbent position for half an hour or more. The best time to take these baths is before breakfast or during the forenoon, although many prefer the late afternoon, experience showing that perspiration is then more free. Massage may or may not be added to the treatment. There is usually some massage or manipulation in the flowing water in the tub.

In addition to the type of bath which has been mentioned there are two marble douche tables after designs by Dr. Baruch, which provide douches having a wide range of pressures and temperatures in the various forms of circular, jet, Scotch, rain, and fan douches in conjunction with hot air baths. This form of apparatus has been greatly perfected and makes it possible to give a more tonic method of treatment than the ordinary full tub bath affords. The douche table has come to be an essential feature of large medical institutions in the United States as well as abroad and is invaluable in a wide range of chronic affections. Modern works on hydrotherapy, like those of Matthes, Schweinburg, and Winternitz, as well as the admirable American work of Baruch, reveal a broad field of usefulness such as the ordinary student and practitioner little dreams of. The Germans and Austrians are easily first in their acceptance of these measures. The American practitioner shows a commendable attitude towards physiologic therapeutics and is rapidly following the German lead in that respect.

*Read before the American Climatological Association at Washington, D. C., May, 1907.

Besides the baths there are valuable waters at Hot Springs for internal use. They are all calcareous waters and diuretic in their effects. Their principal constituents are carbonates of calcium and magnesium and are acceptable to the stomach. The abundant use of these waters is decidedly depurative, especially as regards the kidney secretion, and in this way the action of the baths is supplemented.

Accessory measures, such as diet and suitable exercises, are valuable aids in the restoration of health, and it is a matter of common observation that patients realize the need for dietetic regulations and follow prescribed exercises when they have made the journey to a particular health resort with some definite purpose in view. They will more readily cut off their alcohol and check their immoderate eating during the period of probation and generally find that it is better to forego the indulgences that have upset their brains, their stomachs, and livers. So it is that these springs exert a most salutary influence on those who take their treatment seriously and deserve the popularity they have maintained for over a century.

It must be admitted that American spas are not so superbly appointed as are those European spas which are under government ownership or control. The watering places of Europe which have been frequented by royalty and supported and directed by governmental authority, afford luxuries and appointments which we shall probably never see on this side of the Atlantic. Possibly the foreign methods of dealing with patients are best suited to the temperament of the cosmopolitan class that constitutes the patronage. These methods have been developed during ages and are not readily copied, or incorporated into the ways of American communities. In this country we prefer to walk whenever possible rather than to be carried by two men in a Sedan chair. Atlantic City, with its broad walk five miles long, is an ideal place for rolling chairs. These are large enough for one, two, or three persons, and are a necessity for patients who go long distances and need protection from strong sea breezes. The average patient, as I have observed him at Hot Springs, Virginia, dislikes to use even the rolling chair though always accessible; if found to be necessary at first, it is usually soon dispensed with. Perhaps, even in the best resorts of this country, a fair criticism would be that the prime necessity of maintaining the prestige and appointments of the baths and the strictly therapeutic features upon which the reputation of the spa is built tend to be lost sight of by the management. Tournaments and sports of various kinds and the amusements of the well should never be allowed to supersede the provisions made for the treatment and the comfort of the sick.

APPENDICITIS DUE TO THE PRESENCE OF OXYURIS VERMICULARIS.

By M. CLAYTON THRUSH, Ph.M., M.D.,

PHILADELPHIA, PA.

There is no disease that has a more variable and often peculiar etiology than appendicitis. On an examination of any standard work on surgery one will find an array of causes varied in type and character, some being of sufficient rarity to justify their being placed on record. The following case well illustrates this type:

Miss N. D., age 20; occupation, stenographer; family history and previous medical history negative, as patient always enjoyed good health. Six months ago she began to suffer occasional twinges of pain over the region of the appendix, which would come and go at varying periods, sometimes being absent for two or three days, then recurring and later disappearing.

This condition continued without apparently increasing in severity for about four months. During this time an examination of the abdomen was negative as to any localized tenderness over the appendix, although these pains were deep seated. Eating had no bearing on the condition. The patient described the pain as always in the locality of the appendix and rather localized.

Two months ago the pains became more severe in type, but not more frequent in occurrence, and this continued until suddenly the patient was taken with an acute attack of appendicitis, with intense pain and all the usual classical symptoms. Medical treatment was resorted to, with restricted diet, etc., for twenty-four hours, but with no amelioration of the symptoms; so operation was advised and the patient was removed to the Presbyterian Hospital, where the appendix was removed by Dr. H. R. Wharton.

The appendix had all the appearance of an acute infection with marked congestion of the blood-vessels, the only peculiar feature being a bulb-like expansion of the tip into a mass about one inch long and about double the caliber of the remainder of the organ.

On incising the appendix we found that this mass consisted of a thick mucoid substance, with a constriction separating it almost completely from the appendiceal canal, and in this jelly-like substance was a large number of worms of various sizes of development, and moving around freely. Some were quite small, others of full development. Altogether there were about one hundred of these worms. Microscopical examination confirmed the diagnosis of the *Oxyuris vermicularis* as being the variety of worm observed.

Rectal examination of the patient showed, as was expected, an abundance of these worms present. They had spread far up into the colon until they reached the region of the appendix, where some of the ova became imprisoned and developmental changes occurred, causing the attack described above. The patient made an uneventful recovery.

3705 Spring Garden Street.

Aphthous Fever.—Legendre describes the occurrence of a form of severe fever accompanied with vesicles on the lining of the mouth, that break and become confluent, forming ulcers that may be dangerous to life in the very young and weak. The disease has a predilection for young infants, and death may result from weakness and malnutrition. It appears first in the forest animals, and from their saliva is carried to the ruminants. In the human race it comes to infants from drinking raw milk. It may be carried by the unclean hands of the milkers. It will enter abrasions of the skin or mucous membranes. In adults it may come from eating the meat of the diseased cattle. The symptoms are the same in man and animals, fever, malaise, and vesicles in the mouth becoming ulcers. Prevention consists in boiling the milk, and in careful cleanliness of the hands in those employed about the cattle, washing the hands with antiseptic and cauterizing all abrasions. Weak alkaline solutions may be used as mouth washes in man, and vinegar in animals.—*Revue Médicale de Normandie.*

MEDICAL RECORD.

A Weekly Journal of Medicine and Surgery.

THOMAS L. STEDMAN, A.M., M.D., EDITOR.

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New York, December 28, 1907.

SPEAKER CANNON MUST ACCEPT THE RESPONSIBILITY.

THE bill for the reorganization of the Army Medical Department is once more before Congress, and it is earnestly to be hoped that it may promptly receive the attention it deserves. This bill has had the unqualified endorsement of the American Medical Association and other professional bodies. In a special message regarding this bill President Roosevelt said: "I earnestly recommend its passage by the present Congress. If the Medical Department is left as it is no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war." Secretary Root officially stated of it: "I heartily approve of this bill;" while Secretary Taft in transmitting it to Congress said: "I have the honor to recommend the passage of the bill. * * * * I believe it to be of the utmost importance in securing a proper and efficient Medical Corps." Senator Blackburn, speaking in its behalf in the Senate, said: "It is the best bill the combined effort of the General Staff, the Secretary of War, the Surgeon-General of the Army, and the Military Affairs Committee of the Senate is able to produce."

The bill has twice passed the United States Senate and has twice been favorably reported to the House of Representatives by the House Military Committee. It has not been permitted to come up for action in the House through the unfavorable attitude of Speaker Cannon, although there is every reason to believe that this bill would pass if allowed by him to come up for legislative action. Surely a bill with such a backing is entitled at least to a respectful consideration of its merits by the Representatives.

Speaker Cannon holds a position which gives him the parliamentary power, irrespective of moral right, to disregard the expressed wishes of the Senate, President, authorities at the War Department, and the medical profession of this country. Whether his personal preferences should properly outweigh the combined wisdom of those best qualified to judge in this matter, need not here be considered. The political atmosphere has, however, considerably clarified of late, and opposition to this bill can no longer operate in secret, nor can it becloud the final issue of responsibility. The physicians and citizens of this country ought plainly to understand that if this most necessary measure fails to pass, the responsibility for any medical breakdown in the Army, with the consequent avoidable sickness and suffering of American soldiers and grief in American homes, will rest directly and entirely with the Honorable Joseph G. Cannon, of Illinois, Speaker of the House of Representatives.

TUBERCULOUS MILK.

KOCH'S announcement some years ago, at the London Tuberculosis Congress, that bovine tuberculosis was not transmissible to man through the medium of the milk or flesh of diseased animals afforded immense satisfaction for a few weeks to dairymen and others interested in the milk traffic. Unfortunately the satisfaction so caused was short-lived, and now there are few men entitled to an opinion on the subject who accept this thoroughly disproved assertion of the Berlin bacteriologist. It is, therefore, not without uneasiness that one reads the statement of Dr. Verenus A. Moore, of Cornell University, that 72 per cent. of all the herds of cattle in this State are infected with tuberculosis, and learns further that of 2,753 cattle examined during the year by the State Agricultural Department, 628 responded to the tuberculin test, a percentage of 22.8. It is not stated in how many of these cases the udder was diseased, nor how many of the herds affected contributed to the New York City supply, but it is pretty safe to assume that some of this number were thus locally diseased and again that the milk from some of these found its way to New York. The Health Commissioner of the city is working manfully to keep the milk supply pure, but with the small number of inspectors allowed him each farm can be visited only at rare intervals and a good many cows may become tuberculous in the months that must intervene between these visits.

In order to eradicate tuberculosis from the herds in the State it has been proposed to have a general round-up and kill all the diseased animals as nearly as possible at the same time. It is doubtful whether even such a radical measure as this would bring more than temporary freedom, and the immediate result would certainly be a very serious milk famine. Even then the purity of the milk supply of this city would not be assured, for there would still be tuberculous animals in the adjoining States whence milk is shipped to New York. Inspection is necessary, of course, and all diseased cows whose udders are affected should be slaughtered at once, but real protection from tuberculosis as well as the many other diseases which may be transmitted through milk can be assured only by municipal pasteurization.

It is objected that tubercle bacilli are resistant to the low temperatures at which pasteurization is effected and that boiling, or sterilization as distinguished from pasteurization, is necessary to effect their complete destruction. But this objection is not so serious as the opponents of pasteurization would have it. Even if all the tubercle bacilli are not destroyed at a temperature of 155° to 160° F., the greater number are, and those that are not killed are so attenuated that the healthy organism can be depended upon to dispose of them. Moreover the process does effectually destroy most of the other pathogenic germs commonly found in milk and would, therefore, be necessary even if it did not destroy a single tubercle bacillus.

The opponents of municipal pasteurization, when confronted with this argument, reply that, if pasteurization is necessary, it can be done at home. But any physician who has recommended this to the families under his care knows the result. What housewife or what cook can be depended upon to keep milk for twenty minutes at a temperature within the narrow limits of 155° and 160° Fahrenheit? Nine times out of ten the temperature will be found to be somewhere in the neighborhood of 100° or near the boiling point if not actually at it. Either the temperature will be at a point which favors the multiplication of bacteria or it will be so high as seriously to impair the nutritive qualities of the milk. Pasteurization by dealers may be properly done and it may not; it may be properly done to-day and not to-morrow, and the consumer has no guarantee except the trustworthiness of the dealer; some dealers are trustworthy, some unfortunately are not. The only real security lies in municipal pasteurization. This is practicable, as the experience of Vienna and other cities has demonstrated. The installation of the plants would cost money and so would their maintenance, but the expense would be much less than that of maintaining the immense army of inspectors that would be necessary to assure a pure milk supply to this great city. Pasteurization has its objections, but they are of little weight in comparison with the dangers of a raw milk supply under the very best possible conditions of supervision and inspection of the dairies, and that we are far from a realization of such conditions is notorious.

SCHOOL CLINICS IN POPULOUS DISTRICTS.

Medical inspection of school children is now in force throughout England, and though it will take a considerable time before the system will be working smoothly, it seems that a beginning is being made with a certain degree of enthusiasm. Of course, already the medical and lay journals are full of the views of faddists on the subject. It appears that there are some who believe that the rising generation of England should be fed, treated medically, and educated, wholly at the expense of the ratepayers. Others who do not go quite to these lengths are of the opinion that at least the medical treatment of school children is a duty of the State.

A very interesting address treating of the matter from the point of view of a London County Council medical man was given on November 28 by Dr. A. H. Hogarth before the Childhood Society. The speaker pointed out that it is now universally recognized that medical inspection of schools forms an integral part of every modern system of education. As long as there are in schools children suffering from preventable and remediable diseases of which both the parents and teachers are ignorant, so long systematic medical inspection can be justified as a State institution. But, Dr. Hogarth went on to say, medical inspection by itself is insufficient, medical treatment is the natural corollary. Experience, however, in the populous districts of England has shown that less than one-third of the defective children discovered by inspection are actually treated. Many of the children are not even presented for treatment, while many others are not efficiently treated, or, at all events, are not materially benefited.

The diseases which call for treatment are parasitic and contagious affections, defective vision, carious teeth, chronic diseases of the eye, ear, throat, and skin. The existing means for treatment are said to be wholly inadequate. There are family doctors, hospitals, and poor law dispensaries, none of which really fulfils the requirements. The family doctor does not exist in the home of the poor, and even a little higher in the social scale it is unreasonable to expect him to prescribe for children with defective vision or to cure such chronic complaints as discharging ears.

Again, hospitals are not suitable places for the treatment of such cases. That is not their *raison d'être*. The very weight of numbers is too great, the cases are too chronic, and the treatment too tedious for voluntary workers. Moreover, the central hospitals are quite inaccessible for the people living in outlying districts, and many of the patients must be kept waiting an inordinate length of time. Ignorance, apathy, and neglect of parents, inadequacy, and inaccessibility of existing institutions, real poverty of the people, the tedious nature of efficient treatment for chronic cases, and the general standing of the medical practitioner in poor districts are factors hindering treatment.

According to Dr. Hogarth the only practical remedy lies in the establishment of school clinics or centers for the medical treatment of school children under the guidance, direction, and control of the education authority. The school clinic should be modeled partly on the special clinics for the treatment of teeth at Strasburg, Bâle, Lucerne, and Zurich, and partly on the lines of the general polyclinics which have been established in Switzerland at Lucerne, La Chaux-de-Fonds, and Neuchatel. The proposed clinic should consist of a small building of five or six rooms, a large waiting hall and dispensary, consulting rooms for physician and for dentist, a dark room with special apparatus for examining eyes, throats, ears, etc., and a room for dental and other minor operations. A trained nurse should be in charge under the direction of the responsible medical officer of the education authority.

Such is a rough sketch of the proposed plan. The great obstacle to the consummation of this suggestion is the large primary cost, but it is argued that if it will have the effect of checking the degeneracy so evident in English manufacturing and other populous districts, the expenditure will be a matter of secondary consideration.

Color Photography in Medicine.

The applications of photography to practical medicine as well as for purposes of scientific record and research have become so manifold that it is not surprising that medical photographers have been quick to realize and take advantage of the possibilities afforded by the latest method of color photography. This, the Lumière process, differs from all its predecessors in that it requires no special apparatus whatever and involves only a single exposure, while the necessary manipulations are said

to be well within the technical powers of any but the merest tyro. Briefly stated, the method consists in using a plate which has between the glass and the silver film a layer composed of starch grains colored red, blue, and green. This layer is only one starch grain thick and the interstices between the grains are filled with an opaque material, so that all the light rays reaching the sensitive material must have passed through the colored grains. The plate is exposed with the glass side toward the lens so that the starch layer acts as a multiple ray filter, each grain allowing only the rays of its own color to act on the silver in the film. By appropriate manipulations during development a positive is secured, which by transmitted light shows an extremely realistic reproduction of the colors of the object photographed. The value of such a method for the purpose of recording the color as well as the form in photographs of pathological specimens, skin lesions, microscopic objects such as blood or bacterial preparations, and in medicolegal work is self evident and its practical applicability is attested by Benda (*Berliner klinische Wochenschrift*, December 2, 1907) who demonstrated a series of such pictures before a recent meeting of the Berlin Medical Society. The positives may be used in the projection apparatus for purposes of demonstration or instruction, but, of course, cannot be used for the production of colored prints. As yet these special plates are difficult to procure in this country, but they will probably soon be available in larger quantities, and though Benda is perhaps carried away by his enthusiasm when he says that before long every progressive physician will be making use of the method it will, no doubt, be found a very convenient addition to the means available for making records of medical observations of many kinds.

Is Ectopic Gestation Becoming More Frequent?

The *British Medical Journal* of December 7 comments on this question, basing its observations on a recent meeting of the Hamburg Obstetrical Society. In the discussion following the report of a case, one of the participants expressed his opinion that extrauterine pregnancy is more common now than formerly. Another speaker declared that the apparent increase in frequency is to be explained by our greater accuracy of diagnosis. These cases are no longer treated on the expectant plan, operation being avoided except in cases of rupture. He believed that the great extension of gonorrhea into the rural districts was a factor in the situation and also thought that trauma might be a cause of ectopic pregnancy. Our English contemporary believes that none of these arguments, pro or con, is free from objection. It declares that "Couvelaire's researches seem to show that inflammation is never the cause of the implantation of the ovum on the mucosa of the Fallopian tube. Clarence Webster attributes the implantation to the development of decidual tissue in the tubal mucosa—a change normal in the uterus but abnormal in the tube. This change, if it really occurs, may indicate an incipient degeneration of the stock amongst civilized women. As for trauma, a great deal more information about the clinical details of cases is needed before we can arrive at a satisfactory solution of the question."

The Ablation of the Tonsils.

Until the function of the tonsils has been definitely settled there are likely to be differences of opinion in regard to the treatment of the various pathological conditions to which they are subject. Some authorities regard them as the portals of entry of many different forms of infection; others look on them as valuable protective agencies, while still others consider them as not of very great importance in either direction. It seems not unlikely, however, that both of the first two of these views are correct, for it is perfectly conceivable that like most collections of lymphatic tissue the tonsils have a protective function, while at the same time if the toxic process becomes too severe they may be overwhelmed and themselves be converted into foci of infection. The question of whether or not the hypertrophied tonsils so frequently seen should be removed resolves itself largely into a consideration of their condition. If the hypertrophy is a simple one and the tonsillar tissue itself appears healthy the assumption is justified that the overproduction of lymphatic tissue has been a physiological process intended to compensate for increased functional demands, but if the hypertrophy gives rise to local disturbances or there is infection of the tissues themselves surgical treatment is indicated. Barth (*Deutsche medizinische Wochenschrift*, December 5, 1907) is convinced that it is only the diseased tonsil that affords a means of entry for systemic infections while a single hypertrophy does not necessarily demand treatment. He also points out that in removing the pharyngeal tonsil the submucosa should be left intact as, if the curetting is done too deeply and the entire mucous membrane is removed, the resulting cicatrization may lead to undesirable local conditions in the roof of the pharynx.

News of the Week.

International Tuberculosis Congress.—Active preparations for the International Congress on Tuberculosis to be held in Washington, next September, are under way in other countries. The National Committees for France, Germany, Sweden, Austria, Holland, Greece, Bulgaria, Cuba, Venezuela, Brazil, and Costa Rica have organized and have forwarded their membership lists to the Secretary-General.

United States Civil Service Commission Examinations.—An examination is announced for January 15, 1908, to secure eligibles from which to make certification to fill vacancies as they may occur in the position of physician (male) in the Indian Service, at salaries ranging from $720 to $1,200 per annum. The age limit is twenty-five to fifty-five years on the date of examination. Applicants should apply to the United States Civil Service Commission, Washington, D. C., for application form 1312.

Street Railway Accidents.—The figures submitted to the Public Service Commission by the traction companies show that there was a considerable increase in the number of serious accidents during the last month. In September there were 216 of these, in October 171, and in November 243. Of the latter number 45 resulted fatally, making the total number of deaths for the three months 155, and the serious injuries 495.

Typhoid Fever in Porto Rico.—There is an epidemic of this disease in Caguas, a town with a population of about 6,000, situated eighteen miles southeast of San Juan. There are one hundred and twenty-five cases in the city proper and the outlying districts are also involved. The expenditure of $5,000 has been ordered for the erection of a temporary hospital.

Influenza at Cornell.—The epidemic of this disease in Ithaca has spread to the schools and over a

quarter of the four hundred students in the Ithaca High School were absent last week from this cause.

Yellow Fever in Cuba.—The Cuban Sanitary Department announces that the last case of yellow fever was discharged on December 16, and that there is on the island no case under observation or suspicion. The report of Dr. Carlos J. Finley, Chief of the Cuban National Department of Health, shows that since January 1, 1907, there have been seven cases of yellow fever in Havana city, of which only one case resulted fatally. During the same period there have been in the whole island outside of Havana 154 cases, of which fifty resulted fatally.

To Stop Vaccination in Illinois.—At a recent meeting of the Chicago Osteopathic Association resolutions were adopted declaring against compulsory vaccination. After saying that there is no law in the State compelling vaccination, the organization ordered that every possible means be directed against "the unlawful and unwarranted powers which these boards of health have arrogated to themselves." An appeal to the Legislature is advised.

Series of Dispensaries Established to Combat Tuberculosis.—The Chicago Tuberculosis Institute is inaugurating a series of dispensaries in connection with established hospitals and colleges, for the purpose of early diagnosis and home control of consumption, such control as will give the patient opportunity to recover and will safeguard the other members of the family and the fellow workers of the person sick. These meet the approval of the Chicago Health Department.

Unfed Berlin School Children.—In the first week of December, according to official statistics, from 245 out of the 285 primary schools of Berlin, no fewer than 11,947 children attended school, in most cases without breakfast, and in all cases without the prospect of obtaining a midday meal at home. Of those, 4,198 receive a simple daily meal from the fourteen canteens belonging to the Children's Canteen Society; the other 7,449 are totally unprovided for.

Coalition of Scientific Manufacturers.—The Bausch & Lomb Optical Company, the Bausch, Lomb & Saegmüller Company and the Carl Zeiss Optical Works have entered into a business combination. The Taylor Instrument Company of Rochester, has been enlarged in scope so that its products cover the entire field of meteorological and engineering apparatus.

Illinois Cigarette Law Inoperative.—The Supreme Court has declared the anti-cigarette law passed by the last Illinois Legislature unconstitutional on technical grounds. The law as passed contained provisions not enumerated in its title and did not prohibit the sale of cigarettes containing "pure tobacco."

Dr. Nicholas Senn Honored.—The Order of Merit of the Japanese Society of the Red Cross has been conferred on Dr. Nicholas Senn by the sanction of the Emperor of Japan. Dr. Senn has likewise been elected an honorary member of the Royal Medical Society of Budapest.

Dr. Felix D. Fontaine of Worcester, Mass., was the guest of honor at a banquet given on December 11 by his fellow physicians to celebrate the seventy-fifth anniversary of his birth and his fiftieth anniversary as a practising physician.

New Sigma Nu Alumni Association.—The fourth annual banquet of this organization was held at the Manhattan Hotel on December 14. The toastmaster was Dr. William J. Gies, and the introductory address was delivered by Dr. George B. Wallace. Dr. James Ewing spoke on the progress of pathology, Dr. Alexander Smith on specializing in medicine, Dr. William M. Polk on the physician as a humanitarian, Dr. Joseph D. Bryant on the physician's road to greatness, and Dr. Frank G. Meara on euthanasia.

East Side Physicians' Association.—At the regular meeting of this organization held on December 20, officers were elected as follows for the ensuing year: *President,* Dr. Henry Illoway; *Vice-Presidents,* Dr. Morris Cisin and Dr. George Dow Scott; *Secretary,* Dr. Sigmund Epstein; *Treasurer,* Dr. I. Seth Hirsch; *Trustees,* Dr. A. E. Isaacs, Dr. C. A. von Ramdohr, Dr. William S. Gottheil.

Norwalk (Conn.) Medical Society.—The election of officers for this society held at the annual meeting on December 12, resulted as follows: *President,* Dr. William J. Tracy; *Vice-President,* Dr. J. Milton Coburn; *Secretary* and *Treasurer,* Dr. H. C. Scherer.

Jackson County (Mo.) Medical Society.—At the annual meeting of this society held in Kansas City on December 10, officers were elected as follows: *President,* Dr. C. D. Hardin; *Vice-President,* Dr. F. E. Murphy; *Secretary,* Dr. E. L. Stewart; *Treasurer,* Dr. L. W. Luscher.

South Side Virginia Medical Association.—At the meeting of this organization, held in Emporia on December 10, the following officers were elected: *President,* Dr. L. Lofton of Emporia; *Vice-Presidents,* Dr. W. B. Barham of Newsom's, Dr. S. H. Mosley of Ebony, Dr. J. G. Renney of Petersburg, and Dr. C. W. Astrop of Surry; *Secretary,* Dr. E. F. Reese of Courtland; *Treasurer,* Dr. O. C. Wright of Jarratt.

Minnesota Valley Medical Association.—The twenty-eighth annual meeting of this association was held in Mankato on December 3, and the following officers were elected: *President,* Dr. F. A. Dodge of Le Sueur; *Vice-Presidents,* Dr. G. Luedke of Fairmont, and Dr. O. C. Strickler of New Ulm; *Secretary,* Dr. G. F. Merritt of St. Peter; *Treasurer,* Dr. A. G. Liedloff of Mankato.

Warren County (Miss.) Medical Society.—The following officers were elected at the meeting of this society, held in Vicksburg on December 13: *President,* Dr. G. F. Hicks; *Vice-President,* Dr. E. F. Crowther; *Secretary,* Dr. Sidney Johnson; *Treasurer,* Dr. Bonelli.

Bequest to St. Luke's Hospital.—The will of Miss Zela Gibbes of Newport and New York, who died in Newport last August, has been filed in the Probate Court. St. Luke's Hospital is the chief beneficiary, receiving $100,000 and the residuary estate.

Private Hospital.—The building formerly used as the Mt. Sinai Training School for Nurses at 149-151 E. 67th street, is to be converted into a private hospital in which physicians may retain the management of their patients.

Death of Lord Kelvin.—After an illness of several weeks Lord Kelvin (Sir William Thomson), one of England's foremost scientists, died on December 17. He was of Irish birth, being a native of Belfast, where he was born on June 26, 1824. While his researches in regard to theoretical subjects were of the greatest importance, he also was the inventor of many practical devices in the fields of telegraphy, electric power generation and transmission, navigation, etc. In 1867 he was knighted for his work in

connection with the first Atlantic cables and in 1892 he was raised to the peerage. He was president of the Royal Society and had held the same office in most of the other important scientific societies in the British Empire. He was a member of a majority of those of the entire world and received honors and decorations from nearly every Government on earth. His titles and honors and the letters that he was entitled to affix to his name take twelve lines of "Who's Who" for their recital. In 1904 he became chancellor of Glasgow University. He had made several visits to this country, the last one being in 1902. Lord Kelvin's body was interred in the nave of Westminster Abbey, near the monument of Sir Isaac Newton, on December 23.

The Late Dr. Charles H. Bailey.— At a special meeting of the visiting staff of the Mountainside Hospital, of Montclair, N. J., held December 19, 1907, the following resolution was adopted and ordered spread on the minutes:

The members of the visiting staff of the Mountainside Hospital have heard with genuine sorrow of the death of their friend and colleague, Dr. Charles H. Bailey.

Dr. Bailey was one of the original members of the staff and, until two years ago, when failing health compelled him to relinquish active practice, had been always zealous in his hospital work and faithful in performing the duties which devolved upon him. In the early years of the hospital his advice was particularly valuable when questions of enlarging the scope of the institution were discussed; and during all the time of his active connection with the staff he conscientiously did his work as attending surgeon and was always ready and willing to give to others the benefit of his counsel. His opinions on medical matters or on matters pertaining to the policy of the hospital were often sought and his clear, sound judgment made these opinions of great value. His colleagues on the staff feel that they have sustained a great loss, for Dr. Bailey was a good physician, a wise counsellor, and a firm and true friend. He was a man whom it was good to have known and his place will not easily be filled. To his sorrowing family the members of the visiting staff extend their deepest sympathy.

The secretary was directed to send a copy of this resolution to Dr. Bailey's family and to have it published in the Bloomfield *Citizen*, the Montclair *Times* the *Journal of the Medical Society of New Jersey*, and the MEDICAL RECORD. Henry B. Whitehorne, President; Richard P. Francis, Secretary.

Obituary Notes.— Dr. CHARLES H. BAILEY of Bloomfield, N. J., died on December 18 of apoplexy, at the age of sixty-three years. He was born in Catskill, N. Y., and at the age of eighteen enlisted in the 117th New York Volunteers, serving through the Civil War. He then studied medicine in the College of Physicians and Surgeons of this city, and on his graduation began practice in Bloomfield. When the Mountainside Hospital was organized twenty years ago Dr. Bailey was made a member of its staff and he retired only two years ago on account of ill health. He was for many years president of the hospital and at one time was president of the Board of Health.

Dr. NATHAN D. CALDWELL of Amsterdam, N. Y., died on December 20, at the age of fifty-one years. He was born in West Munroe, Oswego County, and was graduated from the Albany Medical College in the class of 1881. He was Health Officer of Amsterdam and of Hagaman and one of the staff of the Faxton Hospital of Utica.

Dr. FARQUHAR FERGUSON of this city died on December 14, in Atlantic City. Dr. Ferguson was born in Scotland in 1847 but came to this country early while a young man, and received his medical degree from the Long Island College Hospital in 1880. Failing health compelled him to give up active work about a year ago.

Dr. JOSEPH E. GARLAND of Gloucester, Mass., died on December 16, at the age of fifty-six years. He was born in Gloucester, his father, Dr. Joseph Garland, having been for more than fifty years Gloucester's leading physician. He was graduated from Phillip's Andover in 1868, and from Harvard in 1872. He then served as interne in the Massachusetts General Hospital and spent three years in postgraduate work abroad. Returning to this country in 1880 he began practice in Gloucester and had continued in active work until about two weeks before his death. He had held numerous public and professional positions.

Dr. OLE E. LINJER of Minneapolis, Minn., died suddenly on December 11, while making a professional visit. He was a graduate of the medical school of the University of Minnesota and had practised in Superior, Wis., and Starbuck, Minn., coming to Minneapolis about eight years ago. At the time of his death he was City Physician.

Dr. GEORGE J. HOLMES of New Britain, Conn., died on December 14 of pneumonia at the age of fifty-three years. He was born in Griswold and was graduated from the Albany Medical School in 1879. He immediately began practice in New Britain and of late years had made a specialty of diseases of the eye, ear, nose, and throat.

Dr. JOHN S. BARRETT, formerly of San Francisco, died on December 11 at Prescott, Ariz., at the age of thirty-seven years. He was born in Sacramento and was a graduate of St. Mary's College and Cooper Medical College.

Dr. CARLTON K. CHUBBUCK of Tecumseh, Neb., died on November 25 at the age of seventy years. He was born at Orwell, Pa., and was educated at the Orwell Seminary and Binghamton (N. Y.) Medical College. He practised for a time in New York State and later removed to Dickson, Ill. For over thirty-six years he had practised in Tecumseh.

Dr. MATTHEW W. BORLAND of Los Angeles died on November 20 of carcinoma. He was a native of Otsego County, N. Y., but spent much of his early life in Illinois. He served through the Civil War and at its close had attained the rank of captain. He then went to Chicago and was graduated from the College of Pharmacy, the Bennett College of Medicine, and Rush Medical College. He practised in that city until six years ago, when failing health compelled him to go to Los Angeles.

Dr. J. A. HUBBARD of Mason City, Ia., died on December 10, at the age of seventy-four years, after a long illness. Dr. Hubbard was a native of Burlington Flats, N. Y., and was graduated from Albany Medical College in 1858. Soon afterward he began practice in Dubuque, where he remained until a few years ago.

Dr. WILLIAM BAIRD of St. Johns, N. B., died at the age of ninety-four years on December 17. He was born in Kentville, N. S., and was graduated from the University of Edinburgh in 1837. The same year he began practice in St. John and continued in active work for seventy years. Last August on the seventieth anniversary of his graduation the University of Edinburgh conferred on him the honorary degree of LL.D. He had held many public positions, and in 1885 was president of the Canadian Medical Society.

Obituary.

HENRY PATTERSON LOOMIS, M.D.

NEW YORK.

Dr. Henry P. Loomis died on December 22 of pneumonia, after an illness of less than a week's duration. Dr. Loomis was the son of Dr. Alfred L. Loomis, well known for his work in diseases of the heart and lungs, and was born in this city April 20, 1859. He was graduated from Princeton University with the class of 1880, and three years later was graduated in medicine from the New York University Medical School. In 1887 he was appointed visiting physician to Bellevue Hospital, and for a number of years was Professor of Pathology in the University of New York. He was made visiting physician to the New York Hospital in 1896 and consulting pathologist to the New York Board of Health in 1897. Since 1898 he had been Professor of Therapeutics and Clinical Medicine in the Cornell Medical College. Dr. Loomis was a member of many medical and lay societies and clubs, and was an active and talented contributor to medical literature.

Correspondence.

PRACTITIONER AND CONSULTANT.

To the Editor of the Medical Record:

Sir:—Latterly it has seemed to me more evident than hitherto that a few words about the rôles of practitioner and consultant might serve a useful purpose. Whenever the consultant is called it is because: 1. The practitioner wishes his judgment in regard to the case, and rarely merely because in this way he believes the family will be better satisfied; and if disaster comes both they and he will feel relieved that another than the family physician has seen the patient. 2. The family have lost confidence somewhat, or they feel that two heads are better than one, or they consider it is a duty they owe the patient and themselves to have another opinion, and usually from an older and supposedly more experienced and wiser person. Now in how many instances are the presence and examination of the consultant really useful to the patient? Provided the consultant is all that he should be, his presence and conduct in the case should almost invariably be of real service. In the first place, if it be a difficult case, or even a simple one, his diagnosis corresponding as far as may be with that of the practitioner is a moral help and a decided one, because the loyal practitioner has but one desire, namely, the benefit to his patient, without regard to self. If there be a difference of opinion, it enables the practitioner to see and know the other side and to bear it in mind in the future conduct of the case. Does it mean, however, that the practitioner is wrong and the consultant right? By no means. At best, and in rough terms, it may be stated as about equally divided, as future events often prove. Of course, we are here presuming we have to do with a well-informed as well as upright practitioner. If, unfortunately, either of the parties be of a different order—well, in one word, God help the patient! But in a few more words, it is far better for a patient to have a good practitioner and a poor consultant than the reverse, because the sensible, honorable man, who is really doing the work and carrying the burden of the patient's illness, will call a halt when he finds the advice given is in any way pernicious.

Admitting what has been written as true, let it be understood of family and friends that they should not ask the consultant what he thinks, or what he advises, but they should address themselves to the practitioner and to the practitioner alone. He, the latter, should make his statement as agreed upon previously to the family and friends, and if there be any misstatement, wilfully or otherwise, then and there it can be corrected without prejudice to anyone concerned.

Further, let it be always insisted upon and understood by everyone present that an opinion, or judgment, of many cases, especially of acute disease, or whenever the condition of the patient is imminent, is subject to change, and that the sole right way of acting from day to day, or even from hour to hour, must finally and always remain in the hands of the practitioner.

It is clear, therefore, that in selecting their family physician people should be very careful in their own interest. The essentials of such a one are: Knowledge of his profession, devotion to his patient, horse-sense, and absolute rectitude of purpose. He should be confided in for small ailments; he should be as absolutely trusted when the sky, figuratively speaking, is dark and the outlook unpromising or dangerous. If they—the family—have mistaken their man originally they must be the sufferers; but better inform oneself first. "First, be sure you are right then," as David Crocket says, "go ahead"—and always trust the trusty one.

Beverley Robinson, M.D.

HIGH-FREQUENCY SPARKS IN THE TREATMENT OF CANCER.

To the Editor of the Medical Record:

Sir:—A few weeks ago the New York *Times* published a rather "yellow" cable dispatch announcing a new method of treating cancer introduced by Dr. de Keating Hart under the title of fulguration, and which consisted in the local application of high-frequency sparks. In your issue of December 21, 1907, Dr. Finley D. Cook alludes to this and gives the results of his own experience with it, calling it, however, "a new treatment."

The treatment is all right, but the claim for novelty is not. In a paper published eighteen months ago (*New York Medical Journal*, June 16, 1906) I wrote as follows: "Malignant or semimalignant lesions of the skin—epithelioma, lupus, lupus erythematosus, and sarcomata, when of small size and conveniently located, have been destroyed in very many instances by the caustic spark from a metallic electrode connected to one terminal of a coil transformer, the other terminal being grounded or connected to the person of the patient. This little operation is exceedingly painful for the moment, but as it lasts for but two or three seconds at the utmost it is usually borne without flinching. There are many reports in confirmation of this, chiefly from France, where it was first used. I know of no better means of aborting a commencing furuncle, as it does in a moment that which nature requires several days or a week to accomplish. In other words, the cocci are instantly destroyed, together with the follicular wall, and the leucocytes have simply a small inert necrotic plug to deal with, which they usually do with but little accompanying inflammatory action."

H. G. Piffard, M.D.

256 West Fifty-seventh Street, New York.

OUR LONDON LETTER.

(From Our Special Correspondent.)

ROYAL SOCIETY OF MEDICINE; OPENING DINNER, MEDICAL SECTION, EPILEPSY—GENERAL COUNCIL—ARMY MEDICAL MATTERS—HOSPITALS, ST. BARTHOLOMEW'S, ROYAL FREE, POPLAR FOR ACCIDENTS.

London, December 6 1907.

The inaugural dinner of the Royal Society of Medicine was held on Tuesday, and a very successful function it proved. We may now reckon the society is in full working order, for although meetings have been held, as I have reported to you, we could hardly regard the amalgamation as complete until the national institution of a dinner had put its seal on the combination.

Sir Wm. Church presided. Lord Methuen responded to the toast of the Imperial forces. Sir Clifford Allbutt proposed "Science, Art, and Literature," which was acknowledged by Sir Ray Lankester. Then came the toast of the evening, given by the chairman, who referred to early unsuccessful attempts to amalgamate the medical societies, and declared that the success of the present undertaking was guaranteed by the distinguished gathering present and that he was gratified to be able to testify to the willing sacrifices made by the federated bodies for the common good. Never had there been a time in which so wide a field had been occupied by medical men as the present. In every department science placed at their disposal new methods for the investigation and treatment of disease, and the ground to be covered in every branch was continually increasing. At present no man, whatever his intellectual gifts, could be fully acquainted with every branch; he must in his official studies take for granted the results of other workers. Hence specialism both in study and practice. To provide every facility for diffusing this increased knowledge and to enable the profession to keep in touch with what was going on around them, was perhaps at present the main object of the society, but he hoped the time would come when the Royal So-

ciety of Medicine, through the appointment of scientific committees formed of those most competent for the work, would be making additions to knowledge.

Turning to the practical work, the Medical Section has had a discussion on the Nature of Epilepsy, founded on a paper by Dr. Alfred Russell, who said the old notion that this and other convulsive attacks were due to a sudden failure of the cerebral circulation was worthy of reconsideration. That such failure could produce unconsciousness and convulsions had been proved by several investigators. A fainting fit offered both analogies and contrasts to an epileptic fit and intermediate cases might be difficult or impossible to diagnose. The cause of the cardiac inhibition must be sought in the vasomotor and cardiomotor instability, so marked in the disease. These were very sensitive in the child and might also explain the frequency of infantile convulsions. Considering cardiac inhibition as the precipitating factor of the fit, Dr. Russell submitted that it afforded a satisfactory explanation of the various phases of the fit and the recovery following the escape of the heart from inhibition. As to uremic convulsions, he adduced clinical and experimental evidence to show that the cerebral manifestations might be due to increased intracranial tension with resulting cerebral anemia. As to the difficulty of correlating this with Jacksonian epilepsy, he submitted that this cerebral anemia existed both in status epilepticus and in the epileptiform seizures of general paralysis.

Dr. D. Ferrier thought they ought to have some proof of a definite relation between cardiac disease and epilepsy before they agreed with Dr. Russell to transfer the origin of the disease from the brain to the heart. But there was no evidence of such relation. Epilepsy was not so much a matter of the circulation as of the nutrition of the nerve cells. He considered the condition of the circulation was secondary to the epileptic discharge from the cortical cells.

Dr. C. E. Beevor said by stimulating the thumb center a tonic localized contraction was produced, but a stronger current could bring on a fit affecting the whole body, and in such case there was no cardiac inhibition. In fits from cerebral tumors there might be no loss of consciousness; or such tumors might grow and cause fits just like epilepsy. These could not be ascribed to heart failure. In *petit mal* it seemed impossible for so limited an effect as unconsciousness without the patient falling down to be caused by heart failure. He believed the primary disease was in the cortex.

Dr. A. M. Gossage said if cardiac inhibition were the cause of the fits we ought to have more evidence of the occurrence of such inhibition.

Dr. J. Lindsay Steven of Glasgow was very doubtful whether sufficient weight had been placed on the factor of vasomotor anemia of the brain as a cause of cerebral disease and perhaps of epilepsy too. He drew attention to the relationship between Raynaud's disease and cerebral anemia.

Dr. Buzzard remarked that in the cases of brain disease associated with vasomotor spasms which had been brought forward the history showed absence of convulsions.

The General Medical Council has held its autumn session, which, as usual, is mostly occupied with penal business. Most of the time was accordingly devoted to a rather long list of inquiries into cases of alleged professional misconduct. The question of the medical degrees of the new University of Wales came up. There are to be no more minimal qualifications. A six-years' curriculum is required, three of which must be spent in the Welsh colleges. Candidates must also have a degree in arts or in science. So the youngest university is setting an excellent example.

The Army Council have decided to associate the Queen Alexandra Hospital with the Royal Army Medical College as an integral part of its medical school, so as to utilize the clinical material for furthering the education of officers of the Royal Army Medical College. They have further appointed medical and surgical consultants from the civil members of the profession, considering their experience in that field will conduce to the efficiency of the hospital as regards the investigation and treatment of diseases incidental to military life and that these appointments may foster greater interest in the Army Medical Service among civil members of the profession. The appointments made are: Consulting physicians, Drs. Mitchell Bruce, Kingston Fowler, and Prof. Osler. Consulting surgeons, Messrs. Barker, Bowlby, and Makins.

The Report of the Army Medical Department for 1906 —a heavy blue book issued last week—shows a distinct improvement in the health of the troops. Of those serving at home and in India there was a decrease of admissions to hospital of about 66 and 30 per cent. respectively, and that not due to the incidence of one disease but to improvement all round. One great cause is no doubt the increase of temperance, another improved sanitation. During the last sixteen years there has been a steady fall in the number of admissions from above 1,000 to less than 600 per 1,000 of strength. Comparing this with other armies, the French, German, and Austrian are all above 600, and the United States army figures appear above double that. The death-rate at home is 2.92, but abroad rises to 8.30, chiefly on account of acute tropical diseases. The loss from discharge as invalids is not increased by foreign service, probably because the men are carefully inspected before selection and many are sent home for change who are still able to continue in but who would be lost if they had not had the advantage of early change of climate.

The Director General of the Army Medical Department has continued to address assemblies of his professional brethren in various centers on his scheme for organizing the Medical Service of the Territorial Army. Last week he went to Cambridge and proposed to name the general hospital of that district after the university. There and elsewhere he has been received very heartily and his proposal to constitute the profession into a homogeneous corps seems generally approved.

The extension of St. Bartholomew's Hospital is being steadily carried out. A new out-patients' department is practically complete, and yesterday afternoon the foundation stone of the Pathological Block was laid by Lady Ludlow, who was accompanied by Lord Ludlow, President of the hospital. This building is to be in Portland stone and fireproof, about 90 feet fronting on the street and the height above ground 62 feet, with a basement of 10 feet. On the top floor is to be the P. M. room; on the third floor the pathological library; on the second accommodation for the junior demonstrator and the bacteriology and histology clerks; on the first, lecturers' laboratory and clinical and pathological research rooms; on the ground floor staff-rooms, and in the basement mortuary and mortuary chapel. The cost is estimated at £30,000, which it is hoped will be met by special donations. The stone contains an inscription stating when it was laid, etc., and mentioning the interesting fact that it is deposited on the site of the house of Dame Joanna Astley, Nurse of King Henry VI.

Princess Christian opened on Tuesday the extension to the Royal Free Hospital, of which she is President. This addition comprises two new operating theaters with the dependent rooms required for the work. They have been built and equipped on the most modern principles of construction and sanitation. The theaters are lighted by north windows and by electric lamps so arranged that the light can be concentrated on any part of the operating table. There are three galleries for the students. The cost, about £10,000, for a hospital with an annual expenditure of £16,000 and an income of only a third of that, seems disproportionate, and the committee may well feel anxious about the success of their appeal for the amount.

A remarkable contrast to the foregoing case to that of other hospitals is offered by the Poplar Hospital for Accidents, which held its fifty-second annual dinner on the previous evening, when the chairman was able to boast that the hospital "differed from others inasmuch as it did not indulge in any whining about money, for it has never been in debt and never will be." Think of it! A hospital fifty-two years old and never in debt! Can you match it on your side? On this, I believe, the record is unique. It is not said it will never be in want, but if subscriptions fail the work will be curtailed and wards closed. It may be hoped this will not be, for the work is most important and well done. The last year was very prosperous and £2,000 had been spent on the convalescent home. Donations at the dinner amounted to £1,600. I cannot tell you exactly how it is done, but next time one of my hospitals is getting up a "whine" I may, perhaps, propose that the secretary and auditor be sent to the East End to study the financial management of the Poplar Hospital.

OUR PARIS LETTER.

(From Our Special Correspondent.)

RADIOTHERAPY IN CANCER—ASPIRATION IN ACUTE PERITONITIS—CHOLELITHIASIS—OCCUPATIONAL ACCIDENTS.

PARIS, October 23, 1907.

THE twentieth French Congress of Surgery was opened in Paris on October 7 under the presidency of Professor Berger. The subject of the day, "The Influence of Röntgen Rays on Malignant Tumors," was discussed by Beclère, who, after having shown that it was possible to destroy a new growth by means of the rays without damage

to the surrounding tissues, considered the influence of the rays on the principal sites of malignant neoplasms. Certain distinctions, he said, were necessary in regard to growths of the skin. All epitheliomas not penetrating through the derma could be absolutely and completely cured by radiotherapy, and under these conditions this was the method of choice. When the epithelioma had pierced through the lower dermal layers, radiotherapy was often very successful, but the method sometimes resulted in undeniable failures which might even lead to the death of the patient. Radiotherapy was rarely successful in dealing with malignant growths of the mucous membrane, for on the one hand it was possible to reach only the regions in direct continuity with the skin, and on the other hand epitheliomas of the mucous membrane ordinarily developed very rapidly and were attended by early involvement of the lymphatics. Malignant growths of the breast could be more or less favorably influenced by the rays. When the neoplasm was limited to the mammary gland itself it might be caused to disappear without operation through the influence of the rays alone. After surgical intervention radiotherapy was very effective against cutaneous recurrences, but was powerless in the treatment of involvement of the deep lymphatics. Sarcomas were especially susceptible to the Röntgen rays, as was shown by their rapid regression and disappearance in spite of their subcutaneous position and sometimes even after only mild application of the rays. In leukemia radiotherapy was the treatment of choice; it had to be admitted, however, that although the therapeutic results obtained were often marvelous, they did not constitute a cure. Beclére then spoke of the dangers of radiotherapy. These were undeniable and nearly always resulted from excessive dosage, either that the seances were too long or too frequently repeated. He had never made any observation that led him to believe that the Röntgen rays properly applied were capable of hastening the progress of cancer or of contributing to its dissemination. In conclusion, radiotherapy should not be considered as a rival, but as an ally of surgery. A malignant growth should invariably be operated on and then radiotherapy could be resorted to for the purpose of preventing recurrences. In such cases the rays should be directed not only toward the operative field, but also over the region of the related lymph nodes.

At the close of this address, Pozzi summarized the respective indications of radiotherapy and fulguration, which, as is well known, consists in the use of sparks of high tension and high frequency. Fulguration gives results as brilliant as those of radiotherapy in cancroids, and in all malignant tumors sufficiently accessible it should be preferred. The two methods could also be associated. It had even been observed that the effect of the Röntgen rays was much increased if the tumor had first been subjected to fulguration according to the method of Keating-Hart. Imbert and Dupeyrac of Marseilles had treated 107 cases by radiotherapy and concluded that this method almost always cured cutaneous epitheliomas, greatly improved and often cured leukemias and sarcomas, sometimes caused improvement in recent recurrences of mammary carcinoma, but nearly always failed in other cases, particularly in epitheliomas of the mucous surfaces.

Villard of Lyons described a method of treatment of acute peritonitis by means of peritoneal aspiration. The treatment of this condition had as principal indication the evacuation as completely as possible of the fluid free in the peritoneal cavity. Villard considered that the peritoneal cavity could easily be brought to a state of dryness by aspiration. For this purpose he had designed a special aspirator consisting of a tube of which one end was covered with a cap pierced with holes and intended to prevent the intestinal loops from blocking the flow. With this aspirator introduced into the abdominal cavity through a small incision it was easy to remove completely all of the abdominal exudates. Wicks of gauze were then placed between the intestinal loops in order to encourage sacculation through the formation of adhesions. In five cases of general peritonitis originating in the appendix Villard had succeeded in saving the patients by this method.

Pauchet of Amiens reported sixteen gallstone operations. He considered that it was necessary to catheterize the biliary passages in all cases of simple cholecystectomy, since a stone might be present in the common duct. Furthermore, in draining this region it was necessary to pack the subhepatic space and keep the wound in the duct open in order to encourage the elimination of stones which might otherwise be retained. In very much weakened individuals he advised draining both the hepatic and the common ducts. The latter drain should be carried down to the duodenum so that it might be possible in case of vomiting to inject sugar water and bile.

Jeanbrau of Montpellier and Segond of Paris presented a communication on chronic surgical affections in their relation to industrial accidents. Jeanbrau had studied especially surgical tuberculosis in this connection. Traumatism might act in three different ways; sometimes it might reveal the existence of a tuberculosis previously unknown to the patient, as might happen in the case of strains, which sometimes were the effect and not the cause of a preexisting white swelling. Sometimes it aggravated the course of the disease by encouraging rapid suppuration; finally, it might create a spot of lessened resistance in a healthy region. As regarded the medicolegal bearing of such accidents Jeanbrau thought that the following conclusions might be drawn: Tuberculosis revealed by an accident entitled the patient only to temporary indemnity; tuberculosis that was aggravated entitled the patient to a reduced rate of indemnity, since the accident had only caused the condition to become worse; tuberculosis inoculated and localized in an apparently healthy individual demanded the payment of the full indemnity legally provided. Segond spoke more particularly on the association of cancer with the accidents of occupation. In most cases in which the complainants referred their tumors to a previous traumatism the growths were already present and their presence was simply revealed by the accident. In some instances the traumatism might hasten the growth of the cancer. It was therefore only fair to take this into consideration and give the accident medicolegal importance. An animated discussion followed and a resolution was adopted recommending that the law should be modified so as not to exclude *a priori* preexisting conditions and diseases from consideration in fixing the indemnity in accident cases. This would reduce the number of unjustified and trumped-up demands by enabling the exact amount of injury to be determined and the indemnity to be fixed accordingly.

OUR BERLIN LETTER.

(From Our Special Correspondent.

KOCH'S RETURN—COLOR PHOTOGRAPHY—ACCIDENT INSURANCE LEGISLATION—HEREDITARY SYPHILIS.

BERLIN, November 15, 1907.

ROBERT KOCH has returned from a scientific expedition that has kept him in tropical Africa for a year and a half. His work in large part consisted in formulating a system for combating sleeping sickness. The methods suggested, and especially the prophylactic measures, have already demonstrated their efficiency. The Government has conferred on Koch the highest title in its gift, that of Excellency. As in the case of his former expedition, the Berlin Medical Society will probably receive a report of his work and I shall be able to supply such details as are of interest.

That Lumière's method of color photography will be of service in medical work is evident from a paper by Benda and Biesalski read before the Medical Society on October 30, and illustrated with excellent photographs of this type. These showed stained preparations of the spirochetes of syphilis, of blood spreads stained in different ways, gunshot wounds, jaundice, brain specimens, leg ulcers, etc. The following presentation, which was by Buki and Ledermann, enabled one to compare the three-color process with the Lumière method, as the speakers showed photographs from Ledermann's Atlas of Skin Diseases, which is shortly to appear. The reproductions were exceedingly life-like and were in natural colors. They also had the advantage of being reproducible at will, which, of course, is as yet impossible with the Lumière plates.

As legislation concerning accident and health insurance is probably more radical in Germany than in any other country, a paper read by L. Hirsch before the Society of Social Medicine, Hygiene, and Medical Statistics will probably be found of interest. He discussed the drawbacks of accident insurance. It was only human that the patients should exaggerate their complaints in order to secure an increased amount of indemnity, but it was very reprehensible that the relatives of workmen dying entirely independently of any accident should attempt to obtain remuneration because of some insignificant accident suffered by the deceased at some previous time. There was no doubt that a suspicious attitude of the authorities in regard to such claims was entirely justified, but this very fact was a drawback of accident legislation, since it often reacted to the disadvantage of the insured. When the laws were drawn the earning capacity was made the criterion of the indemnity and the physician was expected to estimate to what extent the earning capacity was interfered with in any given case. This led to the establishing of stereotyped standards; for example, the earning capacity of the right hand was set at 50 per cent. and that of the right foot at

75 per cent. The earning power, however, depended very largely on the good-will of the patient, as appeared from observations made in the times before the accident insurance laws were enacted, which showed that many workmen were able to carry on their full quota of work in spite of severe injuries. It had been found that anyone who had once received assistance, even if he knew himself that he was entirely able to work, usually gave up every occupation if the indemnity amounted to 50 per cent. or over. Many injured workmen refused to submit to small operations of which the success was certain, for fear that their stipends might be reduced. The speaker made the following suggestions: Experts employed by the labor unions and therefore inclined to favor these in their testimony should not be called. Instead of taking the earning capacity as a basis, only the gravity of the injury should be considered. The unions should see that workmen under the age of thirty who were receiving assistance should be trained in some occupation, as it was an injustice to select a single cause of illness for indemnity, namely accidental injury, while persons suffering from chronic diseases were not given any assistance. The ideal would be to aid all really ill persons up to their death and also their widows and orphans. It was contrary to true humanity and the best interests of the State to encourage idleness among able-bodied workmen by giving them regular financial support.

In the Society for Venereal Prophylaxis Rosenthal discussed the hereditary transmission of syphilis. He advocated the erection of sanatoriums for syphilitics, just as they already exist for tuberculous patients. As it had been shown that in the year 1898, among 37,000 midwives, 157 became infected with syphilis in the course of their work, rigid supervision and treatment of these was necessary to prevent further transmission through them. It was advisable to establish a separate form of insurance for midwives. Nurses should also be carefully supervised, and giving children into the care of syphilitics should be guarded against. Homes should be founded in which children could be kept during their first three to five years. In one Berlin polyclinic, of all the children coming under observation 2.8 per cent. of those born in wedlock and 3.4 per cent. of those of illegitimate birth suffered from hereditary syphilis. Such homes could best be established in the country.

Progress of Medical Science.

Boston Medical and Surgical Journal, December 12, 1907.

Cancer of the Male Urethra.—J. D. Barney reports two cases and refers to certain papers on this subject. The symptoms are practically those which might occur in any case of stricture or calculus and render diagnostic errors very easy to make, as also does the fact that the affection may occur in men who have never had any venereal history. The detailed history of the two cases is given. From the tissue removed it was possible to make a positive diagnosis of epithelioma in each instance.

Verrucae Plantares.—J. T. Bowen discusses this topic with reference to the occurrence of the affection in boys and young men and its pathology. With regard to the latter his views are those of Dubreuille, from whose recent paper on the subject he quotes at some length. Bowen has had 34 cases under close observation. Most of his patients have been schoolboys of the better class or college students. He could find no history of trauma in any of his cases. The question of contagion is uncertain. Most of the patients were accustomed to such exercises as tennis playing, etc., so an opportunity for irritation of the plantar surfaces was plainly offered. As to treatment, he found in a considerable proportion of the cases that a 10 per cent. solution of salicylic acid in collodion was efficient after some time in removing the lesions. It was painted on daily and the foot soaked on alternate days in hot water for twenty minutes. Pumice soap was then used to remove as much of the lesion as possible and the painting was then renewed. In cases rebellious to this plan he used chrysorobin in 10 per cent. strength added to the salicylated collodion. In other cases success was obtained by covering the lesions constantly with a 60 per cent. salicylated gutta percha plaster. Electrolysis and the strong caustics are very painful except under local anesthesia. The Paquelin cautery may be used under cocaine anesthesia, the round point being inserted in the center of the wart and swept around the whole periphery.

New York Medical Journal, December 14, 1907.

The Favorable Influence of Occupation in Certain Nervous Disorders.—C. E. Atwood declares that in the treatment of mental affections by occupation or diversion it becomes necessary, first, to study well the individual, considering in addition to his physical condition and form of disorder also his past life and natural characteristics, his age, muscle power, endurance, previous habit, etc. Second, to utilize manual labor partly for its fatiguing effects and its beneficial effects on metabolism; skilled labor to develop attention and limit the tendency to mind wandering and to restore confidence; music, art, and literature chiefly for the sake of altering the emotions and morbid trend of thought and providing safe fields for the imagination. Third, all occupations should be associated as much as possible with some pleasurable object and a temporary change of environment. Fourth, greater than slight mental and physical fatigue should be avoided. Fifth, variety is necessary, and simple forms of exercises may later be graded into those requiring some complex activity.

Results of the Work Accomplished by the Society of Sanitary and Moral Prophylaxis.—P. A. Morrow discusses the general lines of activity which have engaged the energies of this organization, declaring that its field of work is larger, more important, and more difficult than at first appeared. The value of this work is not to be measured by the mere diminution of the sum of venereal morbidity and mortality for the education of young men in matters of sexual hygiene and the inculcation in them of the principles of clean living tends to make of them not merely healthier men, but safer husbands, sounder fathers and better citizens. The general scope of the work is thus indicated: (1) The general dissemination of knowledge among the public respecting the extent of these diseases and their dangers to the individual and to society. (2) The education of the rising generation in a knowledge of the laws of life and sex, and the dangers which come from the unnatural or irregular exercise of the sex function. (3) General enlightenment of the public as to the communicative modes of these diseases, direct and indirect, and especially the terrible consequences to the innocent members of society from infections introduced into marriage. The author traces the growth of the work in other cities and finds that the propaganda of the parent society in New York is being well received. He maintains that it is eminently proper and fitting that women should interest themselves in this movement. It is largely a woman's question, for it is upon woman and the children who are a part of her being that the burden of suffering, disease, and death from this social scourge is chiefly laid.

A New Procedure and Instrument for the Artificial Ripening of Cataract.—J. H. Claiborne presents an illustration of the instrument he has devised and states that his new procedure is similar in many respects to one described in 1804 by Mooren, but radically differing from it in others. The new method is described in full and cannot be detailed here. Essentially it consists of two parts: (1) Iridectomy, coupled with simultaneous discission with a lance-shaped instrument based on the principle of an agricultural harrow, and (2) extraction at the propitious time. He thus sums up the advantages of the new method: (1) Greater ease in lacerating the capsule; (2) greater area of laceration; (3) the less likelihood of iritic complications and the less extensive if they do occur; (4) the presence of coloboma to forestall the occurrence of glaucoma or its relief in case it does occur; (5) the less likelihood of post-operative glaucoma; (6) simplification of the final extraction.

Journal of the American Medical Association, December 21, 1907.

Acute Rheumatic Fever.—S. Solis-Cohen recognizes acute rheumatism as an infectious disease, due probably to any one of a group of organisms, possibly cocci, allied to the organisms of scarlatina and erysipelas. He also admits a certain constitutional susceptibility or diathesis, intimately related to nervous function, and especially with the vasomotor apparatus and perhaps also with the tissues of the organs of circulation. He reviews the medicinal treatment, largely empirical, that has been found useful—the precordial blisters, the use of alkalies, which has a sort of clinico-pathological indication in the abnormally acid condition of the body fluids, the use of the tincture of the chloride of iron and the salicylates. The use of the latter, together with the alkalies, is not contraindicated, and he generally uses them in combination. Ferric medication can also be associated in the "mistura ferro-salicylata," introduced by him twenty-two years ago, the revised formula of which is given in a footnote. Special care should be given to the condition of the mouth, nose and

throat and avoidance of exposure to drafts for susceptible individuals. The resistance of the vasomotor system can be increased by such measures as massage, electric light baths and hydrotherapy. Regular and sufficient elimination is a necessary prophylactic measure and a regulated nutritious diet yielding a minimum of nitrogenous waste. The carbohydrates should be reduced and oils and fats substituted so far as possible. The diet, however, should be individualized to suit the case. The management of the attack is described in detail; the diet should be milk exclusively for at least two weeks and longer if necessary, the bowels should be kept open and the urine alkaline, but the most important measure is complete rest, and it depends on the case whether this be enforced for six weeks, which is Solis-Cohen's minimum, or whether it be continued to nine or ten weeks more. The great majority of subsequent chronic cardiac lesions are, he says, beyond question due to the neglect of the rest. Local treatment must be guided by the general condition and the patient's special needs; there are many applications and most of them are useful unless the patient has some idiosyncrasy. If the heart becomes involved during the attack the blisters and alkaline treatment can be kept up, but unless the articular symptoms are still severe, it is usually best to discontinue the salicylates. He speaks highly of the value of rectal, and, in severe cases, of intravenous injections of colloidal silver in cardiac complications, although he can not say they are always curative. Bromide of strontium or ammonium may be useful in quieting restlessness; a precordial ice coil or ice bag is useful. The two principal things he insists on in the treatment of acute rheumatism and its complications are individualization and rest, and the latter in all cases is the measure of supreme importance.

Treatment of Rheumatism.—N. S. Davis says that there is still clinical evidence that the alkaline treatment, though it can no longer be regarded as specific, has a beneficial action in preventing cardiac complications. The nearest to a specific in rheumatism are the salicylates, especially the salicylate of sodium, but the known physiological effects of these remedies, analgesic and antipyretic, etc., do not explain their beneficial therapeutic action in this disorder They are not equally effective in other arthritic affections, and in acute articular rheumatism they do not lessen the liability to cardiac complication, another fact that is not readily explainable. While the other salicylates having the same active principle, salicylic acid, are likewise effective, the salicylate of sodium is, in Davis' opinion, the most reliable, and he is also convinced that salicylate of sodium made from oil of wintergreen is best tolerated by the stomach. All the salicylates are most agreeably administered in capsules. Half a gram of the salicylate of sodium can be given in this way and two capsules will make an average dose. If thus given, care should be taken that water is also given in sufficient quantity to insure the prompt solution and dilution in the stomach. A charged solution of bicarbonate of sodium or effervescing sodium and potassium citrate may be drunk instead of water, thus combining the salicylate and alkaline treatments. Other drugs may be substituted for the salicylates in rheumatism, but they have their disadvantages. Antipyrin may be effective, but it increases the anemia and the convalescence is prolonged. Other coal-tar preparations are open to similar objections and, if given in sufficient doses, may be dangerous. Consequently, they are adapted for only very mild cases of short duration. In closing his article, Davis mentions the serum treatment of the disease, as proposed by Menzes and by Sherman, and says it is evidently still in a most elementary experimental stage and has not yet gained the confidence of bacteriologists generally.

The Tub-Bath Treatment of Cystitis.—The advantages of the continuous bath treatment of cystitis in women are pointed out by G. L. Hunner, who describes the method of its employment and reports cases in which it was employed. Its use seems to have been first suggested in the treatment of vesicovaginal fistula, for which it is especially adapted, rendering the patients more comfortable and less offensive to themselves and others, besides saving a great deal of labor and trouble in their care. Its advantages as an adjunct to the treatment of intractable cystitis, with or without accompanying fistula, are demonstrated in the case histories given. The tub used is of large size and the patient lies or sits on canvas strips stretched across the tub, which can be slacked or tightened as required for the sitting or recumbent positions. Light slats across the tub are covered by a blanket and mackintosh, and these in turn by a spread. This covering retains the heat, makes a "work table" for the patient, and presents a neat appearance. Arrangements are made by a siphon and tubing for continuous irrigation, if needed, and for a certain amount of water to be drawn off from time to time and replaced by warm water to keep up the temperature. Six cases are reported, illustrating the conditions for which this method is advisable. They are only a few of the worst out of many thus treated during the past seven years. Hunner mentions some things which experience has taught him to avoid: Curettage of an ulcer on the trigonum or near the ureteral orifice has in two cases been followed by ascending infection. The making of a vesicovaginal fistula causes trauma and swelling, and while he leaves gauze in the freshly made opening to prevent its immediate closure, he is careful to avoid pressure obstructing the ureteral orifice. The baneful influence of the retention catheter in causing pressure ulcers and infection can not, he declares, be too strongly emphasized, and when he has to use it he prefers a small smooth rubber catheter held in place by sutures or adhesive strips to the mushroom or bat-wing catheter. The tub-bath treatment can also be used in the male in cases of long-standing prostatic retention, in connection with irrigation through a suprapubic or perineal wound.

Will Radium Cure Cancer?—A. C. Haven reports a case of recurrent cancer of the scar tissue after hysterectomy treated with success by the introduction of a small tube of bromin of radium into the vagina where it was retained by a tampon and left over night, being removed in the morning. For the first six months of this treatment the results were discouraging; the disease progressed and extended, causing great pain, the inguinal glands enlarged, there was great weakness and mental depression and the disease culminated finally in a terrific hemorrhage. After this had been controlled and the bleeding granulating tissue curetted away, a change set in for the better, at first slow, but surely continuous, marked by less pain, less need of morphine, and fewer hemorrhages. The enlarged glands became smaller, weakness and depression disappeared, and healthy scar tissue replaced the cancerous granulations. At the end of six months no trace of the original disease remained, and the patient was to all appearance well. The vagina had contracted so that the little finger was introduced with difficulty. Later in the year a hard swelling appeared in the rectovaginal septum, which, when opened, discharged a grumous, sanguineous substance, analysis of which was negative. This recurred several times the next year, but finally completely healed. Now, two years and a half after the hysterectomy, the patient is apparently strong and well. Haven thinks that there can be no possible doubt as to the nature of the growth; it was pronounced cancer by competent pathologists. He thinks that the method of using the radium and the persistence in the treatment under discouraging conditions very probably had their influence in bringing about the apparent favorable result, and that failure in other cases may have been due to discarding the remedy too early.

The Lancet, December 7, 1907.

Carcinoma of the Ovary in a Child of Seven Years.—The patient of E. W. Parry began to complain in December, 1906, of abdominal pain. In February of the current year abdominal enlargement was first noticed and there was distinct emaciation. Examination showed the abdominal cavity filled with a round, hard mass, with an irregular surface, rising to just below the ribs. Some six weeks later an exploratory laparotomy was performed. Some clear fluid escaped from the cavity and the tumor was found to be of right pelvic origin. There were extensive old and recent adhesions of the tumor to the great omentum. These were partly separated and partly ligatured off and divided until the tumor could be delivered out of the abdomen. The right Fallopian tube was ligatured off separately and divided. The peritoneum of the pedicle was then divided circularly and ligatured by two unlocked ligatures of silk, the tumor cut away, and an additional ligature put round the whole stump. The abdominal wall was closed in one layer. Recovery was prompt and uneventful. The child appeared perfectly well for awhile, but four months later she was again seen and was obviously wasting, while the abdomen showed signs of recurrence with free fluid in the cavity. Examination of the tumor had shown it to be of a carcinomatous nature.

Treatment of Neuralgia by Injection of Osmic Acid into the Gasserian Ganglion.—The histories of two

cases are given by G. A. Wright, his patients being a man of 58 and a woman of 55. The first patient was placed under chloroform and an incision was made from above the zygoma downwards and curving forward along the lower border of the jaw. The zygoma was resected and turned down and the coronoid process was divided and turned up. The inferior dental and lingual nerves were found and traced up to the foramen. By means of a curved dental syringe a few drops of 2 per cent. osmic acid solution were injected into the ganglion through the foramen. The nerves were then torn away and the wound was closed. Very little shock followed the operation in spite of the feeble condition of the patient and he was up and walking about in the grounds of the hospital on the fourth day. Some discharge of saliva from the wound caused inconvenience for a time, but practically there was no other trouble. Some six months later he had had some attacks of severe pain in the first division of the nerve, but the second and third portions had given no trouble. The second patient underwent practically the same procedure and at last reports was doing well. Both patients had had various operations done before the acid injections. The author does not claim for the latter permanent success in the relief of the pain, but it is an operation causing so much less strain upon an exhausted patient than does the removal of the ganglion that the author thinks it worth a further trial. The effects of injection of osmic acid in producing degeneration of tissue are very well marked and, if the ganglion can be destroyed by the means described relief may be obtained at considerably less risk than is incurred in the operation for its removal.

A Plea for Uniformity of Conditions in Vaccination.—A. H. Gerrard complains that the lymph used for vaccination is under no official control or supervision except in case of public vaccination. The private practitioner may obtain his vaccine from wherever he likes, he may carry out the procedure in whatever way he may wish, and he may scarify in as many or as few places as his convictions or his patients dictate. He may also, if he cares to, return the slightest reaction as successful vaccination. He is under no supervision whatever. In such an important matter as vaccination, where the benefit to the patient is not immediately apparent, it is very serious if the operation is carried out by any means not ideal from a surgical point of view. All these objections could be met, he claims, by having vaccination completely under State control. He believes that the cases handled by the public vaccinators are better protected against variola than are those of the average private physician. Comparison of official and non-official lymph with regard to bacterial content were much in favor of the former, as shown by tabulated results. It must be remembered that the author is speaking of conditions in England. In the United States the lymph manufactured by the civic authorities can be purchased by local physicians even for private patients if the latter are too poor to pay, and the charge has been made so low that it can almost be disregarded.

The Treatment of Dysentery.—F. M. Sandwith considers this question under the headings of "bacillary" dysentery and "amebic dysentery." In the former type the bowel should be cleaned out with castor oil or magnesia. Rest in bed should follow, with warm clothing, perhaps a hot-water bottle, and certainly a pad of cotton wool on the abdomen surrounded by a flannel bandage. Physiological rest for the intestines, so far as possible, must be obtained by stopping all solid food and giving only small quantities of liquid every two or three hours. When the tongue is fairly clean boiled or sterilized milk, pure or diluted with rice water, or peptonized, is the best food. The daily examination of stools, as in enteric fever, will tell you whether we are giving too much milk or whether it is necessary to peptonize it. When the tongue is thickly coated or the patient loathes milk, we may have to give chicken broth, albumin water, whey or rice water for a day or two. Alcohol will not help the dysentery and is bad for the liver, so should be withheld unless the heart requires it; brandy in such circumstances is the best stimulant. All food should be given tepid, neither hot nor cold, and even then a small judicious meal may cause immediate peristalsis and an action of the bowels. We must treat dysentery just as carefully as we would enteric fever if we wish to cure the patient. The author has hearty commendation for the serum treatment. In the amebic variety of the disease the same general régimen is followed as above outlined. We may give bismuth by the mouth, with tannigen or some astringent added. Many still rely on ipecac in combination with opium. Calomel is not indicated. Sulphate of magnesia may be given alone or combined with sulphate of soda. Rectal irrigations are of great value and should be begun early. Quinine may be used, 1-500 or 1-1000. Silver nitrate, 1-1000, or copper sulphate in the same strength.

British Medical Journal, December 7, 1907.

Some Cases of Unexplained Fever in Infants and Children.—H. Ashby says it is generally admitted that the common cause of fever is the presence in the blood of toxins due to bacterial action, the toxins leading in some way to increased tissue change, but it can hardly be admitted that the action of bacteria is the sole and only cause of fever. There must be a reflex or vasomotor variety, in which the toxins play no part, to account for the rise of temperature following hysteria, excitement, catheterization, etc. The author believes that many of the "unexplained" cases are in reality due to gastrointestinal infection, though there is no vomiting and no diarrhea. Moreover, examination of the stools does not lead to the isolation of any definite infecting organism. Pyelitis is another cause and the pyemia may not occur till after the subsidence of the acute symptoms. In the urine of such cases the colon bacillus is largely in evidence. In many of these cases the infant has been taking for long periods sterile foods, and these may have acted in some way as a predisposing cause. Alteration in the diet, giving whey and fresh milk, with orange juice and citrate of potassium, quickly brings about an improvement. From the fact that nearly all the sufferers are girls, it looks very much as if the urethra was the port of entry of the colon bacillus into the urinary tract. The early stadia of pneumonic cerebrospinal meningitis, influenza, subacute disseminated tuberculosis must all be borne in mind. In older children some of the feverish states with which we have to do are plainly due to gastric insufficiency. Again, in the absence of actual disease, but after excitement, tiring muscular exertion, overwork of brain, the temperature will go up. In many of these cases a stay in the country is the best medicine.

The Urinary Mucous Tract as the Route of Invasions by Pathogenic Organisms.—C. J. Bond refers to a class of cases which clinically reproduce the features usually associated with pyelitis, in which there is on superficial observation a curious absence of any apparent cause for the illness. The majority occur in women and the condition is especially apt to arise during the pregnant state. It is probably true that in most of these cases the infection travels upward through the urinary mucous tract to the renal pelvis. In a general way infective processes originating in the excretory ducts of organs or glands or in mucous canals probably depend on these canals as the route of invasion, while infective processes originating in the parenchyma or cortical portions of the same organs or glands depend on the blood stream for the entrance of pathogenic organisms. This view is also in harmony with the observed phenomena of toxic processes. Cytotoxins circulating in the blood exert their cytolytic action primarily and chiefly on the epithelial cells of the cortex of an organ—the tubules in the case of the kidney, the secretory epithelium in the case of the liver—while the epithelium of the excretory duets at first escapes injury, thus showing that the resisting power of the latter is at least as great as, and probably greater than, that of the secretory epithelium. Whereas, in all the cases we have been considering of pyelitis, cholangitis, etc., due to mucous invasion, this duct epithelium has been the first to suffer. The author therefore insists on the importance of impressing patients with the necessity of safeguarding the orifices of these canals opening on the surface of the body. Frequent bathing, rigid cleanliness, and personal hygiene will do much if regularly practised among hospital patients, indeed, among all classes of patients, to prevent infection of these canals.

Tincture of Iodine in Puerperal Fever.—Aldo Mergari reports his method of using iodine as an intrauterine injection in cases of puerperal fever. It has had favorable results even in severe cases. He disinfects the vagina, in case it is necessary lightly curettes the endometrium, and by using a Doleris sound injects into the uterus from 150 to 100 grams of a mixture of equal parts of tincture of iodine and warm water. It is necessary to make sure of a return flow. After some minutes, or on the slightest pain, the fluid is allowed to flow out, and the cavity is washed out with boiled water to remove the excess of iodine. No tampons are used. The author has obtained a cure in seven cases of puerperal fever with very rapid results from the injections. The good results are ascribed to the large amount of iodine used and the nascent state of the iodine.—*La Riforma Medica*

Book Reviews.

THE MEDICAL RECORD VISITING LIST, or Physicians' Diary for 1908. New Revised Edition. New York: William Wood and Company.

THIS popular visiting list is on the same plan as heretofore. There are about thirty pages of miscellaneous information, and then follow the usual pages devoted to the visiting list, consultations, engagements, addresses, cash accounts, etc. The printing and general get up of the book are all that can be desired, and physicians who have used this list in the past are sure to want the edition for 1908.

THE PHYSICIAN'S VISITING LIST (Lindsay and Blakiston's) for 1908. Fifty-seventh year of its publication. Philadelphia: P. Blakiston's Son and Co.

THIS well-known visiting list contains the usual blank leaves for visiting list, addresses, engagements, cash account, records of births and deaths, etc.; there are also notes on incompatibility, poisoning, metric weights and measures, dose table, etc. The paper has a good writing surface, the pages are well ruled, and the book is of handy size.

DIE VERWUNDUNGEN DURCH DIE MODERNEN KRIEGSFEUERWAFFEN, IHRE PROGNOSE UND THERAPIE IM FELDE. Von Stabsarzt Dr. GRAF und Dr. HILDEBRANDT. II. Band. Spezieller Teil. Berlin: Verlag von August Hirschwald, 1907.

WAR is a curious procedure. We devise weapons to kill or maim each other in a conflict which cannot be settled by more peaceable means, and then with equal zeal study the methods by which the unfortunate ones who may have come into intimate contact with such projectiles may be restored to duty. The task of the military surgeon has been made difficult by the fact that the modern weapon is more apt to kill with its projectiles than to maim. Thus bullet wounds of the head, for example, were less often serious in the old days, because the bullet, having less force, would glance off when it struck the hard substance of the skull and produce merely a wound of the soft parts. The projectile from the modern high-powered rifle usually penetrates the skull and enters the brain. The authors of the book here noted take up in detail the effects of the modern arms of warfare on different parts of the body, basing their work mostly on the surgical reports of the recent wars. The uncertainty which attended in former years the infliction of a wound by a bullet has now been largely overcome by a more universal employment of the *x*-rays, and the "probing" for bullets, formerly so largely necessary, has now, thanks to this aid, been superseded to a great extent by more direct operative procedures. Graf and Hildebrandt's book is well written and the contents classified in a most satisfactory manner, so that it may be made to serve as an excellent work of reference.

THE DEVELOPMENT OF THE HUMAN BODY. A Manual of Human Embryology. By J. PLAYFAIR MCMURRICH, A.M., Ph.D.; Professor of Anatomy in the University of Toronto; Formerly Professor of Anatomy in the University of Michigan. Third Edition, Revised and Enlarged. With 277 Illustrations. Philadelphia: P. Blakiston's Son & Company, 1907.

THE value of Professor McMurrich's book both for teaching purposes and as a work of reference has come to be widely recognized and is attested by the large number of medical schools that recommend it as a text-book for their students. In its present edition it has been somewhat enlarged and the necessary changes to bring it fully down to date have been made, so that it represents a most satisfactory treatise on this highly important subject, perhaps the best available for English and American readers.

THE TECHNIQUE OF MODERN OPERATIONS FOR HERNIA. By ALEXANDER HUGH FERGUSON, M.B., M.D., C.M., F.T.M.S.; Professor of Clinical Surgery, Medical Department of the University of Illinois, etc. Illustrated by Drawings from the Author's Collection. Chicago: Cleveland Press, 1907.

THIS book is intended by the author to present only the purely surgical phase of the subject of hernia and is largely dominated by the results gained from many years of personal experience. The work is well written and suitably illustrated by numerous large plates, which demonstrate very clearly in almost every instance the various anatomical and surgical features. The book is divided into two parts, in the first of which the author describes the general technique, the wound, the operative complications and discusses the results of the various methods of treatment. In the second portion the detailed operative procedures for the different anatomical forms of hernia are discussed in a very satisfactory and complete manner.

In classifying herniæ Ferguson believes that the abdominal varieties may be arranged most suitably with reference to their topography and accordingly divides them into anterior, posterior, superior, inferior, lateral, and internal. Being anatomical, this method seems logical enough, but we doubt whether it will displace that so long in vogue which is based on the etiology and the form of the lesion. Although less logical it is sanctioned by custom, which is usually a difficult thing to overthrow. The operation known by the author's name is minutely described and it is claimed that among 2,500 cases operated upon by this method by the author and others no instance of a return of the trouble has been noted. The operation is essentially anatomical, the internal oblique muscle and its tendon being sutured to the inner aspect of Poupart's ligament, as low down as possible, after ablating the sac and strengthening the internal ring with a few stitches above the cord. The cord is not diverted from its original bed, for this step is considered empirical and endangers the testicle. Almost all the other operations for the relief of hernia are also described, so that the book constitutes a valuable monograph on the surgery of this condition. It may, moreover, be called a "personal book," although this in no way detracts from its interest and value.

ALTE UND NEUE GYNÄKOLOGIE. Herrn Geheimrat Prof. Dr. Franz Ritter von Winckel zur Feier seines 70 Geburtsfestes überreicht von den Aerzten der Kgl. Gynekologischen Universitäts-Poliklinik im Reisingerianum zu München. Mit 30 Abbildungen im Text und 5 Tafeln. Herausgegeben unter Mitwirkung von Dr. E. AULHORN, Dr. R. BENNDORF, Dr. H. ELTZE, Dr. M. KACHEL, Dr. TH. PETRI, Prof. Dr. SAKURI und Dr. A. STOECKER, von Prof. Dr. GUSTAV KLEIN, Vorstand der Kgl. Gynäkologischen Universitäts-Poliklinik, München: J. F. Lehmann's Verlag, 1907.

THE first part of this entertaining work comprises three historically interesting papers by Klein and Stoecker, one of which is devoted to a description of the early pictorial representations of the female genitals from the ninth century to the time of Vesalius, another to an early Spanish treatise on pregnancy, and the third to an account of the works and labors of some of the famous obstetricians of the sixteenth and seventeenth centuries. The illustrations reproduced from these sources show how well cultivated the powers of observations of these early investigators were and if we omit the grotesque features from their pictures we cannot but admire the accuracy with which they depicted anatomical facts. The second part of the book is occupied with a number of scientific papers. Aulhorn presents the results of blood examinations in a large series of gynecological conditions and also describes a case of malignant chorioepithelioma. Benndorf as the result of extended observations finds that silk-worm gut may be safely used for uniting the fascia in laparotomies. Eltze finds that the employment of hot air in gynecology is more apt to be followed by an improvement in the subjective than the objective symptoms. Petri discusses the permanent effects of the various suspensory operations of the uterus and advocates early operation, but thinks that the prophylactic measures are the most important. In a comparative study of the length of labor in European and Japanese women, Sakurai states that for various, mainly physical, reasons the length of the second stage is diminished by one-third to one-half in the latter race. A number of other papers are presented, all of which make up an interesting and valuable souvenir of the natal day of one of the nestors of the profession in Germany.

MERCK'S 1907 INDEX (Third Edition). An Encyclopedia for the Chemist, Pharmacist, and Physician, Stating the Names and Synonyms; Source or Origin; Chemical Nature and Formulas; Physical Form, Appearance, and Properties; Melting and Boiling Points; Solubilities, Specific Gravities, and Methods of Testing; Physiological Effects; Therapeutic Uses; Modes of Administration and Application; Ordinary and Maximum Doses; Incompatibles; Antidotes; Special Cautions; Hints on Keeping and Handling, etc., of the Chemicals and Drugs Used in Chemistry, Medicine, and the Arts. New York: Merck & Co., 1907.

THIS is a very useful work for the physician who may desire to inform himself regarding the origin or composition, therapeutic uses, and doses of drugs. The information which it gives is indicated in the subtitle of the book, and it gives it concisely in a few lines. It is not confined to a description of the drugs manufactured by the house of Merck, but includes all—crude drugs, alkaloids, synthetics, and organic extracts which are used in medicine.

Society Reports.

THE PRACTITIONERS' SOCIETY OF NEW YORK.

212th Regular Meeting, Held December 6, 1907.

THE PRESIDENT, DR. ROBERT ABBE, IN THE CHAIR.

A Case of Tumor of the Pituitary Body with Symptoms of Acromegaly.—Dr. ABBE showed a woman, forty-two years old, who for the past two years had suffered from facial tic on the left side of the face. The tic was of a grave form and involved all three branches of the facial nerve. Three years ago the patient had lost the sight of the left eye. There was a striking enlargement of the lower half of the face and lips, and tenderness of the scalp. There was also a gross enlargement of the hands, both in breadth and thickness. The patient stated that she formerly wore a six and a half glove and her size now was seven and a quarter. She also exhibited photographs showing a distinct change in the expression of her face during the past two years. The feet were not enlarged. The patient complained greatly of excessive perspiration. Dr. Abbe said the patient had been sent to him on account of her facial tic, but he had thus far refused to operate on account of the symptoms which indicated a tumor of the pituitary body. The patient had also been seen by Dr. M. Allen Starr and Dr. Pearce Bailey, and she had received some pituitary and thyroid extract. A good Roentgen ray picture showed a loss of the bone outline of the site of the pituitary body—definitely showing a pituitary tumor.

Dr. ANDREW J. MCCOSH said that during the past summer, while in Vienna, he saw a case where von Eiselsberg had removed a pituitary tumor about the size of a walnut, and at the end of six months the patient was in excellent condition. The operation was followed by a slow but steady improvement in the patient's sight and general symptoms, and the case looked exceedingly promising. Access to the tumor was gained through the temporo-frontal region, making a very large flap. Dr. McCosh said that Horsley had operated on thirteen cases for removal of the pituitary body; of these, a few had died and a certain number had completely recovered.

Dr. CHARLES L. DANA said that in the case shown by Dr. Abbe it was difficult to explain the total loss of vision on one side without any effect on the limitation of the field of vision on the opposite side. The symptoms might perhaps suggest something else than an ordinary symmetrical pituitary tumor.

Some Unclassified Dangers of Anesthesia.—By Dr. JOSEPH D. BRYANT. (See page 1053.)

Dr. MCCOSH said that in consideration of the fact that the class of men who administered the anesthesia in our hospitals were rather inexperienced in that special branch of surgery, it was wonderful that more accidents did not occur in consequence. While it would be a distinct advance to have a paid hospital anesthetist, the expense of such an innovation would be so great that it was practically out of the question at present. The speaker said he did not think the new methods of giving anesthesia with gas and ether, and the new apparatus that was employed, had produced any reduction in the death rate over the older methods with the Allis cone, etc.

Dr. L. BOLTON BANGS said that even among those men who claimed to be specialists in the administration of anesthesia the work seemed to be more or less temperamental. Some men seemed to be able to restrict themselves to the giving of the anesthetic and paid no attention to the operator; others, owing either to their temperament or to the confidence they possessed in their method of administering the anesthetic, paid more attention to the operator than they did to their own work. The speaker called attention to the fact that there was a great difference in the amount of ether used by different anesthetists; this factor was important in view of the secondary effects of the ether on the kidneys.

Dr. V. P. GIBNEY said he did not think the old-time charge that the anesthetist paid more attention to the operation than he did to the anesthetic could be brought against the modern skilled anesthetist. The question arose, what constituted a skilled anesthetist? Was it the fact that he had invented some new form of apparatus for the purpose of giving anesthesia? That was the impression that seemed to prevail. Another question that arose was, who was responsible in the operating room, the operator or the anesthetist? The public were being taught to believe that if the patient died from the effects of an anesthetic that was administered by a paid anesthetist, the latter was responsible for the fatal outcome, but some surgeons still clung to the old idea that they were responsible for the patient's welfare; others were willing to ship the responsibility to the anesthetist. Dr. Gibney said that while a salaried anesthetist in all the hospitals would be a welcome addition to the staff, that was probably impracticable on account of the expense. In a small institution like the Hospital for the Ruptured and Crippled they had a visiting physician whose title was "Anesthetist and Instructor in Anesthesia," whose duty it was to instruct the junior physicians in the proper method of giving anesthetics.

The President, Dr. ABBE, said that in considering this question from the standpoint of the greatest good to the greatest number he had always held the view that by instructing the entire hospital staff as to the proper method of giving anesthetics they were conferring a greater benefit upon the community than by allowing all of the work to be done by a single expert anesthetist. These hospital internes, after their term expired, scattered far and wide, and it was important that they should receive proper instruction in this branch of surgery. He also held that the senior operator should not only have an eye on the operation, but also on the patient and the anesthetist. Unless he was cognizant of all that was going on, it might seriously interfere with his work. He did not approve of the method adopted at one of our large hospitals of having a screen placed between the operator and the anesthetist, for the reason that it hid the patient's face from the former. Dr. Abbe said his favorite method of administering anesthesia was to start with nitrous oxide gas and then give the least possible amount of ether by the drop method or the open cone method. In that way the least amount of anesthesia necessary could be maintained without cyanosis. He emphasized the fact that the responsibility of the entire operation, including the anesthesia, should belong to the operator, and personally he always regarded the anesthesia as part of his general work and took a delightful sense of responsibility in it.

Dr. JAMES said the remoter dangers of ether anesthesia, such as an ether pneumonia or nephritis, were often far more important than the immediate ones.

Dr. JOHN WINTERS BRANNAN said that some years ago, after the occurrence of one or two deaths under anesthesia, this general subject came up for discussion in connection with Bellevue and the allied hospitals, and as a result two anesthetists were appointed for Bellevue and one for each of the smaller hospitals. Those at Bellevue still held their position, but in the smaller hospitals the experiment was not a success and the men were allowed to go. It was the intention to have these anesthetists train the house staff in the proper methods of giving anesthesia, and give their personal services in important operations. In connection with each operation, a printed blank had to be filled out, giving the amount of the anesthetic used, the duration of the anesthesia, the condition of the patient's heart, lungs, and kid-

neys, and whether or not the attending surgeons or the assistant surgeon operated or was present. The rule was that either the attending or the assistant attending surgeon should be present at operations where a general anesthetic was necessary.

Dr. GIBNEY agreed with Dr. Brannan that either the attending or the assistant surgeon should be present at all serious operations.

Dr. MCCOSH said there was no such rule at the Presbyterian Hospital, but there was an understanding to the effect that at any major operation or anything approaching it either the surgeon or assistant should be present.

Dr. ABBE said that at St. Luke's Hospital that rule existed and was invariably carried out.

Dr. BRYANT, in closing, said that two of the chief factors that had induced him to present this paper were, first, that in his opinion too much attention was being given to the apparatus or paraphernalia connected with the giving of anesthetics, and second, not sufficient attention to the possible ill-effects of the anesthetic. The old-fashioned cone method of giving ether was very satisfactory, provided the man who administered had a proper knowledge of the method. It would be unwise, the speaker thought, to place this work entirely into the hands of experts, for by depriving the young men in our hospitals of a proper knowledge of the subject we would not be conferring the greatest good upon the greatest number. This instruction should be given by a properly qualified person, and should embrace not only the various methods of giving anesthetics, but also the physiological effects of the drugs that were used to produce anesthesia. In that connection the speaker called attention to an article by Dr. Horatio C. Wood, Jr., on the comparative danger of scopolamine-morphine anesthesia, which was published in *American Medicine* in December, 1906. In this article the author made the statement that the mortality by this method of anesthesia reached the astounding figure of one death in 221 anesthesias, and added that "it must be either a very bold or a very ignorant surgeon who will persist in its use." Of the older methods of anesthesia, Julliard collected 161 deaths in 524,507 cases of chloroform anesthesia, a rate of one in 3,258; from ether there were 21 deaths in 314,738, a rate of one in 14,987. According to Ormsby, chloroform gave 53 deaths in 152,260 administrations, a rate of one in 2,873; ether, four in 92,815 administrations, a rate of one in 23,204. The statistics collected by Gurlt in Germany from 1891 to 1897 gave a death rate from chloroform of one in 2,039 and from ether one in 5,000. The statistics from St. Bartholomew's Hospital from 1875 to 1890 were as follows: Chloroform, 13 deaths in 19,526 administrations, a rate of one in 1,502; ether, three in 8,491, a rate of one in 2,830; "gas and ether," one in 12,941, a rate of one in 12,941; ethyl chloride, one in 13,000 cases. Expert anesthetists, Dr. Bryant said, were not disposed to use morphine or other such remedies excepting for some specific purpose.

A Family Type of Combined Sclerosis Associated with Grave Anemia.—Dr. CHARLES L. DANA said he had recently had under his care a patient in whom it might be said that pernicious anemia and combined sclerosis was a family disease. The patient was an unmarried woman, fifty-eight years old, coming from old New England and Pennsylvania stock. She had lived a temperate and fairly healthy life, though subject rather easily to diarrheas, and having at times what Dr. Delafield terms "morning diarrhea." Very early in life she had a severe attack of dysentery, but had had no subsequent attack until eight years ago. She had other attacks seven, six, five, and four years ago, but none since. Besides the dysentery, within the past eight years she had had a distinct tendency to mild attacks of enterocolitis, and two years ago she was treated for a long time for this trouble, during which period she passed a great deal of undigested food and gas in her stools. Her physician detected an ulcer in the sigmoid flexure. She recovered from this, however, and had been fairly well for nearly a year. Within the past six months she had noticed a peculiar numbness of the feet, with weakness and unsteadiness in walking, and a similar condition in the hands. When Dr. Dana first saw her she had a decided pallor, with an almost yellowish tinge to the skin. She was rather thin, but not much more so than her ordinary habit. Subjectively, she felt fairly well, excepting for the weakness and uncomfortable numbness of the extremities. She had an ataxic gait, and the Brauch-Romberg symptom. There was also some ataxia of the hands, so that she could not sew or do fine work with them, but she was able to write and dress herself. There was some general weakness of the extremities, but no distinct paralysis. The knee jerks were present, but there was no ankle clonus and no Babinski. While she complained much of the paresthesia, she had no actual cutaneous anesthesia. Examination of the patient's blood showed 3,200,000 red cells, 8,800 white cells, and 66 per cent. of hemoglobin. She had a curious and persistent inflammatory condition of the gums, which kept her mouth rather sore. Cultures made of this region by Dr. F. M. Huntoon showed the ordinary microorganisms of the mouth, excepting that there were certain spirilla. An examination of the stools made by Dr. Christian A. Herter showed indications of excessive putrefaction, with an abundance of the *Bacillus aërogenes capsulatus*. There was an excess of hydrobilirubin and skatol, with absence of indol. A second examination of the blood, made three weeks later, showed a further decrease of the red cells to 2,780,000, with a similar condition of corpuscles, excepting that there were no megaloblasts. The hemaglobin was reduced to 58 per cent.

In this case, Dr. Dana said, the patient presented a very clear-cut type of grave anemia, with combined sclerosis. As to the family history, the patient stated that her mother had also suffered from "morning diarrhea," and had a tendency to weakness of the bowels. Her father died of apoplexy. One brother died at the age of fifty-two from a trouble similar to her own, namely, he had a great deal of diarrhea followed by sensory disturbances, anemia, and weakness of the extremities. One sister died in the same way, and one maternal grandmother had a similar trouble. The disease, apparently, ran through three generations. In the second generation it produced only a moderate disturbance. In the third generation, out of four children, three had been affected. The case might be classed as a family form of pernicious anemia, or a family form of combined sclerosis, or, more properly, it was a family form of enteric weakness which secondarily led first to an anemia and then to a spinal cord disorder. There were some authorities, however, who still asserted that the enteric trouble was not a primary one, but was secondary.

Painful Cyst of Testicle.—Dr. L. BOLTON BANGS reported this case and showed the specimen. The patient from whom it was obtained was a man of fifty-seven who complained of pain in the testis. Upon examination Dr. Bangs found a large varicocele and in addition a small tumor at the upper aspect of the testis, and to this the patient attributed all his pain. Upon operation it proved to be a small, elastic, translucent tumor springing from the tunica albuginea. He regarded it as an unusually situated spermatocele. The interesting features of the case were the unusual location of the tumor and the pain it had caused the patient.

Tea and Coffee.—Americans are drinking less tea and more coffee. The importations of coffee in 1896, less the quantity exported, aggregate 804,692,275 pounds, as compared with 843,625,918 pounds in 1906. There were 10,270,376 pounds less of tea imported in 1906 than in 1896.—

Books Received.

The Medical Record *is prepared to receive all new publications which may be sent to it, and an acknowledgment will promptly be made of their receipt under this heading, but it must be with the distinct understanding that it is under no obligation to notice or review any publication received by it which in the judgment of its editor will not be of interest to its readers.*

Gout. By Arthur P. Luff, M.D., B.Sc., F.R.C.P. 8vo, 200 pages, illustrated, muslin. William Wood & Company, New York.

Bilharziosis. By Frank Cole, M.D. (Melb.), F.R.C.S. (Eng.). Large 8vo, 78 pages, muslin. William Wood & Company, New York.

Immune Sera. By Charles Frederick Bolduan. 12mo, 154 pages, illustrated, muslin, $1.50. John Wiley & Sons, New York.

Elements of Physics. By Frederic James M. Page, Sc. (Lond.). 16mo, 288 pages, illustrated, muslin, $1.25 net. W. T. Keener Co., Chicago.

Psychiatrie Clinique. Par le Professeur Emil Kraepelin. Large 8vo, 436 pages, paper. Vigot Frères, editeurs, Paris.

L'Hypnotisme. Par le Dr. Paul Joire. 8vo, 456 pages, illustrated, paper. Vigot Frères, editeurs, Paris.

A Manual of Orthopedic Surgery. By Augustus Thorndike, M.D. With 191 illustrations. 12mo, 401 pages. Price, $2.50 net. P. Blakiston's Son & Co., Philadelphia.

Taschenbuch der Therapie. von Dr. Schnirer. 32mo, 387 pages, linen. A. Stuber's Verlag (C. Kabitsch), Wurzburg.

Squint and Ocular Paralysis. By E. Lucas Hughes, M.R.C.S. Eng., L.R.C.P. Lond. Small 8vo, 206 pages, muslin, illustrated. H. K. Lewis, London.

Pathology of Fermentation. By Alonzo Englebert Taylor. 4to, 255 pages, paper. The University Press, Berkeley, Cal.

Transactions of the American Surgical Association. Edited by Richard H. Harte, M.D. Large 8vo, 460 pages, illustrated, muslin. W. J. Dornan, Philadelphia.

Diseases of the Nervous System. Edited by Archibald Church, M.D. Large 8vo, 1205 pages, illustrated, muslin. D. Appleton and Company, New York.

L'Alimentation à bon Marché Saine et Rationnelle. By Jean Lahor et le Dr. Lucien Graux. 12mo, 284 pages, paper. Felix Algan, Paris.

The Prevention of Infectious Diseases. By John C. McVail, M.D. 8vo, 290 pages, muslin, illustrated, $2.75 net. Macmillan & Co., Ltd., London.

Surgical Applied Anatomy. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., F.R.C.S. 16mo, 640 pages, illustrated, muslin. Lea Brothers & Co., Philadelphia.

Immune Sera. By Dr. Chas. Frederick Bolduan. 12mo, 154 pages, muslin, $1.50 net. John Wiley & Sons, New York.

Textbook of Organic Chemistry for Medical Students. By G. v. Bunge. 8vo, 260 pages, illustrated, muslin, $2.00. Longmans, Green & Co., London.

On the Mechanism of the Physiological Action of the Cathartics. By John Bruce MacCullum. 8vo, 91 pages, paper. The University Press, Berkeley, Cal.

Hospital Training School Methods and the Head Nurse. By Charlotte A. Aikens. 8vo, 267 pages, muslin, $1.50 net. W. B. Saunders Company, Philadelphia.

Blood Stains, Their Deductions, and the Determination of Their Source. By Major W. D. Sutherland. 8vo, 167 pages, illustrated, muslin. William Wood & Company, New York.

A Textbook of Practical Gynecology. By T. Tod Gilliam, M.D. Large 8vo, 642 pages, illustrated, cloth, $4.50 net F. A. Davis Company, Philadelphia.

Mosquito Life. By Evelyn Groesbeeck Mitchell, A.B., M.S. 8vo, 281 pages, illustrated, muslin. G. P. Putnam's Sons, New York.

The Reduction of Cancer. By the Hon. Rollo Russell. 12mo, 62 pages, muslin, .50 net. Longmans, Green & Co., New York.

Metabolism and Practical Medicine. By Carl Von Noorden. 8vo, 1,320 pages, muslin, $6 net. W. T. Keener Co., Chicago.

The Operating Room and the Patient. By Russell S. Fowler, M.D. 8vo, 284 pages, illustrated, muslin, $2.00 net. W. B. Saunders Company, Philadelphia.

The Treatment of Fractures. By Charles Locke Scudder, M.D. Large 8vo, 635 pages, illustrated, muslin, $5.50 net. W. B. Saunders Company, Philadelphia.

Physician's Visiting List, 30 Patient. 16mo, leather, $1. P. Blakiston's Son & Co.

Medical Items.

Temperance in England.—According to recent statistics, since 1900 the consumption of beer per head in England has fallen from 32.29 gallons, the highest point reached in the history of the trade, to 27.81 gallons, or 14 per cent. This still leaves a consumption of rather less than four pints a day for the adult male population. During the same period the consumption of spirits declined from 1.18 gallons per head to .91, which is 23 per cent.

Health Report.—The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon-General, Public Health and Marine Hospital Service, for the week ending December 20, 1907:

SMALLPOX—UNITED STATES.

		CASES.	DEATHS.
California, Los Angeles	Nov. 24–30	5	..
San Francisco	Nov. 24–30	3	1
Stockton	Nov. 1–30	1	..
District of Columbia, Washington	Dec. 1–7	3	..
Illinois, Belleville	Nov. 24–Dec. 7	3	..
Springfield	Nov. 30–Dec. 5	16	..
Kansas, Kansas City	Dec. 1–7	2	..
Kentucky, Lexington	Nov. 24–30	1	..
Louisiana, New Orleans	Dec. 1–7	1	..
Maine, Penobscot County—			
Prentiss	To Dec. 11	1	..
Somerset County—			
Bingham	Dec. 11	7	..
Pleasant Ridge Plantation	Dec. 11	2	..
Michigan, Grand Rapids	Dec. 1–7	1	..
Saginaw	Dec. 1–7	3	..
Minnesota, Thirty-four Counties	Aug. 1–Nov. 25	219	..
Nebraska, Nebraska City	Dec. 1–7	1	..
New York, Kingston	Nov. 1–30	11	..
New York City	Dec. 1–7	2	..
North Carolina, Ten Counties	Oct. 1–31	22	..
Oregon, Eight Counties	Sept. 1–Oct. 31	83	..
Pennsylvania, Erie	Dec. 6–12	1	..
Virginia, Richmond	Dec. 1–7	3	..
Wisconsin, La Crosse	Dec. 1–7	2	..

SMALLPOX—FOREIGN.

Austria, Vienna	Nov. 10–23	2	..
Brazil, Para	Nov. 17–23	12	10
Canada, Halifax	Dec. 7	1	From Schooner *Fame*.
Ontario, Belleville	Nov. 10–Dec. 9	21	..
China, Shanghai	Oct. 28–Nov. 3	2	17
		Cases foreign, deaths native.	
Ecuador, Guayquil	Nov. 17–23	..	6
Egypt, Cairo	Nov. 12–18	1	..
France, Paris	Nov. 16–23	6	..
Italy, Catania	Nov. 22–28	1	..
Japan, Kobe	Nov. 3–16	17	..
Java, Batavia	Oct. 27–Nov. 2	4	..
Malta	Nov. 10–23	13	1
Mexico, Aguas Calientes	Dec. 11–17	..	4
Mexico	Nov. 3–9	..	4
Portugal, Lisbon	Nov. 17–23	2	..
Russia, Batoum	Nov. 7–13	7	..
Odessa	Nov. 17–23	3	..
Moscow	Nov. 10–16	6	..
Riga	Nov. 17–23	4	..
Warsaw	Oct. 6–12	..	13
Spain, Barcelona	Nov. 20–30	..	1
Malaga	Sept. 1–30	..	8
Valencia	Nov. 18–24	34	5
Vigo	Nov. 17–23	..	3
Turkey, Constantinople	Oct. 28–Nov. 3	..	1

CHOLERA.

China, Hongkong	Oct. 20–26	70	23
India, Bombay	Oct. 30–Nov. 12	..	6
Madras	Nov. 2–8	..	6
Rangoon	Oct. 27–Nov. 2	..	3
Japan, Kobe	Dec 3–17	21	6
Moji	Aug. 17–Oct. 9	514	321
Yokahama	New Cases	2	..
Shimonoseki	Nov. 12–18	2	3
Tokyo	Aug. 4–Oct. 9	85	56
	Oct. 3–9	3	1
	Nov. 10–16	..	..
		Present in vicinity.	
Manchuria, Dalny	Nov. 3–16	4	1
Russia, Tiflis	Nov. 18	Still present.	
Turkey in Asia, Constantinople	Nov. 24	2	1

YELLOW FEVER.

Brazil, Manao	Nov. 18–24	..	3
Cuba, Cienfuegos	Dec. 12	..	1

PLAGUE—UNITED STATES.

California, San Francisco	Dec. 5–17	3	3
		Bacteriologically verified.	

PLAGUE—FOREIGN.

China, Hongkong	Oct. 13–26	2	2
India, Bombay	Oct. 30–Nov. 12	..	48
Rangoon	Oct. 27–Nov. 2	..	12
Japan, Formosa	Nov. 4–10	..	1
Osaka	Oct. 27–Nov. 9	73	62
Peru, Lima	Nov. 7–13	3	1
Paita	Nov. 7–13	5	1
San Pedro	Nov. 7–13	2	2
Trujillo	Nov. 7–13	8	5

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